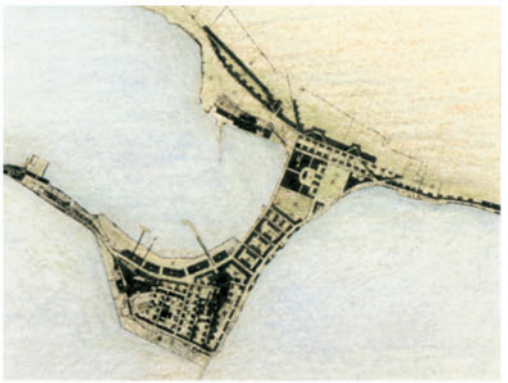
TRAUSTI VALSSON

PLANNING IN ICELAND

FROM THE SETTLEMENT TO PRESENT TIMES



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Planning in Iceland

From the Settlement to Present Times

For my grandsons
Brimar and Kristófer Bruno

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Reykjavík – Vaxtarbroddur. Thróun höfudborgar 1986
(Planning History of Reykjavík)
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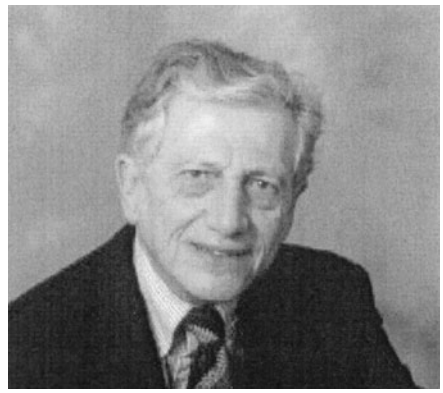
BOOK FIVE – *The Developments of Today*

Preface

Trausti Valsson has achieved an extraordinary feat of scholarship: he has written the comprehensive, definitive, encyclopaedic account of planning in one European country, from the beginnings to the present day. True, Iceland is a small country in terms of population, even though respectably large in area. But that area contains huge variations – in position, in terrain, in natural resources – and Icelandic economic and social development is as sharply differentiated in economic terms as that of other European countries. Because however the country is so distinctive in its relative geographical isolation, it has developed in quite special ways, though culturally part of the Scandinavian or Nordic group as its strong planning traditions reflect.



Sir Peter Hall is Professor of Planning at the Bartlett School of Architecture and Planning, University College London. He received his Master's and PhD degrees from the University of Cambridge and has thought at many universities, for example at the University of California at Berkeley (1980-92). He is author or editor of over thirty books on urban and regional planning and related topics and has received many awards and honours and is among the most respected persons in this field. He has been knighted for his contribution.

Until now, all too little was known of this rich history. That is now definitively remedied. Trausti Valsson not only tells the story in rich detail, from the earliest origins of planning to the present day; he also sets it firmly within a rich geographical and historical context, so that in important respects this is a definitive general history of the development of social policy in a very distinctive Northern European country, with a distinguished story of positive intervention in social matters. Little known outside its homeland, this story needed to be written, and it has found an exceptionally able chronicler.

Thorough in its research, comprehensive in its scope, always highly readable, Trausti Valsson's book sets a new standard in historical scholarship and provides a model for other scholars in other countries to follow.

Sir Peter Hall

Introduction

1 The Subject of this Book

The scope of this book, *Planning in Iceland – From the Settlement to Present Times,* is intentionally broad. In order to understand the perspective chosen, a description will be given of how the subject is approached and what purpose it is meant to serve.

The purpose is not to write the usual type of historical account, even if the outer form of the book follows an historical thread that is traced from the beginning of the settlement of Iceland in the late ninth and tenth centuries to the present. Rather, the main purpose of the book is to create an understanding of how settlement and planning have evolved in Iceland – and thereby to gain an understanding of settlement and planning that may provide a broader perspective than the development in Iceland. In order to achieve this goal it helps to look back in time and, since we possess a good description of the origin of Iceland, it seems to be a good idea to start the account at the very beginning with the first Norse settlements.

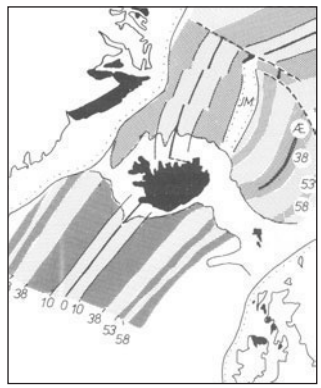
People all over the world are inspired by the clear account Icelanders have of the discovery of Iceland and the origin of its habitation as described, for example, in *The Book of Settlements.* Furthermore, people are impressed by how Iceland quite literally rose from the ocean – a geological fact because this island was formed by volcanic eruptions along the Mid-Atlantic Ridge.

During the 1960s this story of creation happened in miniature, south of the mainland of Iceland, as the island of Surtsey crested the ocean as the result of an eruption from the ocean floor. This island has since been monitored by scientists who have constantly documented how added life forms have settled there. The public is not yet allowed to set foot on this new and evolving ecosystem because, based on the magnificent laboratory of Surtsey, a picture is being drawn of how a land forms and develops without the interference of humans. The main elements at work on the island are erosion by wind and sea, followed by how fauna and flora are in the process of colonizing the land. These processes have evolved much faster than people had expected.

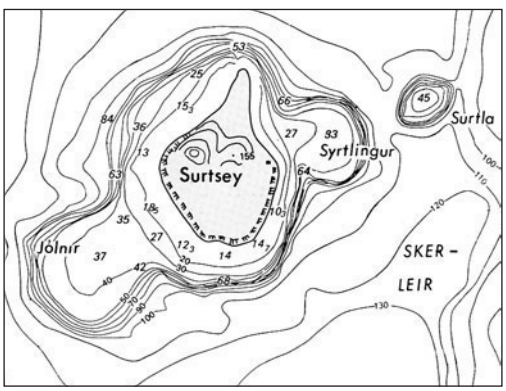
Modern ideas and planning theory include, in many cases, the belief that humans should be considered a part of an ecosystem. In cases where we have an initial discovery and settlement of an uninhabited country like Iceland, we can, for theoretical purposes, examine the first settlers´ search for the best conditions for their habitation within a natural environment as a parallel process of how various other life forms search for the best places for their habitation in a particular environment.

To put it briefly, humans, like other organisms, have to conduct a search process, a process that is in fact a *trial and error process:* people settle in a place, and after undergoing the experience of living there, they either move to another location or find means to solve problems that have emerged through the experiment and difficulties of living there.

The story of the settlers´ search for a place in Iceland is both fascinating and impressive. This is not least because the environmental factors are so distinct and dynamic in this country that if a mistake was made in the selection of a site,



The North American and Eurasian plates drift apart.



Iceland emerged, as did Surtsey, from volcanic eruptions in the Atlantic Ocean.

On the new Island of Surtsey an ecosystem is gradually evolving from natural conditions.

The separation of the plates allows the lava to surface.

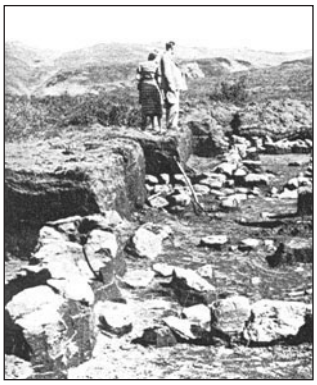
people often learned it the hard way. If, for example, a farmer settled too close to the slope of a volcano or to flood areas along the coast, nature was quick to teach him a lesson. The early Icelanders could only learn from their, often harsh, experiences and move to another place. This trial and error process of over 1000 years in Iceland gradually taught Icelanders how and where a location was safe and profitable, a lesson often paid for at a hefty price.

Not much was documented on how this cohabiting of man and nature evolved. This information was, however, salvaged in a different way as this knowledge was passed on from generation to generation. In modern times, humans, in many cases, have lost this early knowledge of how to live and work in this country. Consequently, this loss of knowledge and the frequent detachment from past experiences – even if modern humans have acquired a varied scientific knowledge of the land – has meant that people have often made great mistakes in the selection of sites for construction. Wrong decisions, such as settling in areas prone to avalanches, have resulted in terrible accidents. Much knowledge of the land has recently been gathered in various scientific fields on, for example, volcanism, weather patterns, avalanches and floods. Connecting and harnessing this scientific knowledge to help us better plan our settlements has, however, in many cases been lacking.

One purpose of this book is to create such a connection: a bridge between the scientific knowledge that has been amassed in the last 200 years and how to plan settlement. This type of methodology has of late made progress within the field of planning theory.

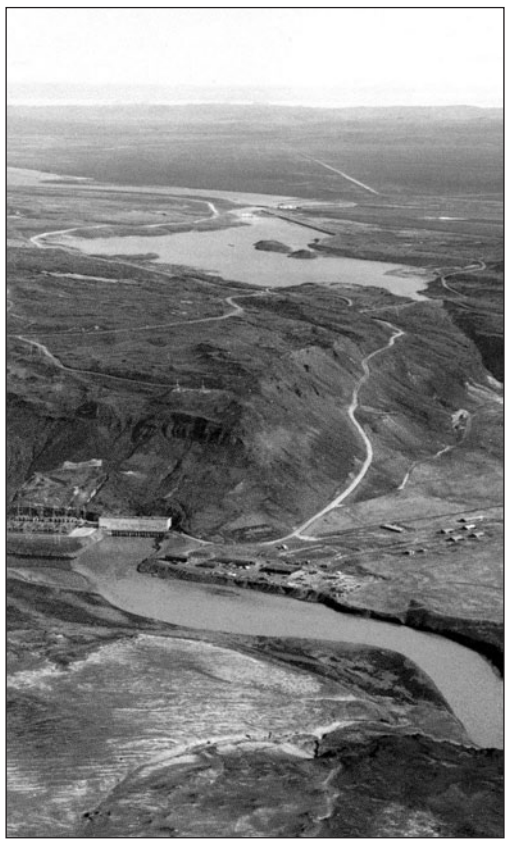
In the first two parts of the book we will trace how the cohabiting of man and land evolved in Iceland. The tracing of these patterns serves the purpose of being an introduction to how to become "literate" on what aspects of nature matter the most, as we work on the planning of settlements in this country. To state it clearly: It is one of the main goals of the book to tell the story of the cohabitation of man and nature in Iceland in order to get practical lessons from the experience as well as to understand more profoundly why the settlements in Iceland evolved the way they did.

As this story unfolds the reader will gain an ever-clearer picture of how much the settlement of Iceland has been formed by the various types of natural features and processes. This experience has more value than simply being a guide

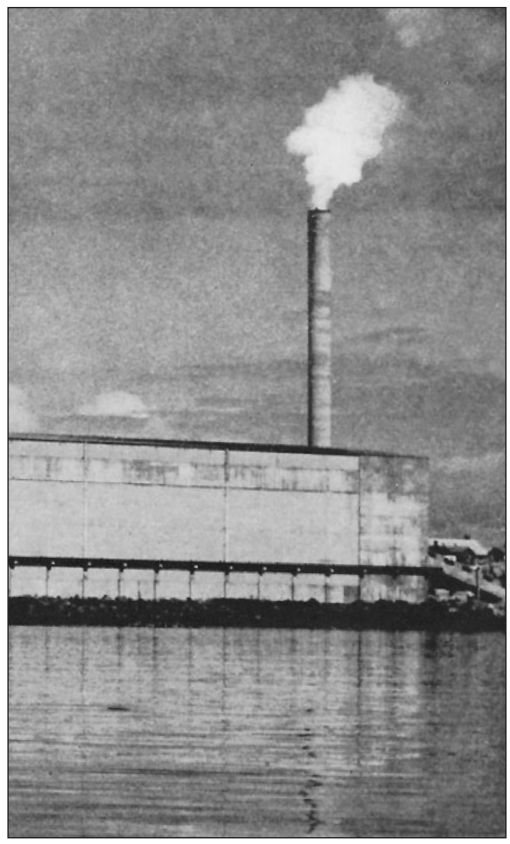


Stöng was buried under ash from Mt Hekla.

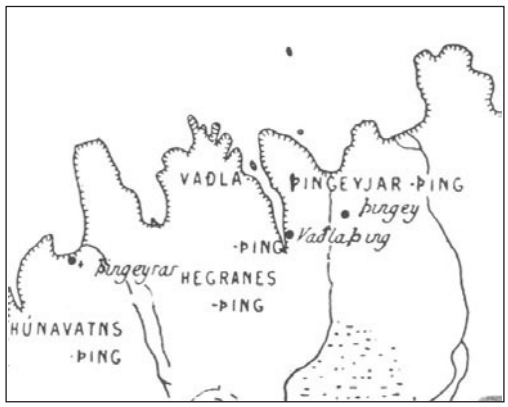
A saga farm was built based on excavations.



It was risky to build the Búrfell power plant so near to Mt Hekla.

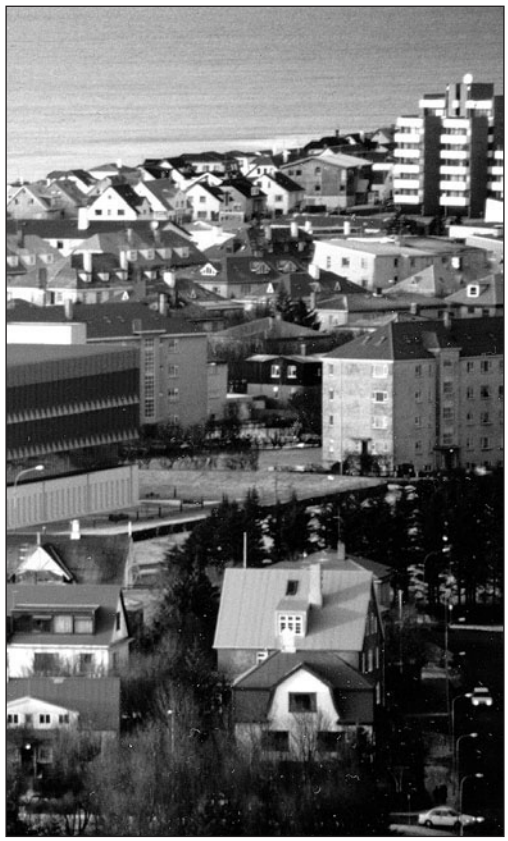


Environmental insensitivity led to the building of a cement factory in the middle of Akranes.



Unfortunately sites of local assemblies did not develop into urban centres.

Seasonal fishing camps led to permanent settlements on the coastline.



The Capital Area is the only place safe from settlement decline.

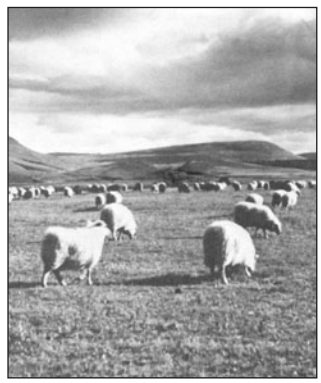
to how settlement in Iceland has evolved or on how past mistakes can be avoided. It should also be a valuable lesson for most other countries because we have gathered a great deal of evidence to show that the cohabiting of man and nature needs to be studied more closely to avoid waste and environmental problems.

It will help to understand how the evolving of this new knowledge about the nature-habitat relationship can be seen as a language. Here a condition in nature corresponds to a certain type of habitat just as a certain word in a language corresponds to a word in another language. In Iceland this language of relationships is easy to understand, not least because on this island we are able to observe the origins of the processes that are, or have been, at work in shaping the land. The Icelandic experience is especially impressive and clear because wrestling with the forces of nature has often been such a gigantic undertaking that it might even be called epic.

This knowledge has been created over time in a trial and error process and gradually became a valuable asset in the collective memory of the nation. With the advent of modernism, however, much of this knowledge has been lost. One of the purposes of this book is to revive this ancient knowledge and categorize it in order to make it applicable today. As we progress into the book, this knowledge will be schematised. The book will therefore function almost like a textbook on how to live in this country, or for that matter in many other countries.

At the start of the book the very first steps in the cohabitation of humankind and the land will be traced. As the reader proceeds, the first sprouts of urban structures start to appear. To begin with, these developments in urbanization were only in places where activities took place for a limited period of time each year, places such as parliamentary assemblies, fishing spots used in the winter and spring or trading centres used in the spring or autumn. Even if these are very weak sprouts, merely suggestive of the urban settlement structure that later developed in Iceland, it is a fact that such early beginnings can often influence future developments in a profound way.

The study of the history of settlement and the investigation of the basic reasons behind the creation of urban areas can teach us much about how the structure of settlement can come to be and what its basic nature is. In the history of Iceland certain historic patterns have been decisive as to how certain locations have



Settlement moved inland in search of suitable fields.

The fishing industry led settlement back to the coast.

The airport debate made the nation realize how planning affects people's interests. This picture shows how developing Reykjavík stopped at Hringbraut Avenue, further on is attractive land for settlement.

The organization 102 Reykjavík opposed the airport.

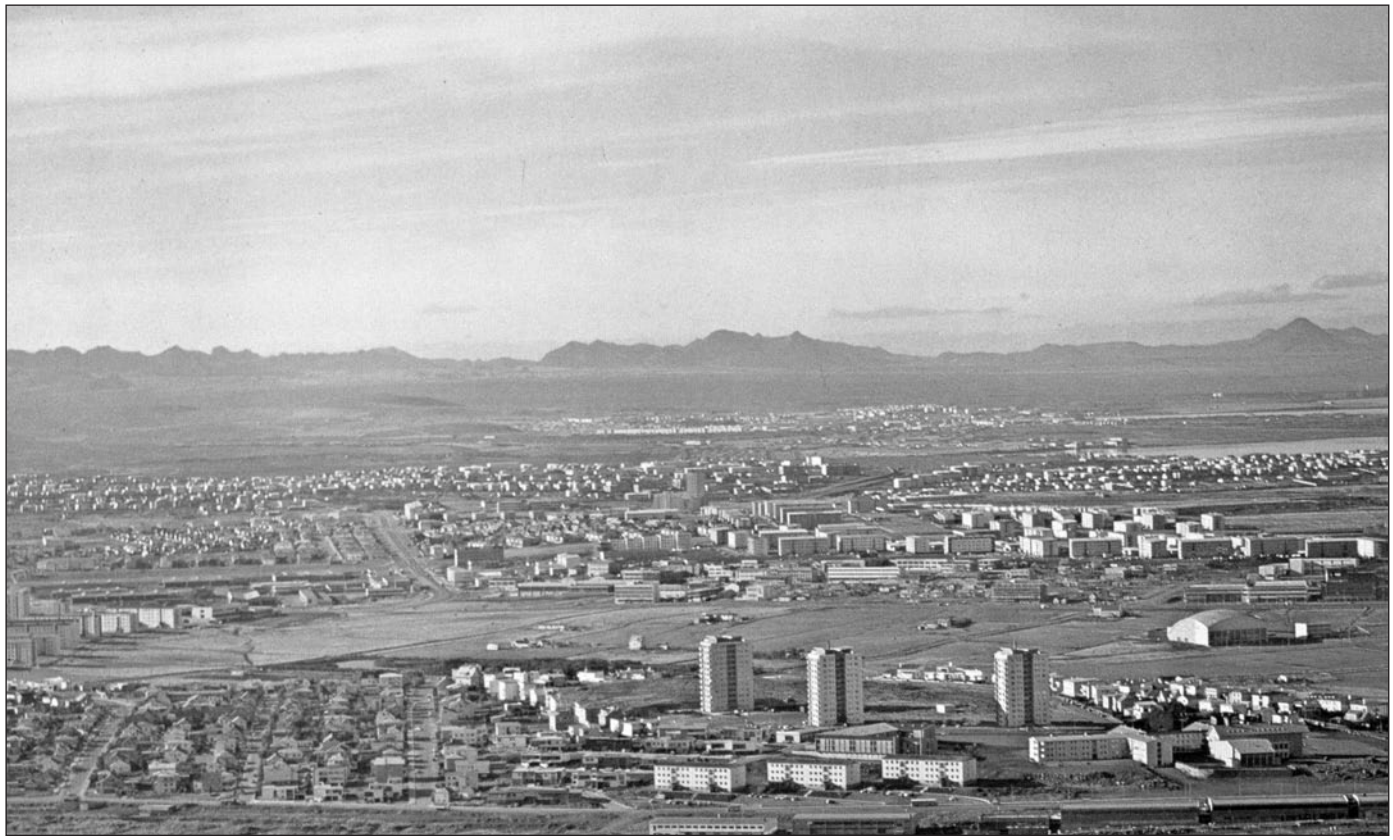
prospered or, vice versa, how certain locations have declined. Examples include how occupational changes have made locations prosper or decline. By studying these links between types of occupational activity and settlement structure, we can learn, for example, which elements of today's settlement structure are probably going to fall into decline and which structures or locations, on the other hand, probably have the future on their side. The location of a place is critical in determining how it prospers. A study of location, as well as the development of transportation systems, will therefore be covered in this book.

The knowledge base presented in this book should help us see more clearly how it is sensible, and in fact probable, which settlements in Iceland will develop in the future. It is very important that the leading forces in society – whether they are the politicians, local governments or employers – are able to evaluate, to some degree, how settlements are likely to develop in the future. Decisions that have to be made, for example concerning the planning and construction of transportation systems and work centres, and the development of services in a country should be based on a profound understanding of the land and its man-made structures. If we have a wrong picture in our heads about how and where settlements will or will not prosper, we are in danger of investing in places where the investment is not optimally used, or even not used at all.

Most often people talk about the task of drafting a picture of the future development of settlements and urban areas as the responsibility of planners. It is certainly true that a certain core of knowledge in planning matters can guide us on which approaches are to be taken in such development tasks, but on the other hand it is a common misunderstanding that the task of deciding what should be the future of certain settlement areas and urban structures should only be the responsibility of planners.

Contrary to this common opinion, features of numerous disciplines should be integrated in the task of creating and implementing a future vision. Some of the most important disciplines for this task are architecture, engineering, planning, landscape architecture, geography and ecology.

Besides realizing the importance of the multidisciplinary approach, we need to recognize the fact that questions on how to live in a country or in an area should be the task of the whole society in question. Questions about the future



At the end of the 20th century, the flaws inthe suburban plans were clear. There is virtually no urban life and its inhabitants are almost completely dependent on their privately owned cars to run errands.

should be a constant discussion topic, e.g., in schools and in the media. Planning discussion in Iceland has been lacking, but gradually areas within the field of planning have been opening up. Often these are confined to very narrow subjects such as arguments on the naming of streets or how to solve a traffic situation at a certain junction.

The discussion on the future of the domestic airport in Reykjavík, during the winter of 2000-2001 was a groundbreaker in planning discussion in Iceland. The discussion was so thorough, and engulfed the media to such a degree that almost the whole nation got involved in arguments about the country's domestic transportation systems. Discussions on the airport took about four months in the media and in meetings and actually, for the public, constituted a very important course in planning.

In Reykjavík people also started to think much more about how they would like to live in the future. For example, people started to discuss whether it was more sensible to continue to build more suburbs up on the heaths or if the centrally located areas of Reykjavík should be made better use of.

Here we have arrived at a certain core concern: It is of utmost importance that both the general public as well as various professionals are in possession of a basic knowledge about the task of creating settlements and towns. Only in this way can these actors take their part in the creation of the future.

It is one of the tasks of this book to provide this basic knowledge, and it is therefore almost intended to be a textbook for the general public. At the same time, however, it goes into considerable depth on the subject of planning, so if people read the book with care and attention, they will be able to gather important basic knowledge of the fascinating task of planning settlements and urban areas.

A strong emphasis has been placed on presenting the material of the book in as straightforward a way as possible, though, of necessity, a theoretical discussion has been included at some points, along with some basic theoretical concepts that will have to be explained. Examples are given on how planning ideas are created, both in Iceland and in other countries. Furthermore, the subject of each discussion is put into a wider context so that people can more readily see how a multitude of ideas influence the shaping of the built environment.

Central governance
Dispersed governance
Urban sprawl
Densifying settlements
Peripheral location
Formalistic planning
Organic planning
Zoning of functions
Mixing of functions

A few common terms in planning theory.

One of the most important goals in planning is to get the public and politicians to participate in planning matters. This is especially hard in a society where there is a common misunderstanding, and even prejudice, on what the nature on planning is. This book attempts to correct this misunderstanding.

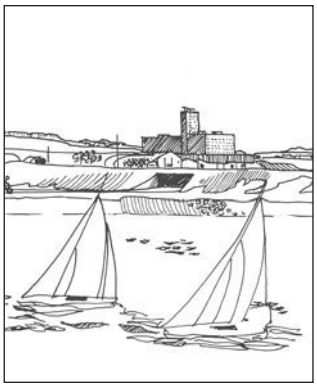
The most common misunderstanding is that to plan means that an attempt is being made to fixate everything and to make arrangements standardized and inflexible. This, however, is simply bad planning. Good planning opens opportunities, creates possibilities and makes it possible to keep things open and flexible. Good planning works against the ruler and softens the appearance of the settlements.

Another common misunderstanding is that if a decision is taken to approach things in a planned manner, it must automatically mean that power is taken from the people – that planning means that there is some supreme authority that is meant to rule, i.e., to usurp the power of decision making. It is true that this has often been the case with a planned approach, but the modern understanding is that planners should not be masters but servants, that planners should listen carefully to what people are saying and strive to meet the wishes and longings and needs of their community. In this, planners should take instruction from the people on how they would like to see their environment shaped.

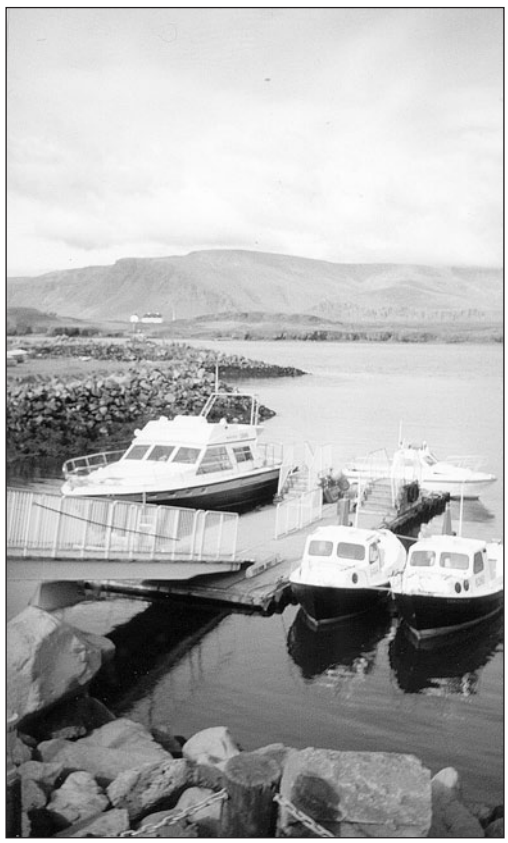
The bad image of planning is probably derived from the miserable experiences of Eastern Europe under Communism, where centralized and restrictive planning thrived and has therefore made many people prejudiced and unable to connect planning with freedom of choice. Actually, the reverse is true, because often full freedom results in lost opportunities, and it often destroys possibilities and squanders resources. Well planned actions, in contradistinction, can often certify freedom and create an environment that maintains flexibility. And it certainly puts a stop to the lack of foresight that results from uncontrolled freedom.

The third misunderstanding often connected with planning is that planning automatically means an end to dynamic changes, i.e., that in the process of planning, regulations and restrictions are produced that obstruct future developments. This has certainly sometimes been the case, but such examples are actually evidence of the wrong and old-fashioned use of a good tool.

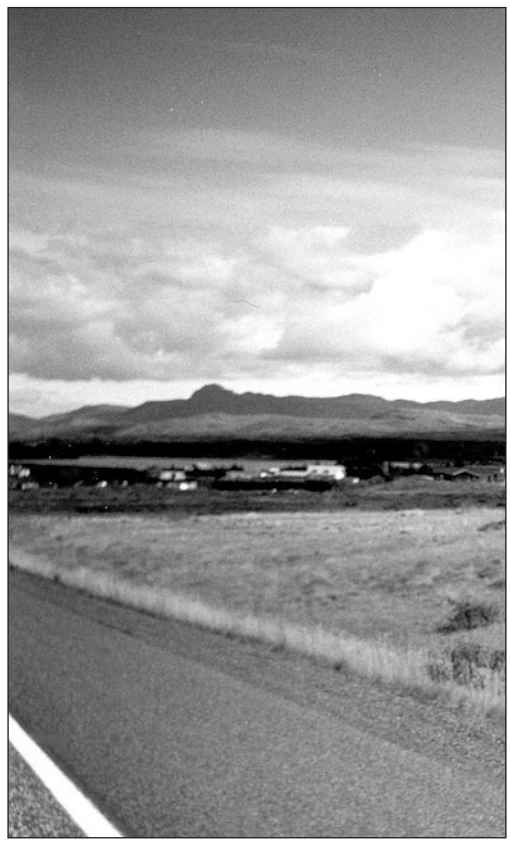
Modern understanding of planning is that this is a method to produce workable solutions, to



The Green Revolution '74 raised environmental awareness.



The plan named Videy an outdoor recreational area though it belonged to another borough.



Building the Bláfjöll skiing area was part of an attempt to utilize the area around the city.

help simplify regulations and make them more flexible, and to prepare the way for meaningful future use of the built environment. Planning works to help humans to discover possibilities – not to limit choices.

An example of good planning at work in Reykjavík was the *Programme for Environment and Outdoor Life* of 1974, commonly called the *Green Revolution*. This program proposed a community picture commensurate with various future tendencies recognized at that time, like the need to improve opportunities for outdoor life and to aim for improvement of the urban environment, thus making living in Reykjavík more environmentally friendly and enjoyable.

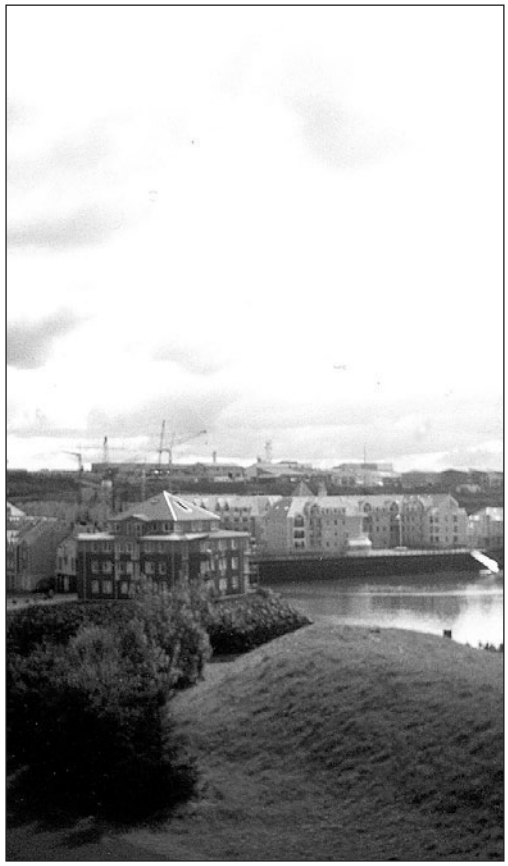
One of the proposals put forth in this report was to make the island of Videy, which is in the fjord north of Reykjavík and only a ten-minute boat ride from the city, an attractive area of outdoor life by renovating the ancient buildings there and building a boating harbour in the Sound.

A third proposal was to create a skiing area in the Bláfjöll Mountains just outside of Reykjavík. These, and many other projects initiated by this programme have been of central importance in creating enjoyment for the citizens of Reykjavík. If not for the thought, work and planning that resulted in the Green Revolution, decades could have passed until the citizens of Reykjavík would have discovered the unique opportunities that lie within the beautiful sites connected with their city.

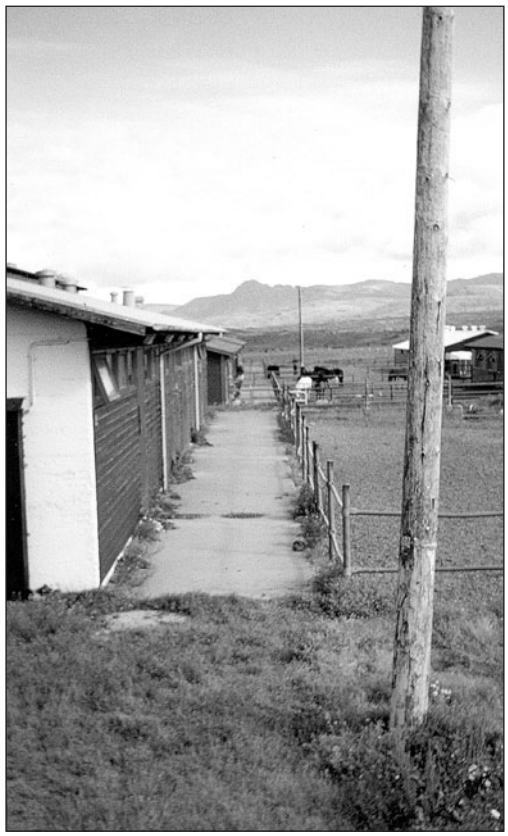
Today new developments and new wishes are emerging. The code name to signify these trends is the *longing for a lifestyle*. This has a foundation in the need that people have to form a lifestyle of their own, often centring on some type of outdoor life.

The capital and its neighbouring areas offer tremendous opportunities for this type of planning. Boating harbours, for instance, can be built with residential areas around them. We can also build neighbourhoods with bridal paths for riding horseback, and we can offer cultivated areas connected to settlement areas if we place such new development features at the edge of town. The planning of such lifestyle neighbourhoods has already begun, but we are only just starting to recognize the possibilities.

A part of the fascinating nature-connected opportunities that offer themselves in Iceland are how close these areas are to town, and how inexpensive they are. In cities like London, New York or Tokyo, such areas are most often far away and expensive.



Only recently has the ocean been utilized for building neighbourhoods around marinas.



In suburban areas there has been an increase in equestrian sports.

Summerhouses allow city dwellers to enjoy nature.

2 Theory of the Built Environment

This section, like other sections of the introduction, tries to shed some light on the phenomenon "to plan" and the theory associated with it. An attempt is made to show that the common feeling that planning is too esoteric and too formal for most of us to comprehend or discuss actually has no basis in fact.

Although many fear the term "theory" itself, the basic meaning of this word simply means the gathering of knowledge and experiences in order to be better able to tackle the things humans occupy themselves with in daily life and work.

Most theoretical disciplines have an ancient foundation, and most of them have branched into many subcategories as knowledge has expanded and the tasks at hand have become more varied. Some other theoretical disciplines, however, are surprisingly recent.

One of the oldest of human concerns is the effect of the forces of nature and the question as to how shelter and housing can best be constructed. It is also a very ancient task of humankind to try to find the way best to plan activities, whether hunting, agriculture, transportation or selecting a site for habitation.

Formalized knowledge on how to plan for activities and settlements is recent, even though the first agricultural societies and the first large cities made use of planning tens of thousands of years ago.

The first large cities were built long before Christ but the old rules that guided their layout are not of much use today. As we come to the Greek and the Roman cities, we are coming so much closer to the nature of the modern city that we can learn from how they are planned. The first theoretical paper on the planning of cities was written by Vitruvius in the heyday of the Roman Empire.

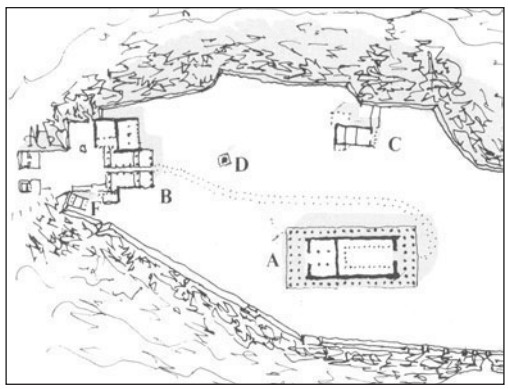
Originally, towns were very much linked to religious worship and took their form from that function. Then towns became the seats of secular chieftains, often having the form of a fortress. The Greeks developed and introduced democracy as a societal form. This democratic structure meant that cities were then shaped in a different way, moving towards the structure of the modern city.

The best lessons learned from the cities of antiquity are in the field of aesthetics – primarily in architecture and sculpture. Many ancient cities became aesthetical models in latter times. Athens became a model for schools of planning in the twentieth century, partly because of its somewhat organic arrangement of buildings, whereas Rome, following a more rigid geometry, became a model, for example, in the eighteenth century.

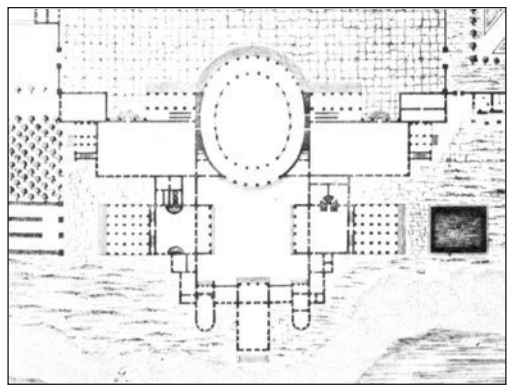
The modern city, on the other hand, can be said to have emerged with the industrial revolution, as *Sir Peter Hall* describes it in his book *Cities in Civilization.* At that time, most cities became a place to carry out a multitude of trades and disciplines.

The structure of government also became much more complicated and thus started to have much more influence on the function and layout of cities. Until the industrial revolution most people in northern Europe lived in rural

Treehouses are less influenced by flooding.



The Greeks were inclined to random planning. –From The Acropolis.



The Romans had more structured plans. – A villa in Lauritia.

The first industrial cities were built near soot-emitting factories. Landowners tried to place as many people as possible in small places, so gardens were scarce.

areas or in small towns and villages. The industrial revolution started a process of creating large cities, and the common man, workers and tradesmen, flocked to them for the jobs that were now being offered there. This revolution started first in England in the 1800's, and after that engulfed one European nation after the other.

A common feature of the first industrial cities – modern cities – was that a large number of problems surfaced: smog from the unclean industrial factories that often polluted the residential areas, and social unrest was common because of social injustice.

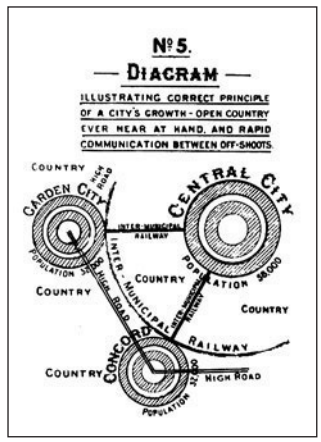
At the time, hardly any regulations had been put through to ensure human rights for the workers. The owners of the factories and the elite took advantage of this and worked labourers to the bone.

The ruling class had no aspirations for or interest in the comfort or safety of the workers so that health and social problems were rampant. From this it followed that writers and politicians came onto the scene, wanting to help these people and even developed ideas that the workers themselves needed to gain political power in order to bring about decent working and living conditions for themselves.

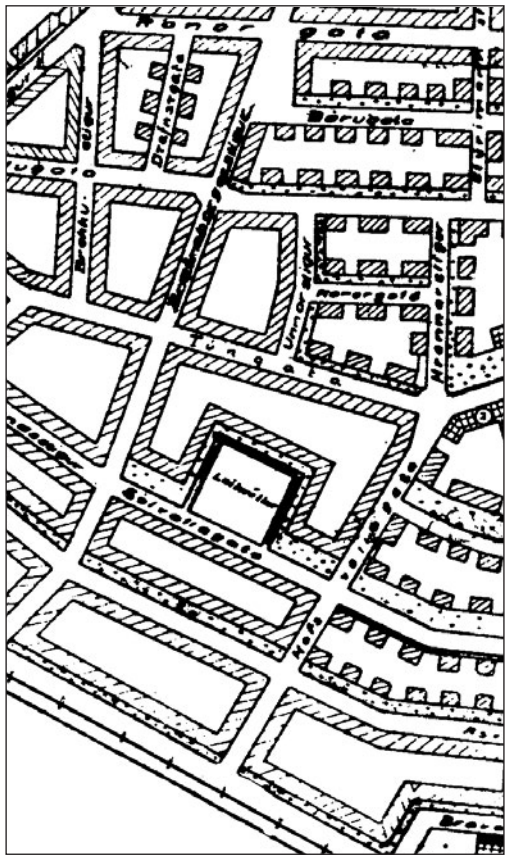
In the areas of public health, doctors were best equipped to recognize how large the problem was. Some of them saw many opportunities to better the health situation, not least with measures in the field of planning. Because of the huge problems of the towns, many reform theories were created proposing steps to alleviate some of the problems. Best known of these theories is the concept of *The Garden City* in which the main emphasis was put on *zoning,* i.e., the separation of occupational areas and residential areas. The theory also stressed the need for open spaces and greenery in residential areas as a central measure in assuring the health of the habitants.

Iceland also had its messenger of these theories – *Gudmundur Hannesson,* who was a professor of medicine at the University of Iceland. In 1916 Hannesson published a book on the subject called *Skipulag baeja* (On the Planning of Towns).

Hannesson also had an important hand in writing the draft for the first planning law that was passed by the Althing (the Icelandic parliament) in 1921. Following the implementation of the law the *State Planning Com-*



Garden cities far from industry became popular.



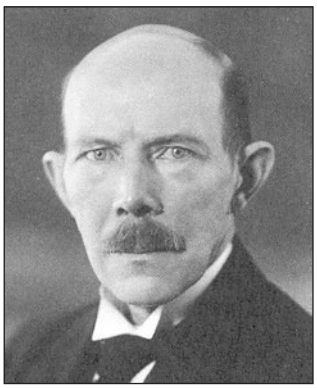
Part of the Reykjavík main plan of 1927 shows front gardens on the sunny side of the street.

mission was established. Besides Hannesson, the members were the Director of Roads and the State Architect. The commission was assigned the task of helping create plans for all the main towns in the country. Their first plan was the 1927 master plan for Reykjavík.

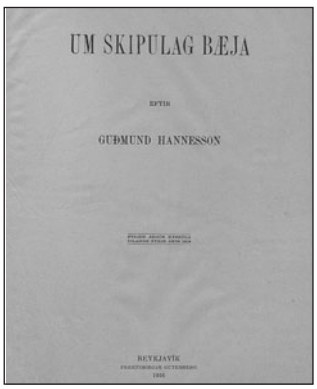
Even though the built environment has an enormous influence on activities and livelihood in Iceland, as in other countries today, research into areas connected to planning is just in its starting phases.

Publications in Icelandic include the study of *Páll Líndal* of the town planning development until 1938, and a series of articles by *Haraldur Sigurdsson* in the *AVS Magazine* on early developments in the planning of towns in Iceland.

The Architectural Division of the Reykjavík Art Museum and its director, *Pétur H. Ármannsson,* have done fine research work on some neighbourhoods in Reykjavík. This research has been presented in various ways, e.g., through exhibitions and with the publishing of booklets.



Gudmundur Hannesson was a pioneer of planning.



The first book on planning published in1916.

The cover page of a booklet showing ideas and development of the neighbourhoods around Sund and Hálogaland. Evaluating previous experience is an important tool for making improvements.

3 Basic Elements of Planning Theory

This section describes some basic elements of planning theory, starting with the *levels of planning*. The division of the planning process into levels begins with a general overview and proceeds from there to the lower levels of planning and execution. In this way activities on the lower levels are in accordance with what has been decided at the upper levels.

In many countries there exists a *country plan* that is meant to give a general overview. In some cases it only presents aspects of a country's physical plan, such as transport systems, systems of settlements and land use conceptions.

Lately, a new planning level above the country plan of individual countries has been evolving, for example the planning activities of the European Union. This type of planning is called a *continental plan*. In these plans the large transportation infrastructures usually come first.

The agreements reached on world development, e.g., at the two United Nations' conferences held in Stockholm in 1972 and in Rio in 1992, were actually the first steps to some kind of a *global plan* – at least as concerns the environmental field.

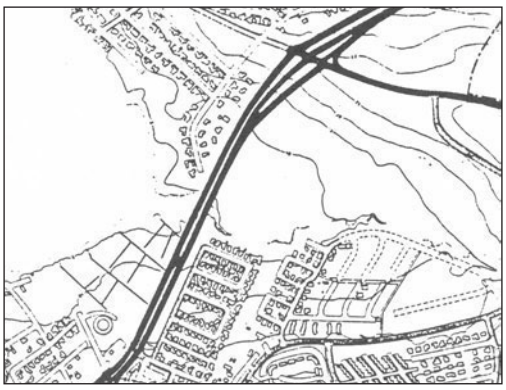
As of yet, there exists no country plan in Iceland except for individual technical sector plans, for example for roads, electricity, telephone systems, harbours and airports.

The next lower level is the *regional plan*. This type of plan embraces the main physical aspects in a certain area. Regional plans are primarily made for areas that have many things in common, like the Capital Area of Reykjavík, the Eyjafjördur Area and the Central Highlands. A regional plan has, among other things, the objective of forming a union of the communities involved and of reaching an agreement on the main lines for future developments.

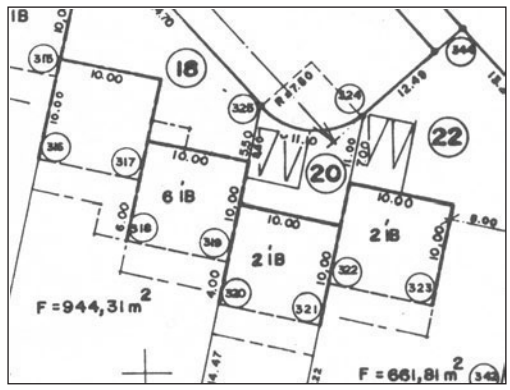
Below the regional plan comes the main planning level in Iceland: the *master plan,* which is the governmental plan of individual communities, rural or urban. The master plan of today has become the main tool of local governments to shape and guide the future developments of the community in question. The master plan decides all the main aspects that concern the use of land and transportation and it also decides the location of service and shopping centres as well as new residential areas in the community.

The next lower planning level, the *detail* or *local plan,* presents the working out, in further detail, of the planning of areas and neighbourhoods within a community. In this plan, individual patches and building lots are shown, as well as recreational areas and the elaboration of some other aspects of the plan in some detail.

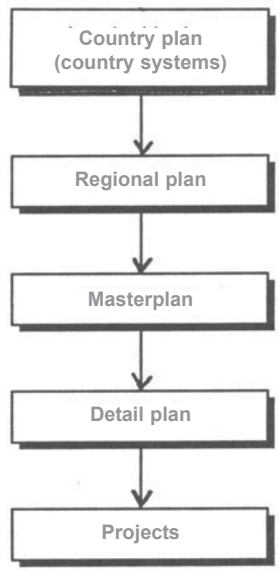
A person who intends to have a house designed, or wants to embark on a building venture, has to follow the guidance of these planning stages. He has to be guided by the decisions presented in the plans. Even though the plans may limit his options in some ways, at the same time it ensures that the environment around him is formed according to certain rules. This means, for example, that the house next to his is not built higher than agreed in the plan, which may, for instance, assure him privacy, access to a view and ample available parking space. To put it briefly, the purpose of a plan is not least to guarantee the rights of people as they are investing in an area or venturing on a



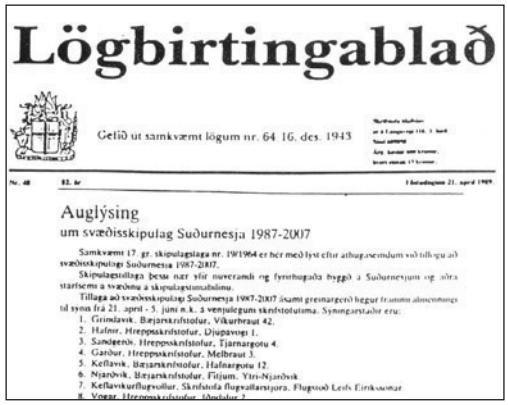
A master plan shows, e.g., primary and secondary roads. From the Gardabaer plan.



Buildings are based on maps with demarcations of lots. – From Hvaleyri, Hafnarfjördur.



Stages of development in planning.


Lögbirtingablað

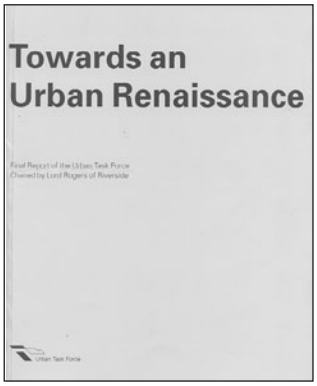
Gefið út samkvæmt lögum nr. 64 16. des. 1943

Auglýsing
um svæðisskipulag Suðurnesja 1987-2007

Plans are bound by legal contracts and need promoting as such.

Sectoral plans cover most aspects of the nation and the country.

The Planning Agency issues planning guides.



A British policy on reforming urban areas.

Manchester is a city that has successfully renewed itself.

construction of some sort.

Theory has been created that applies to all these levels of planning and for all other aspects of planning, like the planning of road systems, distribution systems, social systems, and commercial systems. Within the field of technical systems, engineers are the specialists, but social scientists are the experts when it comes to social concerns. All of these aspects come together in the master plan.

When the master plan has been conceived of and issued, it becomes the foundation for the execution of programmes for the community or town in question. Master plans also mean binding obligations on the state level because the state government also takes part in developing certain infrastructures in local communities.

Besides these fundamental aspects of a master plan, in recent times other branches have been added to the master plan, in particular within the environmental and recreational fields. Specific programmes are now made for these fields, and much attention is given to the planning and designing of areas meant for recreational purposes.

Specialized plans or *sector plans* are often made for cultural districts, areas for tourism, harbour areas and airport areas. As can be seen from this description, the master plan actually serves, to a considerable degree, as an umbrella for the specialized plans of the various fields.

A recent development is that planning acti has started to move more away from the designing and planning of new neighbourhoods and areas, which was the main task of planners in Iceland for the most part of the twentieth century. Planning has now moved to deal more with the *re-development* and *renewal* of towns and cities.

This development started much earlier in the older countries of the world, such as Britain, where the Industrial Revolution in the nineteenth century led to a rapid increase in larger urban masses. Therefore for some time, planners in Britain have mostly been dealing with the re-development of the cities of the industrial age, which in many respects have become obsolete, changing them into modern cities or towns. It is quite understandable that Britain, as one of the oldest of industrial nations, has taken the leadership in the theory on re-development of urban areas, and the British report issued by a British government Task Force, *Towards an Urban Renaissance,* has become a model for work in this field in many other countries.

4 Interplay of Planning and Natural Features

The interplay of living, industries, occupations and settlements with the forces of nature is more prevalent in Iceland than in most other countries. Because of this, planning projects in Iceland are more focused on studying nature as preparation for planning than is habitual in most other countries.

Adjusting human living and habitation to the natural environment is actually a universal trend within the field of planning. This trend has come to be, among other things, because the world community has been discovering how much need there is to aim for sustainability in the building-up of societies. The idea of *sustainable development* is characterized in part by the aim of not putting more stress on the environment than it can take, be it water, air or vegetation. Even the social and economic environments are planned with this idea in mind.

Unfortunately the necessary planning work needed to remedy or avert some of the environmental problems of today have in some ways a bad image associated with them because of the inescapable need to regulate things. Therefore the public relations aspect of the projects most commonly worked on by planners has increased. Planners therefore often get the task of explaining how some problems require that certain limitations are put on, for example, occupational activities in order to minimize damage.

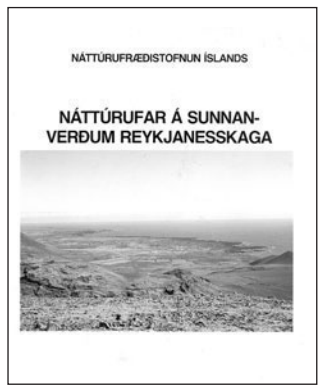
In some cases measures need to be taken to avert greater mishaps and to assure environmental quality. The public has to be made to understand that, even though this regrettably leads to limitations on certain types of activities, the general purpose actually is most often very positive.

This need to proceed in a planned manner with all the larger projects of the society in question is now widely recognized, for example, in an EU directive which demands that most large scale projects need to be submitted to an *Environmental Impact Assessment (EIA)*. This process is meant to assure that the project in question does not go too far in terms of altering or putting stress on the environment.

It should be kept in mind that this EIA evaluation process is also meant to be a guide on how to plan and design from the very beginning of conception, and recently another EU directive has been issued which deals with *Strategic Environmental Assessment (SEA)*. This procedure will be used to make an assessment of what impact laws and regulations will have on the environment.

The idea of making it a central issue in all planning and development that planning should be carried out in a responsible way in terms of the natural environment is the fundamental thesis of this book. As already outlined, the description of Icelandic natural features will be prominent in this book in order to make the reader more capable of realizing how an interplay of planning and natural features can best be instrumented.

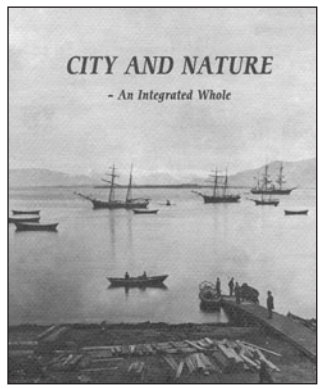
The story of the interplay of the human habitat with nature is a very dramatic aspect of Icelandic history and therefore much can be learned from it. The material presented is therefore good as study material on the new ideology of the sustainable adjustment of



Taking nature into account is essential in planning.

The old Icelandic farm often blended in with the landscape and was a self-sufficient unit.

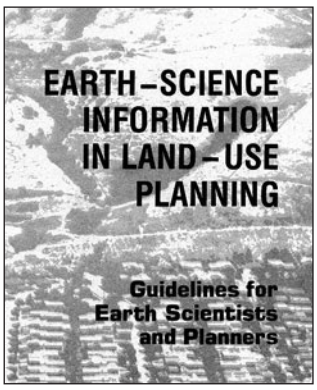
The close relationship between coastal towns and the sea gives them rare undisputed beauty.



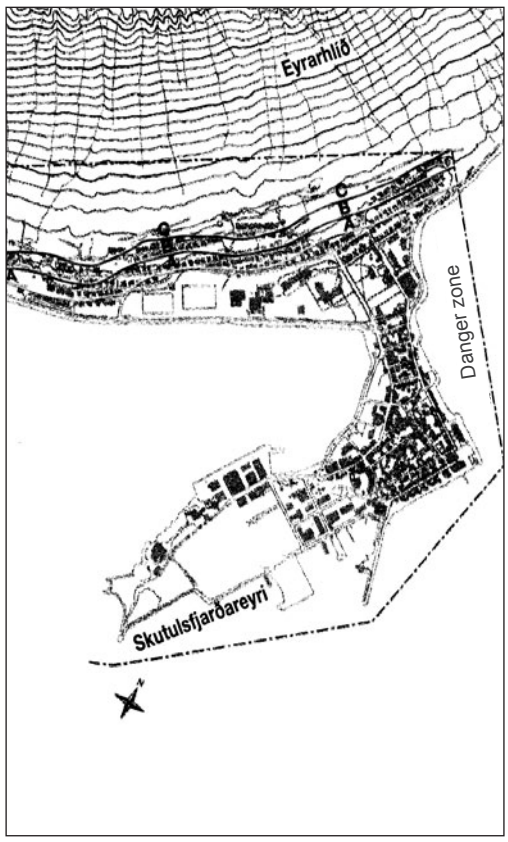
A guide to connecting cities with nature.

Norwegians began early to plan in accordance with nature, for example in the fjords.

The environment in the Úlfarsfell area was assessed.



A report on planning in accordance with nature.



To begin by assessing avalanches is an obvioues step yet often overlooked in planning.

settlements to natural features.

To make the reader more able to understand this aspect of the story of the cohabiting of people and nature, Book One, following this Introduction, will introduce the various aspects of nature and describe how much the forces of nature have shaped the history of settlement in Iceland. Nature, first, is a shaping force in the sense that it has created the land itself, and secondly, the dynamic natural forces are continually shaping and changing that land. In the first ages of the habitation of Iceland, as people still almost wholly lived on what nature and the country provided, the natural features were by far the most important factors in how the settlement structures developed.

Norwegians were among the first to take account of natural features in modern planning. The reason for this is the difficult geography of the country. In some cases the Norwegians even have to plan settlements in steep fjord terrains where there is danger of avalanches and landslides. Moreover, important features to map in Norway are areas where sunlight can be enjoyed in this northern fjord landscape in the winter. In the United States, California has been at the forefront in this development because in California various types of natural hazards such as earthquakes, sea erosion, and landslides are common.

Within the universities, the departments of landscape architecture have been in the forefront of developing the methodology of how to adjust settlements to natural features. There is a simple reason for this, as in landscape architecture departments the students get basic training in analysing natural features, and also because the teachers are often specialists in disciplines needed in environmental planning, e.g., in hydrology, stability of slopes, and soil types.

An evaluation of natural features – as preparation for planning – has occasionally been carried out in Iceland. However, which natural features are the most important for the plan in question varies a great deal and differs, for example, according to the scale of the project as well as what types of settlements are to be planned and the conditions of the planning site. Such preparatory studies are greatly concerned with earthquakes, most importantly in south Iceland, whereas mapping of avalanche and landslide areas are the most important features in the West Fjords, the East Fjords and Tröllaskagi. This book tells about various planning projects of this type and will produce maps that have been drawn up to analyse the different types of natural features.

5 The Importance of Man-Made Environments

In ancient times, when humankind lived in nature and as part of it, harmony with natural conditions was of greatest importance. This was also the case with habitation for the first thousand years of settlement in Iceland, up to the mid-nineteenth century – and the nat-ural fea--tures actually formed the settlement structure.

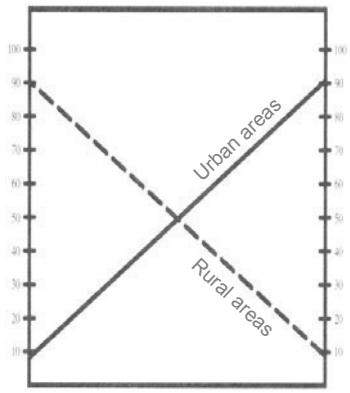
In spite of this, several man-made social structures entered into the forming of this system, e.g., the system of priest-chieftains and assemblies, and later the system of commerce and fishing harbours. Most aspects concerning the shaping of settlements as well as where and how it was easiest to travel, on land or at sea, originated directly from naturally given conditions. Finally the shortest distance, on the average, to a place that needed a central location was of importance.

Even though the first settlement structures did not require much building or constructing, they are classified as a man-made environment. Later, man-made technical systems were developed, e.g., irrigation systems, fences for livestock, roads, and finally the first year-round villages started to emerge. These first developments towards man-made infrastructures were limited in scope and only existed in limited spaces in the country. Later the man-made systems started to extend to regions and later still, with the advent of the twentieth century, these systems started to cover the whole country.

Cities and towns had already started to emerge in Europe 2500 years ago. The cradle of modern *urbanization* in the Western part of Europe was in Greece. The Greeks were a great commercial, military and navigation-oriented nation. Therefore they were exposed to cultural influences from far away, from the Orient, Egypt and northern Africa. The city-states of the Greeks were the principal crucibles of modern times, and there many modern academic disciplines, like law, sociology, philosophy and the arts, had their origin. Later the Roman Empire took over and became the power structure of the Mediterranean, extending into continental Europe and as far as the British Isles. The man-made structures of the Romans often reached over wide distances, their roads, aqueducts and protecting walls being the first large infrastructures in Europe.

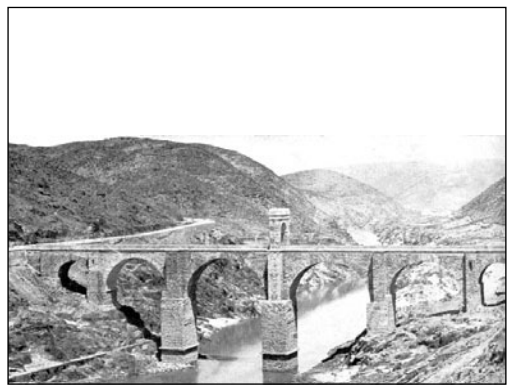
As these large man-made structures had begun to be built for the first time in history a considerable need for large-scale planning emerged. The need for planning became ever greater as an ever bigger percentage of the population moved into cities and towns. What followed was a huge increase in the expansion and importance of the built environment.

As urbanization occurred, to a considerable extent, in northern Europe with the advent of the industrial revolution in the nineteenth century, only about 10% of the population lived in cities, towns and villages, but 90% in rural areas. The duration of the urbanization process, i.e., the migrating of people from the countryside into urban areas was different in different countries, but in most countries it ended by reaching about 90% of the population. Thus usually only about 10% remained in the countryside to produce the food needed. Today some of the food processing plants in Iceland are still located in the rural areas, and fish

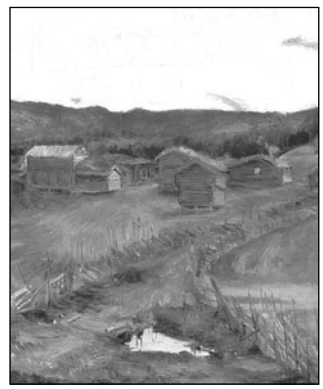


Urban areas have grown, while rural areas have declined.

In Athens men assembled to develop many of today's modern science subjects.

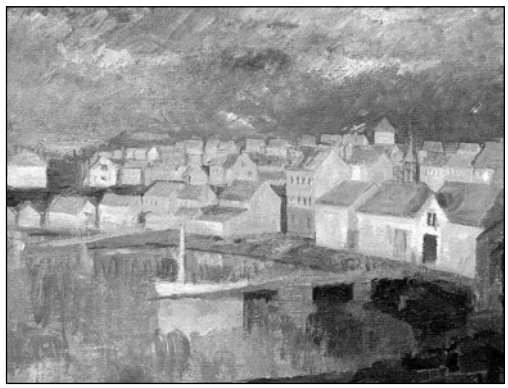


Romans designed many technical systems. Water was led through aqueducts.

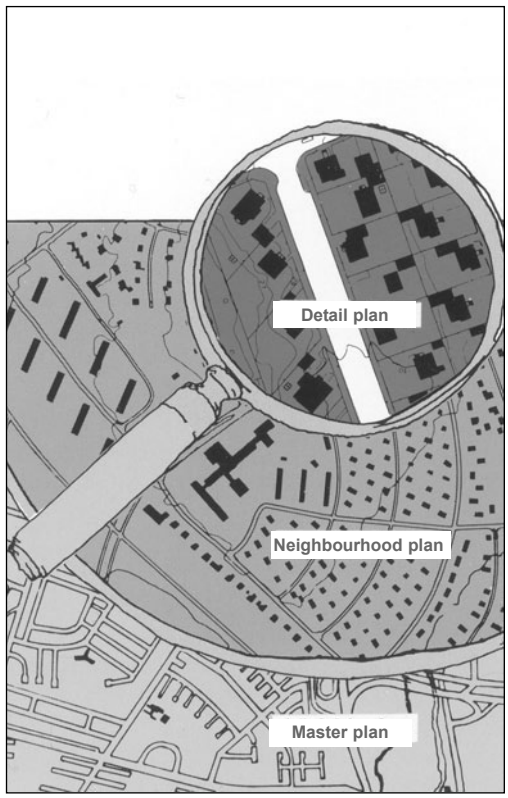


Urbanization came last to northern Europe.

There is tremendous interest in the natural environment in Iceland.



Even artists usually show little interest in urban areas. Both paintings are by Ásgrímur Jónsson.



Three main planning stages are shown in the picture. With each stage precision increases.

The Urban Studies Centre was established in 2001.

processing plants are also mostly located in the countryside.

The urbanization process in Iceland took about 100 years. It started at the end of the nineteenth century and had reached about 90% at the end of the twentieth century. Because most Icelanders now live in the man-made environment of towns, the way this environment has been, and is still being, planned and designed has, become very important. Unfortunately, planning and designing have not yet become widespread or compelling issues in the media and the schools of this country.

In order to make it clearer how an important new subject area has recently developed within Icelandic society, we can review the evolution of studies of the natural environment. Such studies of nature have been a part of the educational system during the whole of the twentieth century, and they have been greatly promoted within the University of Iceland in the last three decades. To give an example of its coverage, the university has educated over 800 biologists, as well as many hundreds of geologists, geographers and civil engineers who are also partly working on the natural aspects of the environment. On the other hand, academic study in planning, architecture and landscape architecture have hardly existed within the Icelandic educational system. In the University of Iceland only one teacher is employed in this field, but no degree is given. In recent years, however, there has been some increase in interest in the problems and issues involved in planning, as evidence by the establishment of the Urban Study Centre in 2001 and an increased offering of courses that have a link to the built environment and the rather new Iceland Academy of the Arts now offers a course in architecture.

Planning of the built environment has to be adjusted to the society and the environment. Therefore disciplines that play a part in planning settlements can be collectively designated as the detailed and caring study of a specific region. This kind of study is hard to develop to serve Icelandic society, except with prolific work within the educational system. Therefore these disciplines should be given priority.

This subject area is quite different from academic disciplines such as mathematics and dentistry, which are basically the same the world over. Such disciplines are well presented at the University of Iceland, but not the subjects that are necessary for the shaping and development of the man-made environment in Iceland.

6 The Need to Dig Down to the Roots

The built environment, as we experience it today, is complicated and multifaceted. To understand how it has come to be, it is necessary to dig down to many roots to find out what has shaped it and why it is as it is.

Because people in general have acquired good knowledge of the natural environment with years of study of fields such as geography, botany, and zoology, it is advantageous to use the natural environment as a parallel to the man-made environment in order to visualize the need for theoretical enquiry.

As we reflect on our experiences with the natural sciences we certainly realise that we often have to dig deep to reach a profound understanding of the subject at hand.

It is easy to realize that, without the assistance of the knowledge gained in the natural sciences, we can never reach down to a deep level of understanding of how the natural environment works, and without such an understanding we get into trouble in our coexistence with nature.

It is therefore of use to review Icelandic experiences with various choices, e.g., of areas for power plants, power lines or other construction.

In spite of this extensive knowledge of nature and the natural hazards in Iceland, we have of late been thrown into great difficulties in co-habiting with the natural forces in Iceland, as attested by the effects of recent avalanches, mud flows, ocean and river flooding, and earthquake damage.

All these disasters could, without a doubt, have been mitigated or even avoided if we Icelanders had applied scientific knowledge in the planning of the settlements and areas in question.

Something similar can be said about the built environment where difficult and frequently complicated problems often surface. An example is the deterioration of the old City Centre of Reykjavík, which we have a hard time coming to grips with.

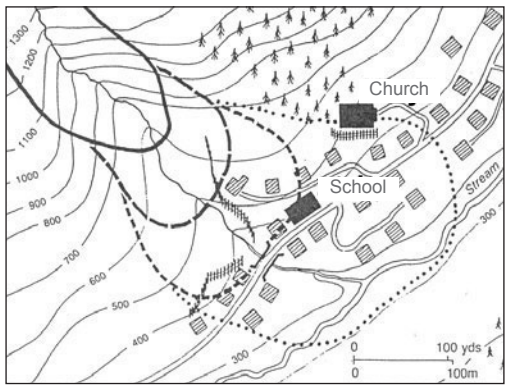
Much knowledge exists about some of the deeper reasons for the problems that have surfaced in the City Centre, but we have not made good use of this knowledge.

As a rule, the first primitive reflex of politicians is to try to wipe out or suppress symptoms rather than digging deep to understand the problem.

Examples of such measures are to increase the police force or to limit the opening hours of the clubs and bars. If, on the other hand, we were to take a more structured view and study the root of the problems, we could often solve the problems without having to further limit activity or to resort to added costs of law enforcement.

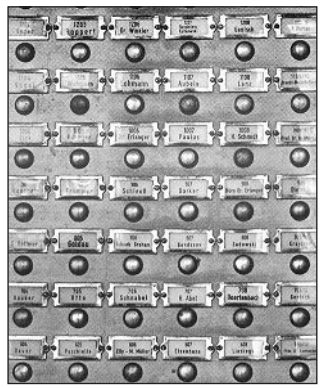
In the case of the problems of the City Centre, we certainly have planning measures at our disposal, like moving the most problematic venues out of the area and in general dispersing the amusement spots over a larger area.

These are examples on how a deep understanding of what leads to these problems, in this case too much congestion, can provide us with opportunities to solve the problems with planning measures without limiting ourselves further with regulations or a larger police force.



Avalanches have variable recurrence rates. The most recurrent ones travel the shortest disrance.

The city centre problem should be solved with planning, not increased policing.



One needs to find the source of the problem, and solve it.

Disturbances on New Year's Eve were avoided by having bonfires in the suburban areas.

Speed reduction is more effective through planning than with speed bumps.

Social studies influence planning issues.

It is a regrettable fact that banning something is most often the first thing that Icelanders think of as a solution to a problem. This urge to constrain things is very much akin to the tendency in many Nordic countries to use public authority to beat down the public and owners of services.

From this example of the City Centre problem in Reykjavík, we realize that in fact most social and operational problems have their roots deep down in the very foundations of the planning of a city.

Often the only sensible approach to solving these problems of modern society is therefore to dig down to the roots of planning in an area, that is, down to the basic structure of the city and the various city systems, and to solve the problems at the source. To cover up the symptoms does not help – it is like sweeping the dust under the rug.

Fortunately there is an increasing willingness to dig down to the roots of problems. This means that some cities have started to work on their planning tasks at this level of the inner structure of society.

This kind of planning is most often carried out in *development plans*. The most common characteristics of a development plan are that it is either aimed at encouraging or reducing certain aspects – for example, by enhancing commercial activity in a certain area or field or, on the other hand, by reducing social problems with the aid of stimulating inputs.

Results are most likely to be achieved by doing this at the very foundation of the social structure, i.e., in the structure of the city itself. This kind of approach to city problems has made development planning one of the most important fields today.

This new vision of the running and planning of a city means that many more disciplines have to enter the planning process of a city than is now the case. Sociologists and criminologists, for example, need to be involved as social problems surface. The method most applied until now, of merely covering up the symptoms, is not likely to produce the desired or effective results

Book One

Nature: The Forces that Shape it

I The Land – And What Shapes It

1 The Internal Forces

This first chapter of this book drafts a picture of how Iceland was created. This first section deals with the internal processes that built up the mass of Iceland. Following is a section on the external processes, weathering and erosion, that scrape and shape the landmass after it has been created.

These processes took millions of years and they are still at work. Internal forces are exceptionally active in this island and new small islands and volcanoes are being created at rather regular intervals.

Familiarity with the nature of these forces helps in understanding what are the main characteristics of the landscape of Iceland. The different geological zones of the country have different characteristics and by understanding the individual features we are better able to understand why the human settlements were constructed in this country as they were as the centuries have passed.

Furthermore, this kind of knowledge helps in placing new settlements and construction in a logical manner.

Let us now look at a fundamental aspect of geology called continental drift. This theory explains how the surface of the earth is made of solid crustal plates atop a semi-liquid ball. These plates are on the move and are either converging – as evidenced by the great mountain chains of the world – or moving away from each – other, as is the case with the North American and the Eurasian plates.

The junction of these two plates is a rift that runs along the bottom of the Atlantic Ocean. This crack is constantly widening, making the liquid magma, deep in the earth, able to surface in eruptions and lava flows. This happens mostly on the bottom of the ocean but in places where islands have been built up on the ridges of this crack, as is the case with Iceland, these eruptions are visible to everyone.

Other geological phenomena, besides eruptions, also happen along the edges of the tectonic plates, including geothermal activity and earthquakes and also various types of tectonic movements that can create different types of changes in the land. The central area of Thingvellir, for example, has subsided, as can be seen by the fact that the eastern brink of the Almannagjá Gorge is much lower than the western brink

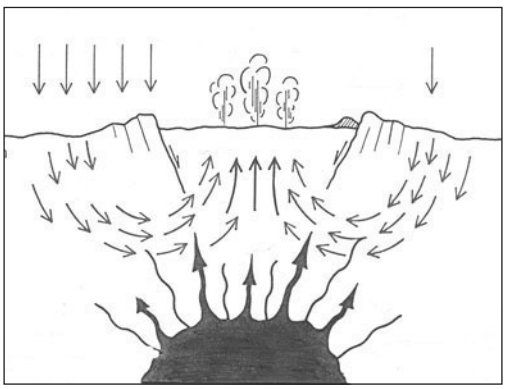
As new layers of lava are erupted up through the mid-Atlantic ridge, the lava belts on each side of the ridge are pushed outward so that the oldest best are farthest from the ridge centre. On average, one metre is added in each direction in a century, totalling 2 metres per century and making 20 metres in a thousand years and 20 kilometres in a million years.

It is therefore possible to measure with a ruler out from the rift as it goes through the centre of Iceland and read from the ruler how much the land has aged in each direction.

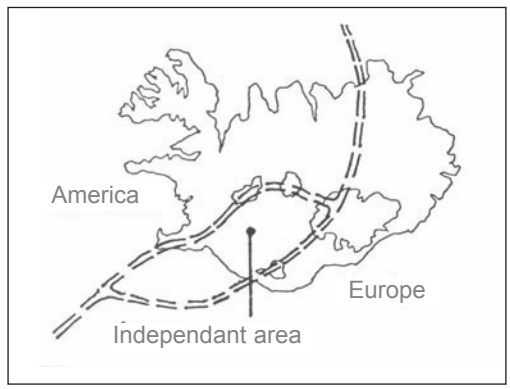
This makes the East Fjords, which are about 130 -150 kilometres distant from the rift – about 13-15 million years old. See figure on next page..

Because these oldest parts of Iceland were created so long ago the external forces have had ample time to form the landmass, creating deep valleys and fjords.

Various types of soils and gravels have been created in this scraping of the land, often leaving thick layers of sediments in the bottoms of valleys and fjords. These deep valleys create shelter from wind, and the deep fjords are almost natural harbours that proved to be very positive for the start of fishing in Iceland.



Lava under the cracked surface heats up water and creates geothermal hot springs.



The split between the N American and Eurasian plates continually divides Iceland.

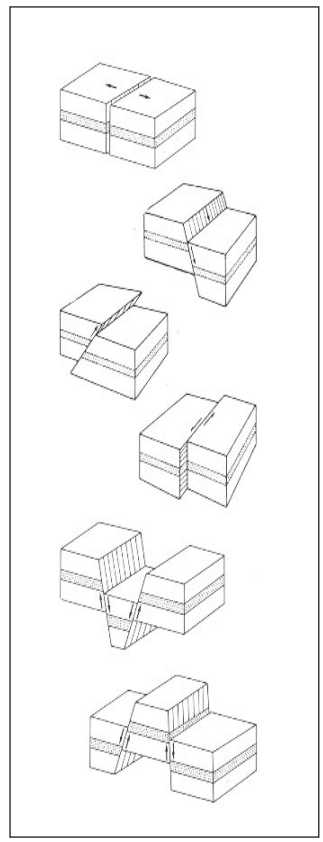
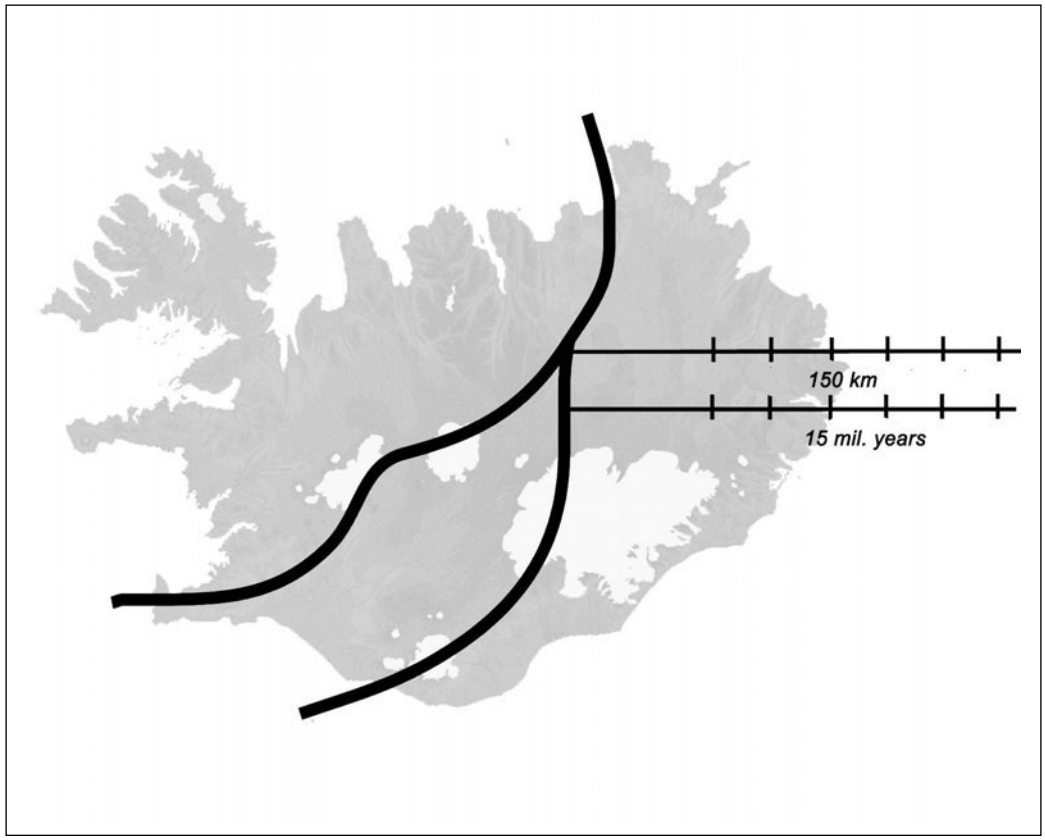
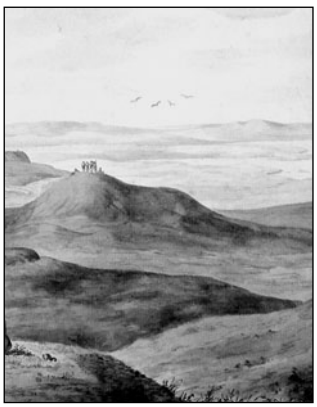


Plate movement can occur in many ways.



The middle of Iceland is at the centre of a volcanic belt, expanding on each side ca. 10 km every one million years. The ruler accordingly shows the age of east Iceland.



Old landscape is soft and has curvy features.

New landscape is rough and has little vegetation.

Another specific and important consequence is that Iceland is an old landmass and that the natural hazards linked to the internal forces are less prevalent than they were long ago.

The younger part of Iceland is characterized by flat lavas, ash and pumice deposits, volcanoes and hills made of volcanic breccia. The volcanic breccia is formed in sub-glacial eruptions and is especially unstable and easily eroded. The soil is generally rather shallow in these new areas and the bedrocks rather porous.

This part of the country gathers a lot of rainwater that is easy to recover from wells or natural springs. These areas are therefore more suitable for extracting both cold and hot water than the tectonically older, and more solid, parts of the country.

The plateau that covers the central part of the country from the south-west to the north-east is also relatively easy to traverse because of how flat it is. In addition, various other aspects of modern living are easier there. Farming, for example, is rather easy with the exception of where the newest lava is found closest to the centre of the active volcanic zone, as on the Reykjanes Peninsula.

These new lava fields are either barren or are covered with only a very shallow soil layer and therefore have little vegetation, so little that they are not even suitable for grazing.

The field of geology called *geomorphology* deals with the structure of the land and how to interpret the structures to show how the land was formed and shaped.

A similar theory is being created in environmental planning. This theory consists of how the various types of landscapes or surfaces are fit for various types of activities and settlements. A mapping technique has been created for analysing and interpreting these features of the land, a method that will be presented in this book.

Earlier, because of their closeness to nature, people were much more open to the meaning of these messages from nature. Therefore they often placed their buildings intuitively in very sensible locations.

2 The External Forces

The external forces of weathering and erosion are first and foremost driven by energy that comes from the sun. It is this solar energy that sets winds and ocean currents in motion. It also creates vapour out of water that then rises up to the skies where it condenses and forms clouds, which then fall again down to earth as rain – often in areas of high elevation.

It is this *energy cycle* that is made use of, for example, in hydropower plants. These plants are therefore actually solar and gravitational power plants. The gravitational powers of the sun and the moon also have an effect on the external forces. These primarily are the tidal forces. In union these weather and tidal forces work on the land, both from the ocean, lakes, and rivers and are forces of erosion.

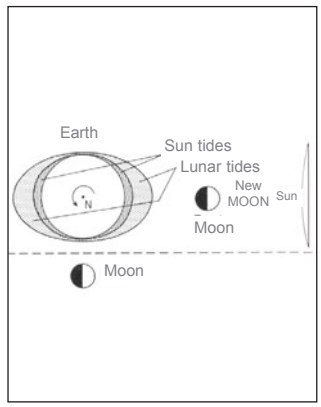
In a country like Iceland, where most of the settlements are located along the coast, tides and ocean floods have a great effect. In order to be able to assess where these forces could become most active there are basically two main methods: on the one hand, using the principles of physics to analyse these forces and on the other hand, collecting empirical or historical data to reveal their actions. In the latter case data are, for example, taken from old annals that often record when the biggest floods have hit the coast and the settlements.

Using the principles of physics to ascertain what causes ocean floods is more complicated. The first observation encountered is that ocean floods are very much affected by the tides, although various factors and conditions can also influence the height of the sea level at maximum high tide. In cases where many such factors work together a catastrophic flood can result, often creating much damage, where primarily harbour construction and settlements closest to the coast suffer damage.

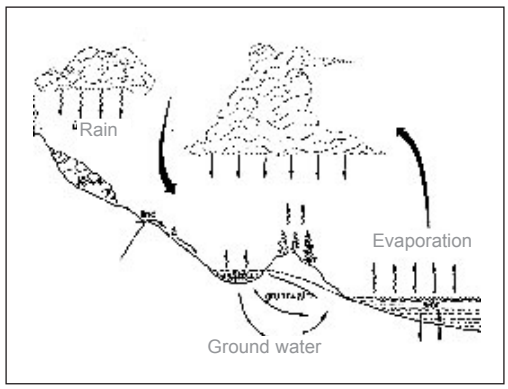
In the text box in the corner various factors are listed that have an effect on how big an ocean flood can become. These factors include low air pressure, which adds to the height of the flood, and also the wind direction, if it has the same direction as the flood. The shape of the bottom of the ocean also has some effect on the strength of the flood.

In some cases the shape of the land influences the height of a flood. Examples of this are narrow fjords because then they can almost function as a funnel where the flood is higher the farther into the fjord it flows. It also matters how well the coast is naturally protected against the advances the onslaught of such floods, such as how flat and how low the coast is. In some cases where the coastline is unstable, the coastline can give way under the pressure of the flood. If this natural wave defence bursts it allows a flood to reach the inland area behind the coastline, as if a dam has broken. As this outer defence line of the country opens up, the floods sometimes reach much further inland than otherwise would have been the case.

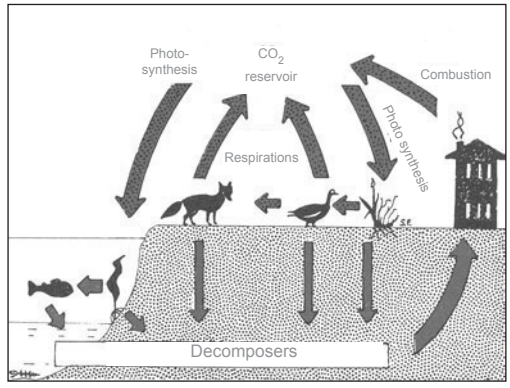
Ocean floods are one of the most dramatic natural hazards in Iceland and have frequently caused much damage. The book *Íslensir sjávarhaettir* (Icelandic Coastal Living), for example, traced how the settlements on the south and west of the Reykjanes Peninsula have been pushed further inland by the floods as people gradually acquired knowledge of how far the floods could reach. In 1799, one of the largest floods in Iceland´s history took place, named after a trading station that was destroyed, Básendar, located on the western part of the Reykjanes Peninsula. In this gigantic flood large coastal parts of the peninsula, near the present Keflavík airport, went under water and also the lowest parts of the small Seltjarnarnes Peninsula



Tides are highest when both sun and moon pull together.



The water cycle, driven by the sun, is a major factor in the shaping of land.

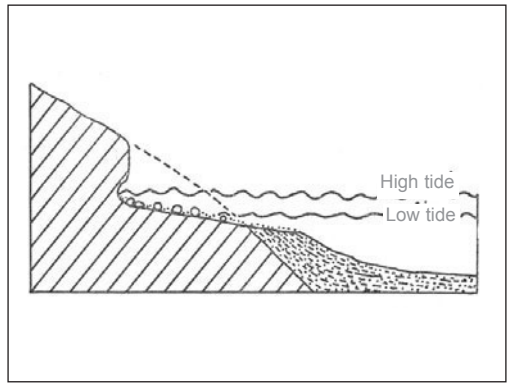


Carbon dioxide emissions are transformed back to oxygen by photosynthesis.

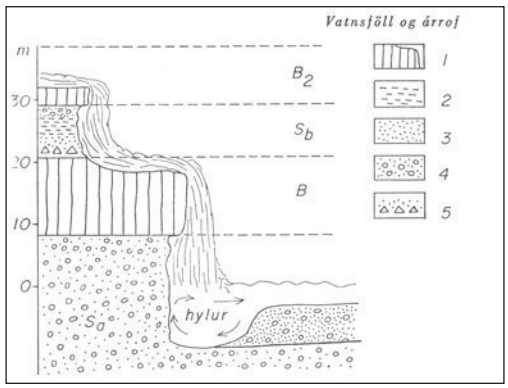
Low air pressure
Height of tide
Direction of wind
Strength of wind
Shape of ocean floor
Funnel scaped fjords
Defences at coast
How low the terrain

Along with the sun and the moon, these factors affect tides.

Wind erosion of rocks is mostly in palagonite areas because of their softness.



Sea erosion breaks down the coast, and the eroded material forms shallows.



River erosion widens and deepens the course. Waterfalls occur when the hard top layer stays.

Hanging U-shaped valley caused by glacier erosion, in the mountain opposite Isafjördur.

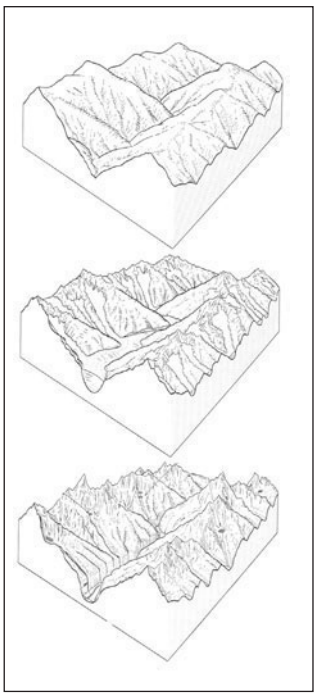
where Reykjavík is located.

The strength and frequency of heavy winds as well as ocean floods and other types of floods have been very high and therefore erosional activity and the effect on settlements has been great in Iceland. The most powerful of the erosion forces, however, were the forces of the Ice Age glacier as it moved across the country during the last glacial period. As most of the landmass of Iceland had already been formed before the last Ice Age began, the oldest part of the country in many areas has been thoroughly eroded by glacial action that has, for example, dug out most of the bigger fjords and valleys in the country. Fjords and valleys formed by glaciers are U-shaped, whereas if there has only been water erosion they are V-shaped.

This whole spectrum of landscape forms in Iceland has been useful to Icelanders for various types of activities. Harbour construction, for example, has been easy in many sheltered locations and many of these are actually natural harbours, for example, in the deep fjords.

An understanding of external forces therefore creates a foundation for being able to understand how the landforms that are characteristic of the various parts of the country have been influential in forming certain basic types of settlements. Because of this, ocean settlements are located in the sheltered fjords in the West Fjords, the central part of the north coast and in the East fjords. The earth and gravel that are produced by the scraping of the erosion forces inland are carried down to a lower level with the rivers, sometimes all the way down to the coast.

These transport agents are of two types: clear water rivers and glacial rivers. The glacial rivers transport much more material because they come from underneath glaciers. These glaciers, as they slide downwards, are very effective in scraping the underlying bedrock and the loose material is carried by the glacial rivers down to the fjords and into the ocean. This means that the fjords, where the glacial rivers meet the ocean, are in many places half full of these sediments, much more than in the case of the clear water rivers. One can spot the difference between these two types of fjords on maps. On the one hand there are the fjords where the glacial rivers meet the ocean; there the bottom of the fjord has a square form. On the other hand, the fjords where the clear water rivers enter the ocean reach further into the land and commonly have a sharp narrow end.



Rivers leave a V-shaped valley, glaciers U-shaped.

3 Shaping by Man, Animals and Vegetation

The first two sections described the geophysical and meteorological aspects of the shaping and the ever – dynamic forming of land. It is however not only these forces that shape the land, but also humans, animals, vegetation and indeed micro-organisms and chemical processes as well that are also constantly at work.

The type of occupational activities in the country, at each given time, has a great effect on how the land is being changed, and the appearance that is created by culture and habitation has been given a specific name: *cultural landscape*. In some cases this can be a landscape that is characterized by a beautiful countryside, farms, pastures and fences. Today, there is a widespread opinion that this cultural landscape needs to be preserved, just like other cultural remains.

The admiration for changes is the land produced by the culture of earlier generations is in stark and bizarre contrast to the fact that most changes that modern culture produces in the environment are seen as negative. To put it bluntly: modern cultural landscape, for example that of energy production, is unpopular, whereas people often think highly of changes that farming, for example, have produced.

How people have perceived some culture-related aspects has varied considerably. For example, earlier people did not realize that overgrazing was the main reason for the erosion of pasture land and forests. As Iceland further developed the mechanization of agriculture in the twentieth century people started to regard this loss of vegetation as negative and ever since then there have been plans to regain the land with revegetation and reforesting.

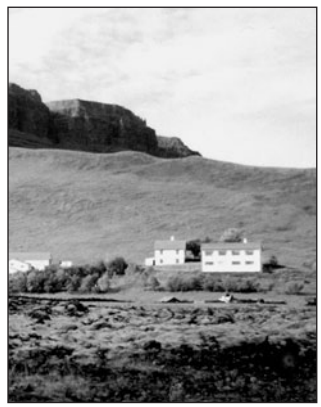
At the end of the twentieth century, however, some people started to regard the totally eroded land – the desert that almost everywhere characterizes the central highlands – as being magical. The older view, that this wasteland is an image of bad treatment, has the prevalent aim of restoring the highlands by revegetation, for example, with fertilizer spread from airplanes. To others the deserts are beautiful and they want to preserve the highlands as they are today.

From these examples we can see that what are regarded as positive actions in agriculture change a great deal according to the period of history in question. In the first part of the twentieth century there was a great lack of grazing land and it was therefore almost seen as a national necessity to flatten the land with bulldozers and drain it with power shovels and draglines in order to be able to harvest hay from the land.

Later in the twentieth century, as transportation had improved to such a degree that sufficient food could be imported from abroad, Iceland was no longer dependent on what it could produce. Then the attitude towards what had been called "improvements", such as digging ditches and flattening pastures, changed so that what had earlier been seen as a sign of progress and glorious improvement, almost as cultural achievement, people now started to regard as some of the worst environmental sins of Icelanders in that century.

The cohabitating of the nation with the land has, frequently, in the course of history, been disastrous. Often the critical factor was the limited hay production. Especially in the cold years and in years of great eruptions and ash fall, almost no hay could be harvested.

Because of the lack of grazing land, farmers in Iceland drove their livestock, into the highlands, but people have realized that this led



Type of landscape mainly seen in the countryside.

Overgrazing often leads to erosion. Sand settles on ridges and raises them.

Draining marshland was popular because it led to increased hay production; now being reversed.

Modern landscape is characterized by busy roads.

This highland landscape is, for some, the image of ugliness because of the eroded vegetation. Others find it beautiful and want to protect it from revegetation.

to erosion in high-lying and sensitive areas. Today pasturing the flocks in to the highlands is no longer a necessity because of the reduction in herd sizes but the farmers still do this, mostly for traditional reasons. Many scientists have pointed out that if this highland grazing – this grazing of the most sensitive vegetation of the highlands – were to be stopped, nature itself would, for the most part, be able to regain its earlier productive capacity. Today, the majority of the Icelanders want to reclaim the earlier vegetative cover and another large group of people want to remedy the loss of forest land.

Because of this ideology of replenishing the vegetative cover, plans are being carried out, on behalf of the Icelandic government, to reforest large areas of the country. The institution in charge of these programmes is the Icelandic Forestry Service, stationed in the east at Egilsstadir. There, research is being carried out to find out what types of trees are best adapted to reforesting Iceland. The most recent development in reforesting is that people now want a part of the forestry activity to be guided towards producing *industrial forests*. The government has of late been offering grants for this type of forestry and there already exist regional programmes to realize this goal in most parts of the country.

Various good things can come from these programmes but many people are worried that this type of forestry will considerably change both the land and the flora and fauna. People point out that industrial forests are not suitable for outdoor activities and that land used for such forests will in fact not be used for anything else. Oddly enough, however, at the start of the reforestation programmes, the forests were intended to be a hybrid of agricultural and recreational forests. Lately, it has come to light that tax regulations are creating problems because only the lumber producing aspect of the forest is regarded as tax deductible. This means that loans and tax privileges are only available in cases where people are planting pure industrial forests. If people intend to shape some part of the forest to serve recreational uses they destroy this possibility. This is a rather harsh example of how regulations can have an effect on how land is used – in this case it is guiding the development of forestry into a worse pattern.

Some find even the ugliest little trees beautiful.

4 How Nature is Constantly Changing

The review of the previous sections on the forces of nature and their constant dynamism shows us that, contrary to common belief, nature is not static but constantly undergoing changes. Let us take an example from changes in climate; in this case the vegetation fluctuates, both seasonally and in response to colder and warmer years. In cold periods the vegetative cover retreats down from the mountains to a lower level. In these periods of cold spells settlements at the edge of the highlands are usually eroded.

The edge of the coast provides another example of fluctuation. At this *land/sea interface* many types of dynamics are at work. In some cases ocean floods have caused disasters, for example, as large areas are being washed away as the natural breakwaters of the coast are eroded away. The south of Iceland, on the other hand, is characterized by a sandy coastline with hardly any rocky edge or cliffs. These sandy beaches fluctuate constantly and take a form produced by the equilibrium of forces. The input on the sand-interface is primarily the material transported by the glacial rivers. At the other side of the interface ocean currents and wave activity transport the material. The balance between these forces along the coast and partly out to sea determines where the coastline is located at each given time.

At times the coastline moves outwards but later, if there is a reduction in the material carried down to it, the ocean first eats away at the coast and then approaches the inner-lying areas. This erosion of the sand is the reason why the bridge over the Jökulsá River at Breidamerkursandur is now in danger, and probably also the town of Vík in Mýrdalur. In both cases this is happening because of the lack of sediments in the glacial rivers. An understanding of this equilibrium provides valuable information as to how planning and construction along the south coast of Iceland should be approached.

These examples demonstrate how important it is to understand which processes are at work in nature and enable us to estimate what could happen. The static worldview of today constantly confuses us. The outline of the sandy south coast, for example, is shown as a static line on maps, whereas in actuality the coast is a dynamic line that is constantly moving back and forth, often many kilometres.

The same can be said about the edges of the glaciers: they move out to surrounding areas or retreat according to fluctuations in temperature and precipitation. In this process they transform the landscape around them in a profound way and in some cases the glacial tongues have carved out fjords and valleys and have often scraped the bedrock to produce curved forms that resemble the backs of whales.

The material that was produced by this scraping of the bedrock as well as by the activity of wind and water erosion has been carried out to the lower lying areas and formed a multitude of landscape forms. The ever-changing channels of the braided rivers in the flat alluvium and sand plains also play a big part in further shaping these sands. Knowledge about the laws of the dynamic forces that have been at work here can help us understand why certain types of gravel and sand can be found in specific places as well as where it is most likely that the rivers will change their channels next. This knowledge can be used for deciding where it is advisable or profitable to construct, for example, a road or, on the other hand, where it should not be built.

A new development has been taking place recently in terms of the dynamic balance along

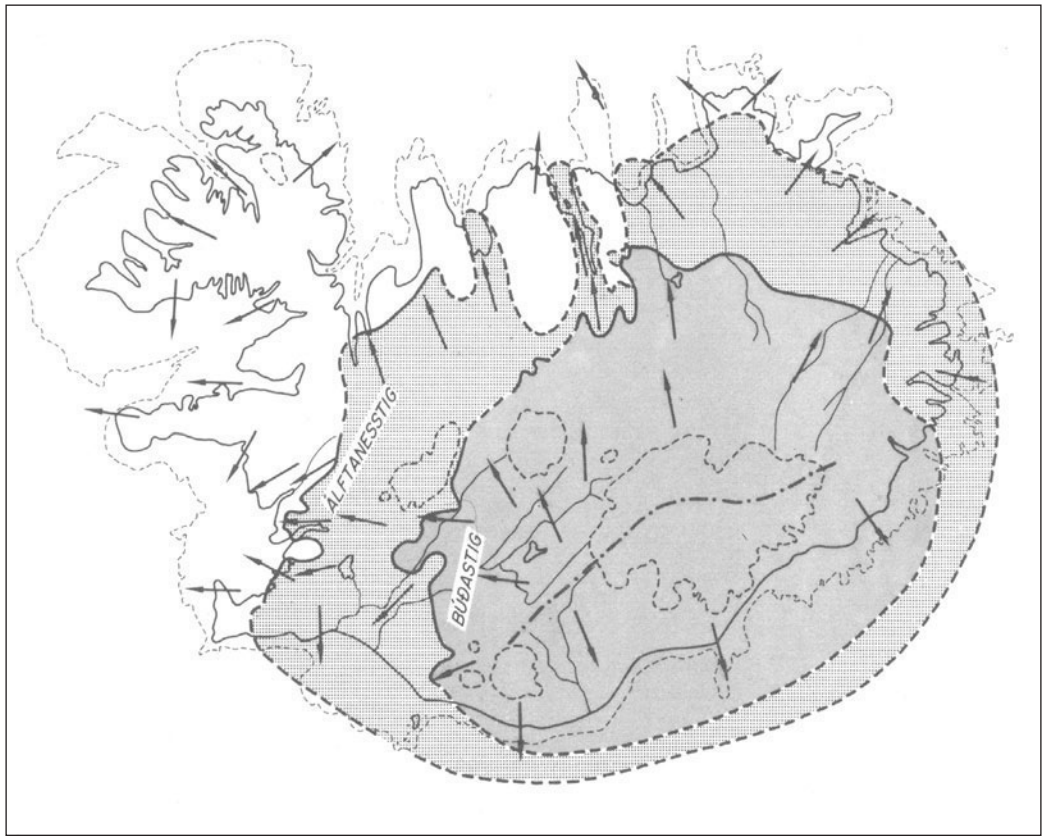
The edge of the vegetation moves back and forth with changes in climate.

Sandy shores move both from erosion and building up of materials.

Additions:
Sediment from rivers
Sediment from beneath glaciers
Wave activity in winter

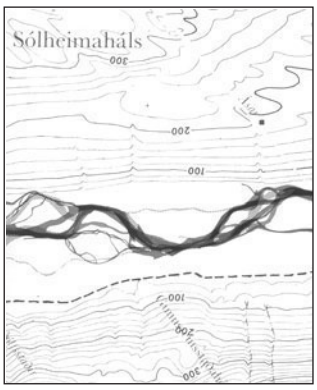
Subtractions:
Ocean currents
Ocean tides
Wave activity in summer

Factors that influence the coastline.



The map shows the retreat of the Ice Age glacier. The darts show the direction the glaciers used to move, leaving scratches on the surface as evidence.

Glaciers smooth and scratch the surface of rocks.



Rivers are dynamic and have many courses.

the south coast, where the construction of reservoirs in the large glacial rivers from the highlands drastically reduces the sediment load carried by the rivers to the coast because so much of the sediment settles in the reservoirs. The amount of material that is no longer carried by the glacial rivers down to the coast can be seen in the 3 million tons of material collected in the reservoirs of the Thjórsá River catchments every year. In the Kárahnjúkar reservoir in eastern Iceland – that is now under construction – the amount of material is going to be even greater, or about 8 million tons each year.

The consequences of these reservoirs are that the dynamic balance of the coast is changed in some way. It is thus expected that the erosional forces of the ocean – both at the estuaries of the Thjórsá River on the south coast and Lagarfljót-Jökulsá á Dal Rivers in Héradsflói Bay in eastern Iceland – will be more active and in due time the ocean will eat itself further inland than now. Fortunately in both these estuaries no expensive man-made constructions or settlements have been built, but in planning for these areas a new line of equilibrium of the coast needs to be kept in mind.

The theory of global warming – if it turns out to be true – will mean that the glaciers in Iceland will disappear in due time. Consequently, the glacial rivers will change into clear water rivers and the glaciers will stop scraping the underlying bedrock with their heavy load. This will mean that the sediment loads of the rivers will only be a small fraction of what they are now. As a result the amount of material brought down to the sandy south coast from today's glaciers will be largely reduced. It can even be expected that the glacial fjords that are located under the edge of the glaciers will be washed out over a long period of time, so perhaps the eastern part of the south coast may end up being cut by fjords, as in other parts of Iceland. The melting of the glaciers will therefore considerably alter the dynamic balance of nature.

As the large map above shows, the heavy load of the Ice Age glacier covered the land for a long time and the Vatnajökull Glacier especially is actually the remains of this large Ice Age glacier. The Vatnajökull, larger than any glacier in Europe proper, is now receding and thinning which means that a considerable rise of the land in southeast Iceland will follow. This can result in serious consequences as concerns the harbour of the town of Höfn in Hornafjördur, where the coastal waters are already very shallow. The melting of the polar ice could however counteract this rising of the land as the ocean levels of the world will rise up to 5 metres on the average from global warming, according to some scientists.

II The Land: Uses and Dangers

1 Types of Natural Resources

What is considered to be a natural resource changes very much from one period to another. During the settlement of Iceland various types of natural benefits were highly important. The reason for this was, among other things, that initially there was not enough livestock to support the population. As a matter of fact natural benefits have been, through the centuries, of great importance in this country, i.e., during all the period when people almost wholly lived from what nature could provide them with.

The most important types of these resources were collecting birds' eggs, shellfish, fishing, mountain herbs, etc. These resources counted for huge quantities of food that are not much made use of today.

After the livestock had been established in the country, pastures and natural hay areas like fields and moors were valuable land resources. Later, land that could easily produce hay became highly treasured.

In assessing what was good grassland, meteorological factors like high mean temperature and sunny and dry weather during the haymaking period were of great importance. Some of the same meteorological features are also held in high regard today in terms of leisure activities and tourism.

As an area is to be assessed and evaluated – in the preparatory stages for planning – one of the first steps is to write down a list of the factors that are judged as being positive as concerns suggested activities in that area, and then also a second list containing features that are considered to be negative.

Such lists differ greatly according to what uses are meant to be planned for in the area. If a planner is evaluating an area for its suitability for summerhouses factors like brush cover, the beauty of the land and shelter from wind are considered to be of high value in Iceland.

On another set of maps the planner defines features that are considered to be negative for a summer housing settlement, features such as total shadow, areas close to traffic, areas where the soil is not fit for cultivation, etc. Making such maps showing areas of positive features in the early times of settlement helps draft a picture of the aspects that governed the shaping of the early settlement structures.

The features that were of most importance in selecting sites for settlements, as fishing started to develop, are easy to define on maps. An example of such distinctive criteria is nearness to good fishing grounds as well as sheltered, natural harbours.

Examples of resources that are of central importance today are the various types of materials that can be found on land, for example, good sand and gravel for concrete and various other types of earth materials for road building and other construction.

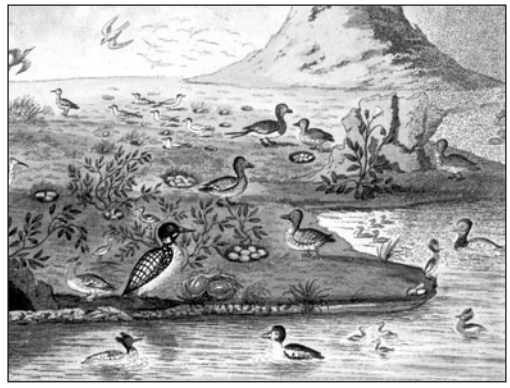
One valuable land quality today is the question of whether an area is good for building roads. Other vital questions of a material nature are whether there is a good, conveniently located freshwater supply and can geothermal water be found there. These factors are of great importance in the economic sense and are therefore considered important land resources today.

Icelandic scientists have for a long time been working on researching and mapping the various types of natural features. Often this research only covers limited spaces and is therefore not broad enough in scale to be used as a foundation for planning. In some cases, intended planning provides an opportunity to start a new study of the natural features of an

Good turf terrain
Enough peat
Driftwood beaches
Abundance of seaweed
Good fishing options
Lake and river fishing
Woods
Good grazing land
Good haymaking land
Birds and eggs

Examples of what used to be essential for good land.

Bird cliffs were a great source of food in many regions, both in summer and winter.



Diversity in vegetation and in the animal kingdom meant diversity in food supply.

Beautiful landscape
Terrain with scrubs
Sheltered areas
Lake and river fishing
Water sport facilities
Good skiing country
Good hiking country
Good riding country
Geothermal areas

Today the emphases are very different.

area with the aim of creating a sufficient database for the planning.

The first all-encompassing preparatory work of this kind in Iceland was the making of a series of maps interpreting natural features in preparation for a master plan for the areas north and east of Grafarvogur in Reykjavík in the mid-1970's.

The maps reprinted here are from this series. The map work was carried out using the *overlay method*. The first step was to divide the natural features into positive and negative aspects. The maps were drawn on transparencies and the positive features were interpreted as shaded spaces, where the best conditions were presented by the darkest shading. By laying these transparencies over each other it came out as darkest where the best conditions were for each given aspect.

On the negative transparencies a different method was applied. There those areas that were considered to be almost unacceptable for the projected activities in the planning area were coloured black. These negative transparencies were laid over each other and then ultimately the collective spaces with negative features were added together to produce darker shading.

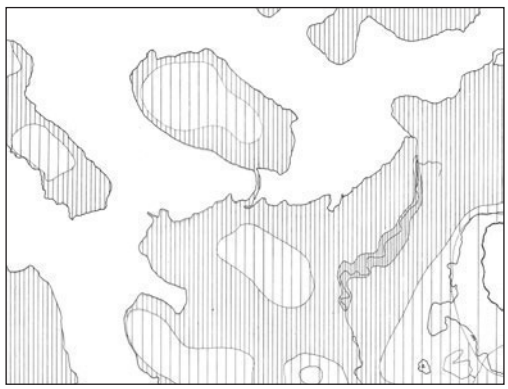
This method of mapping and evaluating the land makes it rather easy to put the various activities in the right locations during the planning work. Another positive feature is that this method makes the decision process easily traceable and explainable. This is of high importance as planning alternatives are presented to the public or to the politicians who ultimately carry the responsibility of the decisions taken in the planning work.

The two other maps below are examples of suitability transparencies. These transparencies show darkest where the best shelter is and where there is the least precipitation in the area. The big maps on the following page also show some of the best conditions. The one above presents the areas where the depth of soil is most suitable.

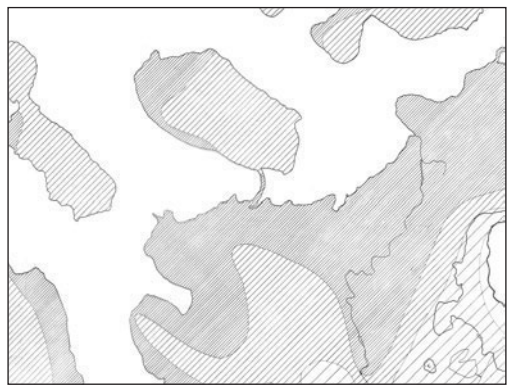
The making of this map was based on two methods. First, geological maps were used to mark out the bare bedrock, "the little spots on the map". The second map was made on the basis of echo sounding in order to determine the depth of the soil. These methods are only mentioned to give examples of the methods employed in making these maps.

Positive transparencies:
Calm areas
Little precipitation
Suitable depth of soil
Good direction for view
Good exposure to the sun
Nearness to a coast
Nearness to a mountain
Nearness to a river or a lake

Positive fearures that were mapped in the area.



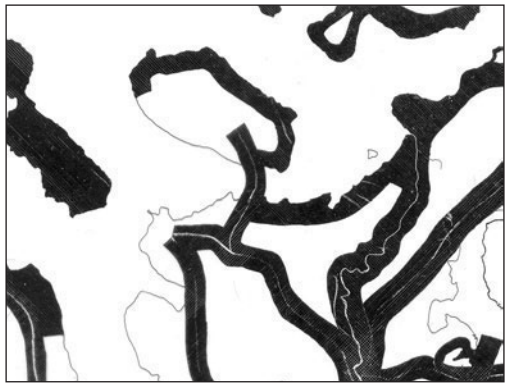
The calmest area is in the river valley of Korpa. The windiest ares are at the tops of hills.



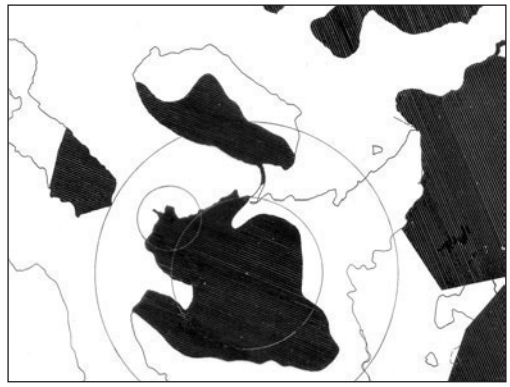
Areas with least precipitation are in the lee of hills that take the moisture out of SE winds.

Negative transparencies:
Noise areas
Danger areas
Areas already in use
Reserve areas
Water protection areas
Nature protection areas
Too steep slope
Deep coastal waters

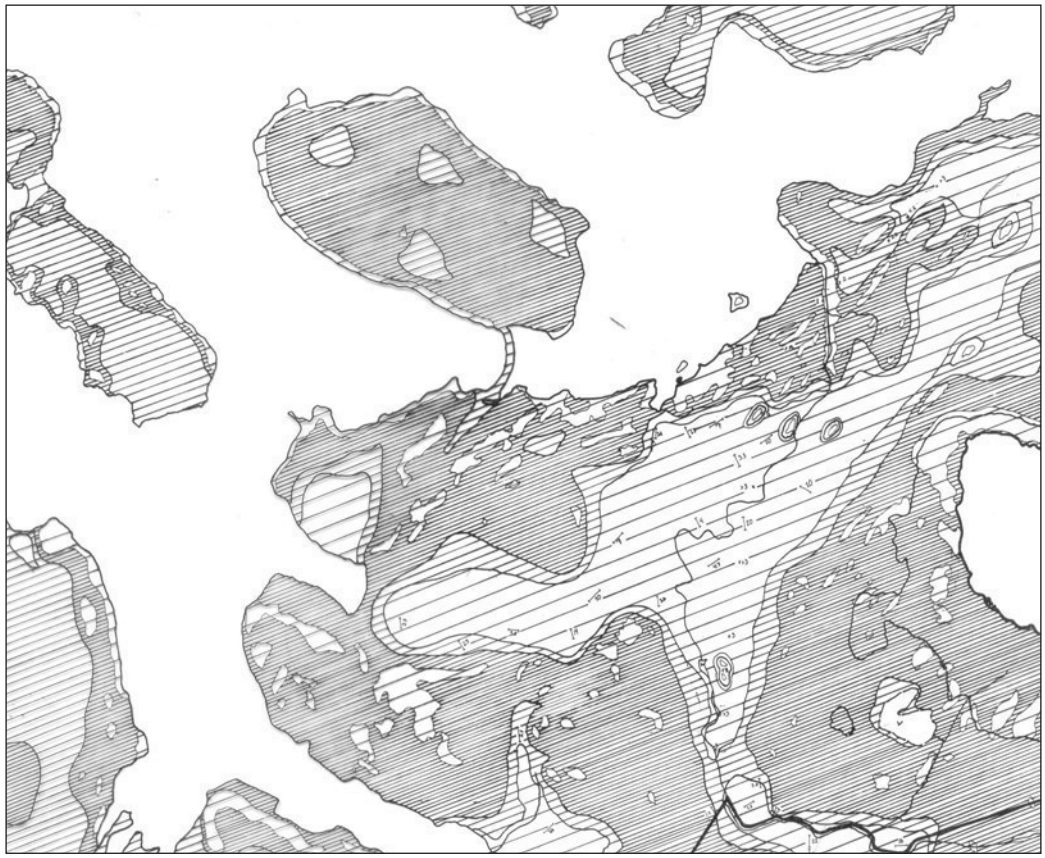
The limitations to land use were also mapped.



Black: noise areas along roads, as well as protection areas at river, coast and in the islands.

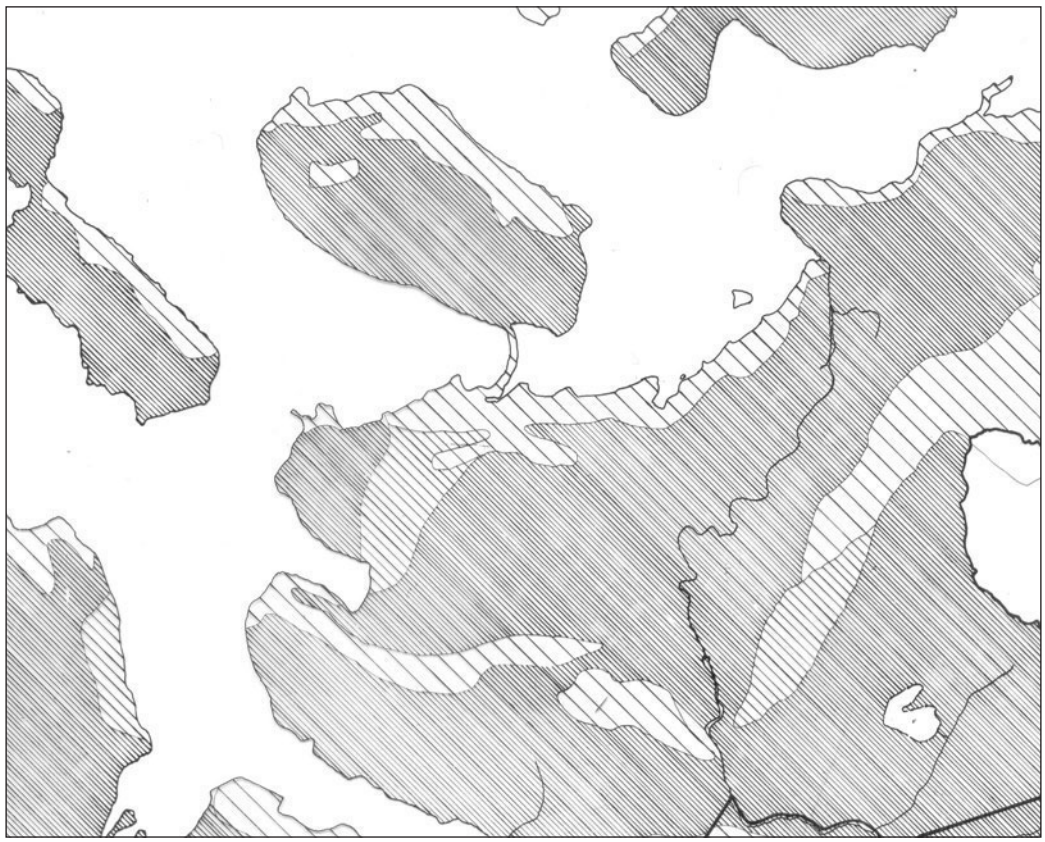


Black danger areas in case of explosion in Gufunes fertilizer plant. Also black; neighbour communities.



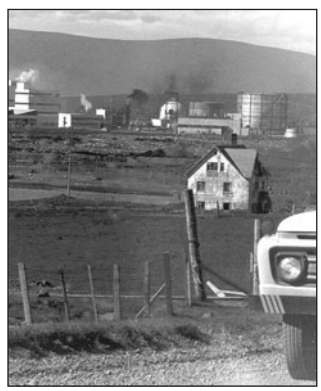
The most important economic factor – valued in the feasibility transparencies – was the evaluation of which areas have the most suitable depth of soil. They are marked with the darkest shade.

The maps in this spread were made in preparation for the planning for the Úlfarsfell area.
They were made using the overlay method, where visual adding up with the transparencies produces a concentration of positive or negative features.
This was the first time this method was used in planning in Iceland.



Light conditions evaluated: The best (the darkest areas),are where the land slopes towards the sun and there is no shade. Next best have some north slope. The worst areas are in the shadow of high hills.

Grafarvogur was the first to be built in the area.



A fertilizer plant is unpleasant close to inhabitated areas.

2 Types of Natural Hazards

Today, Iceland has become highly urbanized so the earlier need of the agricultural society to use almost every patch of the country for settlements – even very close to the volcanic areas – is no longer needed. Because of this, many of the natural hazards are not a threat any more and in some cases one could even talk about them as a resource because they do have some positive features. They draw attention to the country and are therefore in that respect an asset for the tourism industry in Iceland.

Because the various internal and external forces are active in Iceland they can, if the planning is not carried out in the right way, cause various types of problems. Let us start with the external forces. One of the features that result from them are the earthquakes that can reach a degree of magnitude that a mapping of earthquake probability should be considered primary work in preparing plans in earthquake areas. In order to clarify further the effect of earthquakes on buildings and constructions the main faults in the bedrock should be mapped as well as the various types of soils in the area because soil characteristics affect how much power reaches the building. Once this mapping has been done, a policy should be created, giving guidance on what types of construction should not be erected in the most dangerous areas, and most of all it is important to prevent construction or infrastructures to be planned across or close to the faults that are identified.

The second feature that follows from the forces is volcanism itself and what comes with it; lava flows, pumice falls, floods from beneath glaciers and mud flows down mountain slopes, as happened for example in the Öraefajökull eruption in 1362. All these types of volcanic hazards do happen in Iceland and therefore they need to be taken into account in planning work.

The first settlers that came from Norway were not familiar with these types of hazards and therefore they built their farms, quite unaware, on or near the slopes of volcanoes. Subsequently, some of these early settlements were destroyed, for example in the Öraefi and under Mt Hekla.

In the planning of power plants and power infrastructures these hazards have not been taken sufficiently into account. Here the main planning objective is to keep a safe distance from hazards. The power plants in the Thjórsá area are in the danger zone of Mt Hekla.

Good planning can help avoid most of these hazards. In studying the hazardous features one also has to keep in mind that certain positive things are linked to the volcanic areas, like geothermal water and also valuable minerals like pumice and sulphur. We have now started to consider these aspects as precious elements of nature and as assets.

In earlier times many aspects of weather were also a great threat to people and their well-being, such as cold spells and heavy winds. In general, these features are not seen as threats any more because of better buildings and better clothing. To be outside in very bad weather has even become a kind of leisure sport. In a theoretical sense, many scientists question whether it is right to define any aspects of nature as a hazard

They only become hazards if you are not careful and do not plan in the right way. If this is done, even the most extreme forces of nature need not limit human activity.

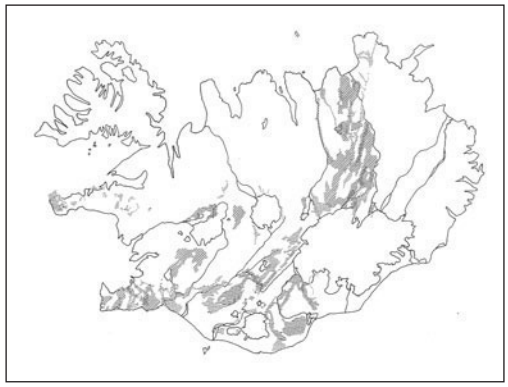
The text boxes to the left contain lists of analytical maps that the author of this book worked on around 1980. These maps were conceived of as a foundation for the making of a country plan for Iceland. The first list spells out the positive aspects of the land that need to

Warm areas
Areas with little snow
Sunny areas
Calm areas
Enough building materials
Enough cold water
Enough hot water
Good cultivation areas
Near to fishing grounds

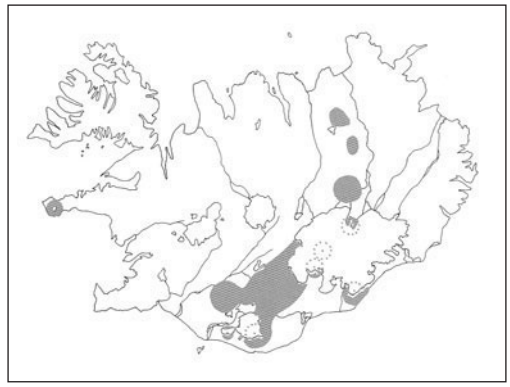
What are considered positive aspects often changes.

Earthquake danger areas
Pumice danger areas
Lava flow danger areas
Floods beneath glaciers
Flood plains of rivers
Flood plains at the coast
Avalanche danger areas
Landslide areas
Wind gust areas

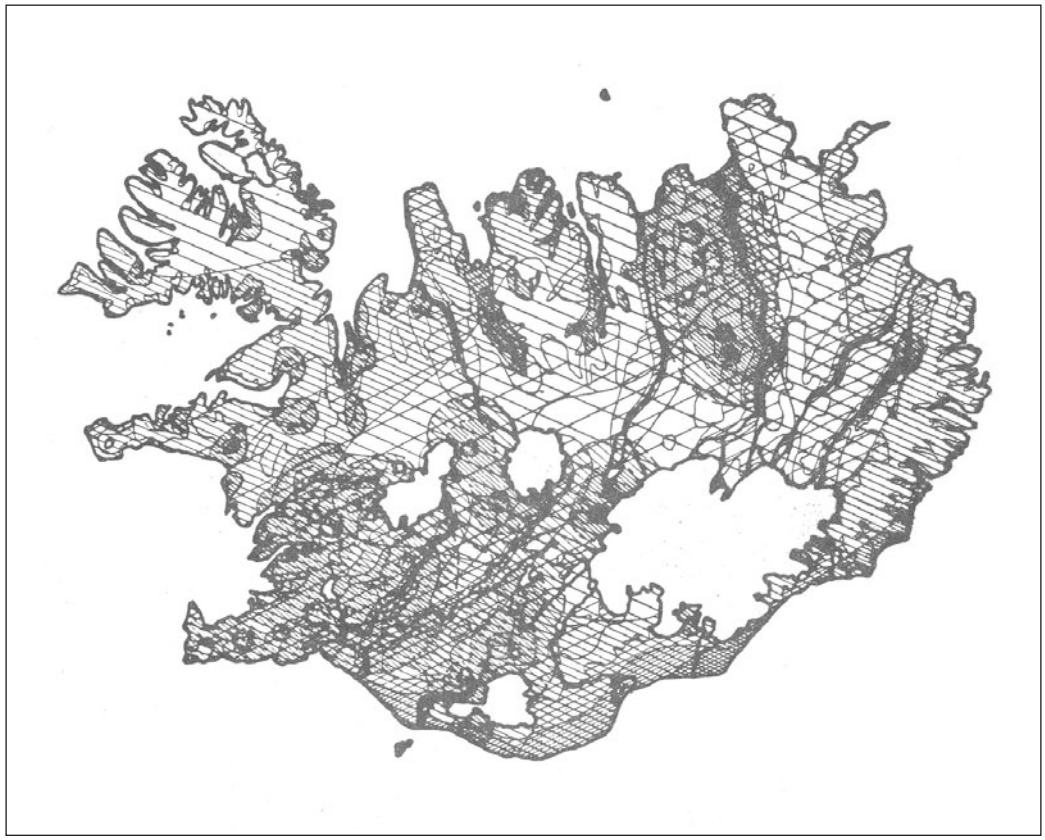
Negative aspects linked to volcanic activity and weather.



The map shows three types of lava, the newest areas being the most active and dangerous.



Areas at risk of tephra falling. High occurance rates means higher risk.



Presentation of three assessment transparencies, i.e., warm areas (best in SE Iceland), proximity to building materials (at shores and rivers), and high temperature areas (mostly in SW and NE Iceland).

This overlapping of two transparencies shows the limits to use, i.e., nature conservation and possible reservoir locations. It is very unfortunate if these aspects clash.

The Búrfell plant is uncomfortably close to Mt Hekla.

be mapped and the second the negative features, both of them covering the whole country.

The large map on page 43 shows an overlay of various maps from the map series. The upper map shows positive features and the lower one an adding up of some of the negative features that are shown in this map series.

Natural features that have an importance on a smaller scale also need to be mapped, which in most cases is rather easy to do. The smaller scale natural hazards can come into the planning procession the lower level of the planning, such as in regional planning and master planning for urban areas in the country.

The figures below show four maps from this map series. All of them involve rather small areas in terms of hazards but they are important, however, in the general overview on a country scale.

These maps show four types of floods. Three of them are connected to meteorological factors. The first one, in contrast, is a result of volcanism: "floods from beneath a glacier" or a glacial surge. Ever since a road was built across the flood sands south of the Vatnajökull Glacier – as the Ring Road was opened with bridges in this area of Skeidarársandur in 1974 – this type of natural hazard has frequently been discussed within the Icelandic community.

The map to the right shows with small black spots the areas that can be flooded by rivers, for example in the case of heavy rainfall. River floods can however have many and different causes and characteristics, and the list in the margin presents seven types of river floods.

The third map shows the areas subject to ocean floods as they are known from history and experience in the last few decades. This type of natural hazard will probably be one of the most serious in Iceland in the future if, as predicted by many, the global temperature rises to such a degree that glaciers and polar ice will melt, resulting in a higher sea level.

The fourth map shows areas in Iceland where there is the greatest danger of avalanches. Understandably these are first and foremost areas where the slopes of mountains are very steep, but the map designates primarily those areas where there is some habitation in Iceland. Today it is very easy to map where there is a great danger of avalanches but nevertheless this danger has, until recently, not been much recognized in planning.

Precipitation floods. In Iceland these are not the biggest floods, except in a few small rivers.

Floods from thawing. In the spring because of thawing of the snow.

Floods from rain and thawing and thaw floods. In the autumn and winter because of a sudden thaw or exceptional rainfall. The autumn floods are biggest as the lows enter the country and bring the most water.

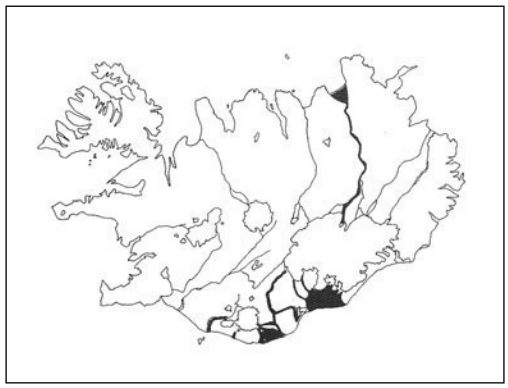
Glacial floods. Are by far the largest floods (see special chapter on them).

Flooding in steps. Sudden floods in frosty weather. Ice dams perpendicular to the direction of the river back up the water. If one of the dams breaks, one dam can give way after another and a large flood wave develops.

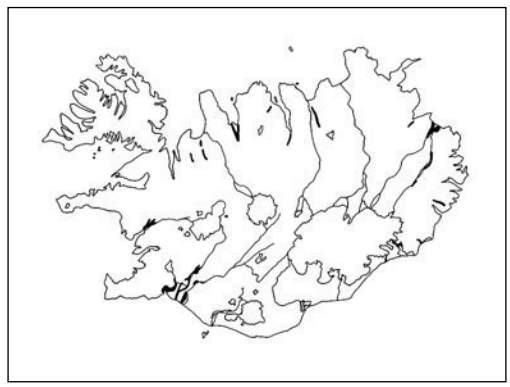
Construction floods. Often happen as dams give way.

Event floods. Caused by unexpected, fast natural disasters like eruptions, earthquakes and landslides.

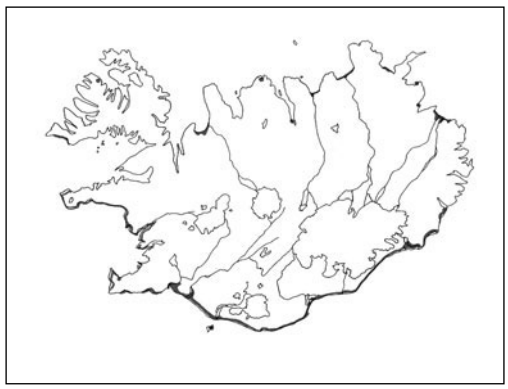
Seven types of river flooding, – and their causes.



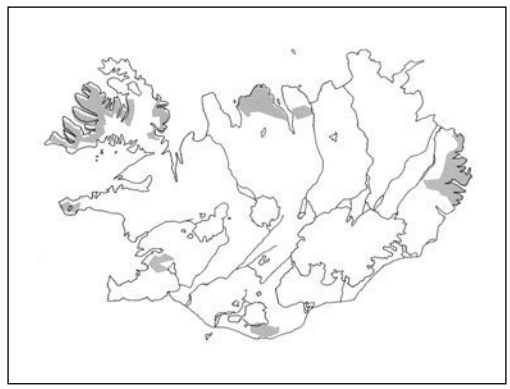
Flooding from beneath glaciers is mainly in the south. Rare giant floods occur in the Jökulsá.



The dark areas show where river flooding can cause land to be submerged.



The map shows areas influenced by ocean flooding: mainly in the south and in fjords.



Areas in Iceland at the highest risk of avalanches.

3 The Interplay of Natural Features

The previous sections have dealt with the various positive and negative aspects of nature – how they should be evaluated and how they can be mapped so they can be made readable and understandable in terms of their influence on planning. As we have now researched various aspects of nature it is logical to start to study how they influence each other. An example of a positive influence of natural aspects on other aspects of nature is that trees and forests provide shelter from the wind. Trees also can lower the ground water level, can bind soil together, and can reduce maintenance costs of buildings because of the shelter they provide and thus lessen the effect of erosion on the surface areas of the buildings.

One of the things that planners need to analyse and register is the effect of certain natural movements on other aspects of nature. An example of such a secondary effect is that the avalanches and the landslides are often triggered by earthquakes and these secondary effects therefore add to the damage that the earthquakes themselves cause directly.

Besides this effect of earthquakes on loose material they can also lead to various changes in rock formations, for example in the bedrock. They can cause movement along faults or the fissures can become clogged, altering the geothermal and cold water systems in the bedrock. In one place, the flow of water can disappear at least temporarily, only to be increased in other areas. The text boxes below give examples of direct effects of earthquakes and in the table on the following spread an attempt is made to give an overview of both direct and secondary effects of the most important types of hazards in Iceland.

On the left side of the table there is a list of eleven types of hazards and the vertical columns have been divided between various important natural features that are prone to be affected by these hazards. Texts in the boxes in this matrix explain how hazards can affect these natural aspects.

This is of course a simplified overview, and in many cases there exists quite a body of theory on how the effects of certain types of natural hazards are mediated. These theories often also deal with the complex interplay that can occur and what types of conditions can amplify the effects.

Let us now go back to how people work with the evaluation of the danger of the risk of the various types of natural hazards. The figure on page 48 gives an overview of the most important data needed to carry out such an evaluation. The subjects that appear in the uppermost line are the value of assets, the map base, and the data on natural hazards that are the basic input for the methodology. The next line shows how an evaluation of how well the properties and construction can withstand potential natural disasters. Next comes a box signifying a map base for thematic maps, often geological in nature. These theme maps show, for example, loose materials, soils, or areas that have steeper slopes than are deemed safe. The last box in the second line of the picture points out that, as the data on natural hazards are collected, a statistical analysis of the danger has to be carried out.

In the third line of the figure there is only one box i.e. the estimation of danger, which is carried out by using the thematic maps and the statistically evaluated danger in question. Here a picture is created as to where the danger is and how the danger could occur.

DAMAGE mostly happens in old buildings, unreenforced houses and brick buildings. Experience shows also that many modern buildings with irregular shapes are sensitive to earthquake stress.

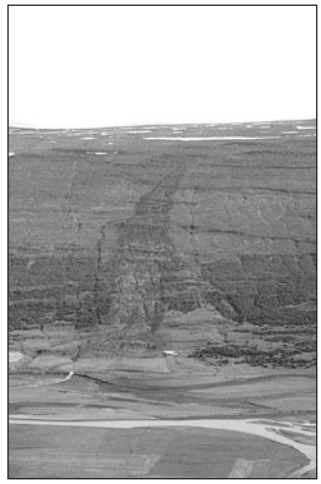
DAMAGE TO INTERIORS can be considerable, even in cases where the damage to the buildings has not been great.

Damage that can occur in an earthquake. More important, however, is damage to people.

ENDANGERED FUNCTIONS, e.g., communications, as roads are closed and bridges break. Electrical malfunctions happen if dams break. Field harvests are destroyed destroyed.

DAMAGE TO CONSTRUCTION can amount to billions of euros if a dam breaks, e.g., in the Thjórsá area. Damage occurs to roads and bridges that are sometimes swept away, as in Skagafjördur. Damage of this kind can amount to millions of euros and a large flood in the town of Selfoss could amount to hundreds of thousands of euros.

Damage as a result from great precipitation. It affects buildings, work and the accident rate.

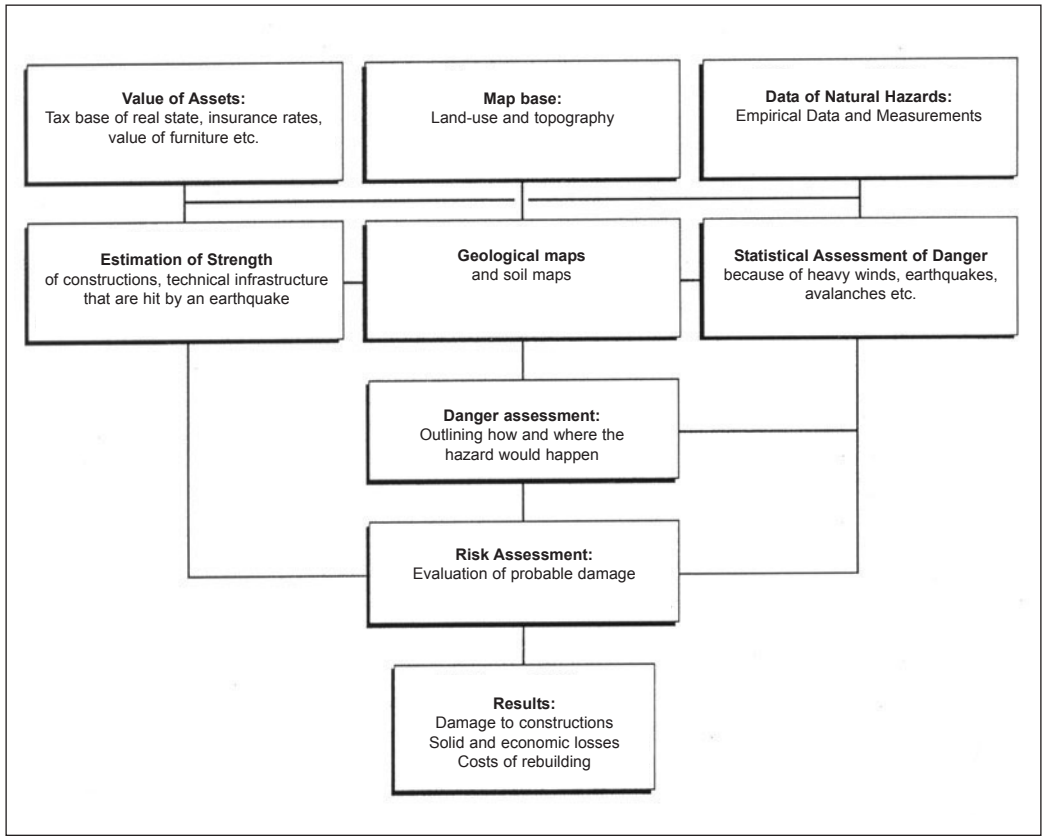


This mudslide in Fljótsdalur damaged a forestry area.

This matrix shows the influence of various types of hazards on natural features of different kinds.
Some of these impacts are primary impacts, but others are secondary or tertiary impacts.
Examples of this are accidents and disturbances in the running of companies.

Influence on.. / Hazard	Mud flows and Land-slides	Snow Avalanches	Coastal flooding	River Floods	Water Surface Flow	Ground-water	Geo-thermal Water	Soil Strenght	Influence on Constructions	Influence on Cultivation	Surface Changes
Earth-quakes	Increase	Increase	Earthquakes on the bottom sea ocean create Tsunamis	Dam failure causes floods	Cracks open and water disappears	Can make level lower or higher	Can make level lower or higher Pipes endangered	Water saturated soil looses strenght	Can break or weaken them	Less water reduces cultivation	Tilts watering system, tennis courts, etc
Pumice fall	A little increase	A little increase	–	–	Can change water channels	Can get polluted	–	–	Can break down or ignite them	Suffocates and poisons plants	Hard to drive and increased dust in the air
Lava-flows	–	–	–	Can block or change river channels	Can block or change surface flow	–	–	–	Can disrupt lines of transportation	Can cover cultivated land	Surface difficult to travel across and lacking water and soil
Extreme Precipitation	Increase	Increase	–	Increase	Increase	Level gets higher	Can get colder	Claylike grounds get softer	Can damage foundations	Can be good or bad	Surface soil gets softer and is washed away
Extreme Drought	–	–	–	Decrease	Decrease	Level gets lower	–	–	–	Can damage vegetated areas	Increased wind erosion
Extreme Cold	–	–	–	Can create ice dams	Reduces	Lewel gets lower	Can get colder	Can increase	Can damage pipe systems	Can damage vegetated areas	Surface gets icy
Extreme-Fall of Snow	–	Increase	–	–	Reduces	–	–	–	Can break down roofs	Bad in certain periods of the year	Makes most transportation difficult
Extreme Thaw	Increase a little	Increase	–	Increase	Increase	Level gets higher	–	Can be reduced	–	–	Makes most transportation difficult
Extreme Wind	–	–	Increase	–	–	–	–	–	Can e.g. damage powerlines	Can break trees	Can build up drifts of sand
Blasting and Explosions	Increase	Increase	–	Can damage ice- or man-made dams	–	–	–	–	Can break windows	–	–
Changes in Vegetation	Vegetation cover seals and binds soils	Planting trees fastens snow cover	Vegetated areas less likely to be washed away	Reduced vegetation increases the runoff speed	Reduced vegetation increases the runoff speed	Trees lower the groundwater in wetlands	–	Strengthens	Roots damage foundations and pipelines	Less vegetated areas, less harvest	Vegitation can make transportation difficult

A basic point in planning is to know the nature and frequency of the various types of hazards.
The planner also has to know what influence each type of hazard can have on other natural phenomena.



Data and processes employed in making danger and risk assessments. Value and strength of property enter the risk assessment, but evaluation of danger defines areas that are subject to danger.

As this step in the evaluation process has been worked out we proceed to the fourth line in order to conduct the next step, namely, to estimate the risk that would be taken by bringing certain types of construction into a certain area. Here the statistical evaluation of the danger continues to show how frequently the danger can be expected to occur, together with an estimation of how much structures and technical infrastructures can withstand as the natural hazard in question occurs. It is theoretically possible to build a construction in such a way that it can withstand the stress. In such cases the evaluation of risk is low and planners do not need to exclude this type of activity from the danger area in question.

If the evaluation of the staying power concludes, however, that the structures in question cannot withstand the stress, the next step is to estimate the risk of going into the area by using a statistical analysis of the frequency of the hazards. If the risk of extensive damage or hazards is infrequent, the findings can tell us that it is acceptable to take the risk because the frequency is low and the lifetime of the construction, as well as the value of the construction in question, is not so high. The risk that the construction will be considerably damaged within a certain time span is therefore acceptably low.

Both the risk assessment and the conclusive findings in the lowest box are, however, not sufficient for estimating the full costs of damage. It is also necessary to estimate the social and economic damage that can occur, as well as the costs of rebuilding.

An example of a risk that is readily taken in Iceland is to build in earthquake-prone areas. Here one needs to keep in mind that earthquakes in Iceland never are of the highest magnitudes. It also is of importance that the design of buildings and infrastructures has reached such a degree of security that most often they suffer little damage from earthquakes.

In spite of these better design methods it is unwise to locate relatively fragile structures and sensitive functions in the most active earthquake zones, as for example in the long earthquake zone that extends through the towns of Hveragerdi, Selfoss and Hella in the south of Iceland. Too many easily damaged constructions gave way in the earthquakes in the south of Iceland in the summer of 2000.

A special issue of* AVS *on natural hazards.

III Adaptation of Settlements to Nature

1 The Ideology of Designing with Nature

In early times, when humans still lived off what the land could provide, people had to adapt to the natural conditions that were prevalent in the area in question.

In Iceland people first of all had to locate farm sites where it was easiest to have livestock, where they could use boats for fishing, and where it was easy to get fresh water.

The tools people had were so few for carrying out heavy labour that even to bring the water for the livestock from a well was very difficult if the well was not close enough to the farm.

The conditions on the narrow strip of land in Reykjavík between the coast and the Lake were quite good for the first settlers. The distances were short, both to the ocean as well as to the fresh water in the Lake. In addition the location offered many other positive features.

As people started to become freer in the choice of habitation, for example, because of the use of engines, they gradually forgot how important it is to adjust settlements to natural and local conditions. Because of this forgetting, modern humans of late have been hit more by natural disasters like lava flows, ocean floods, and avalanches.

The lack of sensitivity towards the environment has reached such a degree that for the most part people have lost any natural feel for what nature is saying.

In the praxis of planning for most of the twentieth century the arrogance of modern humans towards nature had developed to such a degree that people were not at all willing to listen to nature. This arrogance and disrespect have frequently been the primary cause of the difficulties in coexisting with nature.

In response, in the latter part of the twentieth century there surfaced a planning ideology characterized by humbleness and submission. It was based on the idea that it is a necessary first step in all planning to study the location and adjust the planning to it.

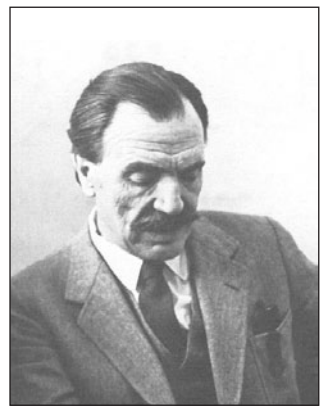
One of the most eminent theoreticians is this field was *Ian McHarg,* who wrote the book *Design with Nature.* The theoretical concept is taken directly from nature, where the harmony of location and life forms has been perfected to such a degree that one can translate from one to the other as, for example, ornithologists do.

The knowledge about this harmony is applied in such a way that an investigation is made into what are the best conditions for human habitation in an area. This method can also be applied in the study of history in order to establish an overview of where the best conditions for human habitation were earlier. This is done in the next section, where a series of maps, produced by students, points out that the Kvosin area in Reykjavík was exactly the best location for the settlement in its heyday.

Today this ideology of harmony is viewed as increasingly more important because of the demands for an improved harmony between humans and nature.

Earlier this ideology of harmony was often based on ethical or aesthetical foundations, but today the practical need caused by increased problems and environmental concerns appears even in hardcore economic arguments on how important it is to seek this harmony in planning.

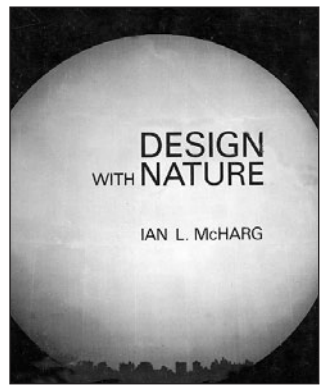
Another important issue supporting this ideology of adjustment is also increasing in importance, and that is that humans certainly invite unnecessary risks in planning if the natural forces are not taken into consideration.



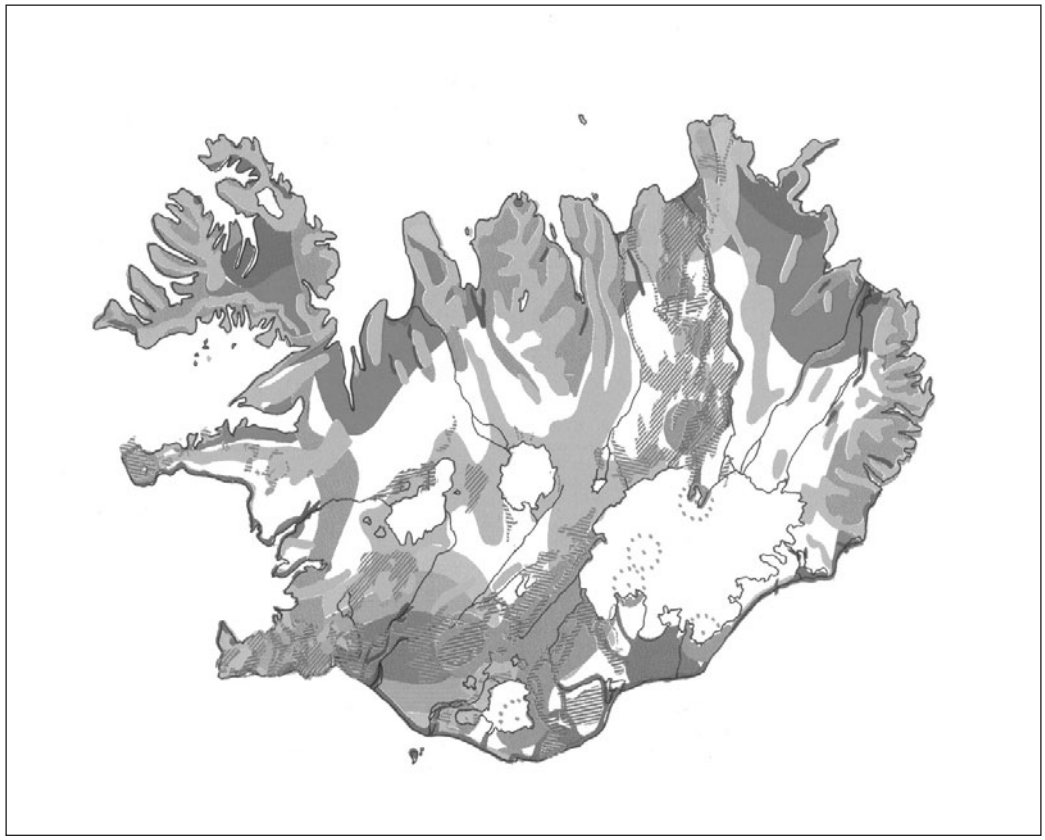
Ian McHarg was a pioneer in reading nature.

A pond with reeds indicates shallow water, an thus a source of food to wetland birds.

The long legs and beak show how the bird has evolved to thrive in marshland.



The first book on the "design with nature" theory.



A map showing many of the basic types of natural hazards. The danger zones in the highlands are mainly areas of high winds and areas at risk of tephra from active volcanoes.

The world's largest mural shows man and nature.

The best-known examples of these natural hazards in Iceland are earthquakes, volcanism and flooding. All these forces are varied and active in Iceland, which means that it is more important to apply the ideology of adaptation in the planning of settlements in Iceland than in most other countries.

Iceland has such a unique position in this field that one could even suggest that it is good for scientists and planners to use this country as a model and the praxis of such work can be used to demonstrate how one can logically plan according to the ideology of adaptation.

Today there already exists a rather complete theory about the adaptation of settlements to nature. This theory however differs somewhat according to which disciplines have a part in it.

The methodology developed in architecture, for example, works primarily with meteorological features like solar exposure, methods to create shelter, and methods to reduce the impact of buildings on the local environment.

And last but not least there already exists a theory of how it is possible to let buildings and the environment work together so well that the building becomes better because of the environment and the environment also better because of the building.

Civil engineering theories deal mostly with features such as adaptation to geological features and the effect of the construction on the surrounding hydrology. It should also be noted that the bedrock and the soils can play an important role when it comes to the selection of a site.

Within the field of planning, the theory of adaptation of settlements to nature first developed within landscape architecture. One of the reasons was that the scientific knowledge needed to think through a project in this way was already available in this field. Today the ideology of adaptation has been integrated into all planning programmes to some degree.

Examples of countries where natural features are very important in planning include Norway, because of the steep slopes in the Norwegian fjords, and California, because of earthquakes, erosion and landslides.

2 Examples of Good Adaptation

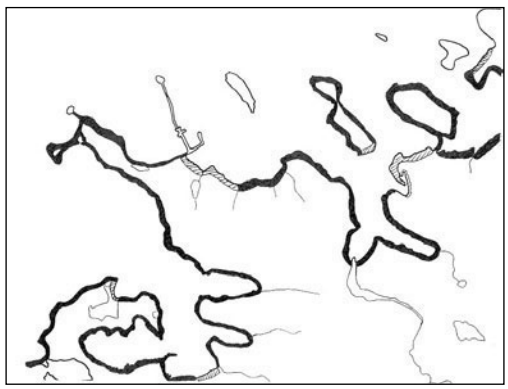
In 874 Ingólfur Arnarson arrived from Norway with his band of followers with the intent of settling this new land of Iceland. To choose the site he threw his high-seat timbers into the sea: where they came ashore he would make his home. He sent his slaves Vífill and Karli on a three year expedition all along the south coast of Iceland to find where the timbers had come to shore. They had washed up where the centre of Reykjavík is today. Reykjavík proved to be an excellent choice of location then, as it has been ever since.

In 2001 students at the University of Iceland made a series of maps for analysing what would have, in Arnarson's time, been the best areas for farming in the Reykjavík region. The result showed that Arnarson's choice of place was one of the best imaginable for many different reasons. The four maps below are from this series. They analyse the natural conditions that were most important for the farm of the first settler. The maps were made in a way similar to those a modern planner uses to analyse a region in terms of suitability, only the importance of the various features are somewhat different today than they were then. Then, as now, certain conditions were of a positive value and others negative. The four maps deal with various factors involved in choosing Arnarson's site.

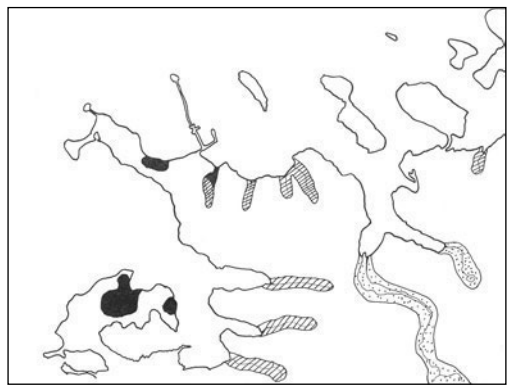
The first two maps show two important aspects concerning the suitability of habitation in the Kvosin area; i.e., a sloping beach to pull the boats ashore and the availability of a good supply of fresh water. Good conditions for boats at this time included finding a place that was not too close to the head of the fjord so as to avoid the danger of sea ice in the winter. This danger zone is shown in black in map four. Additionally, the Kvosin area was of value for a farmer who would also like to earn his living from fishing because it was sheltered by the Grandi narrow strip of land all the way out to Örfirisey Island.

On map three we can see that the areas most sheltered from wind are at the heads of the fjords and in the valleys. Obviously, in view of the other requirements it was best to sacrifice and select the coast for habitation.

The islands north of the Reykjavík Peninsula provide shelter from wind and waves – positive aspects in terms of anchorage, sailing and fishing. The numerous islands by Reykjavík, -



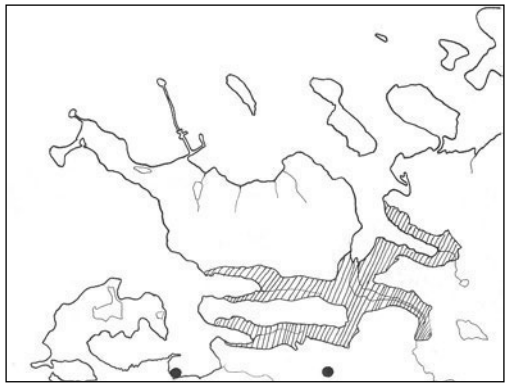
Diagonal lines show the best harbour conditions, black shows poor conditions.



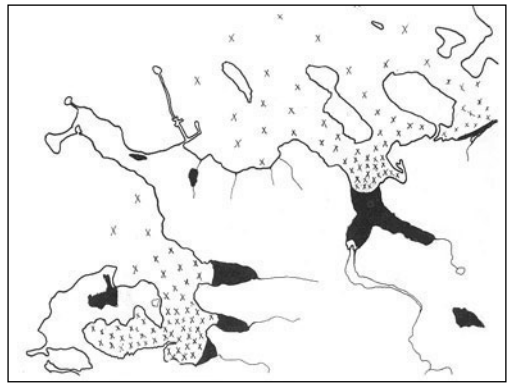
Diagonal lines show the best drinking water areas, black shows undrinkable water areas.

Good harbour conditions
Closeness of water
Good grazing land
Closeness to fishing grounds
Sheltered areas
Land-connected islands
Natural food supply
Enough building materials
Enough fuel material

Positive factors for Arnarson's in choosing his location.



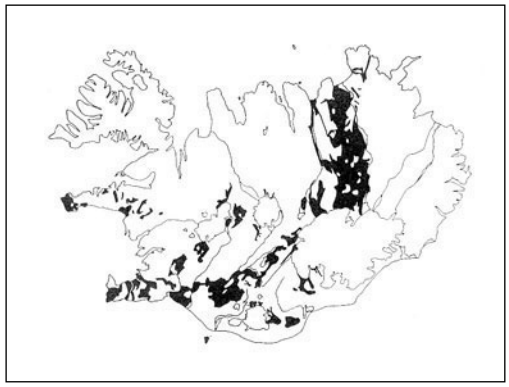
Diagonal lines show areas least exposed to wind: mainly valleys and heads of fjords.



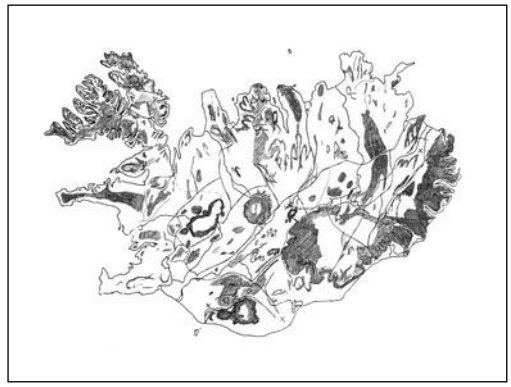
Black shows where there is a danger of sea ice, and X shows other ice danger areas in winter.

Sea ice danger
Total shadow
Ocean flood areas
Steep terrain
Too steep a coast
Too deep water at coast
Land transport difficult
Sea transport difficult
Windy areas

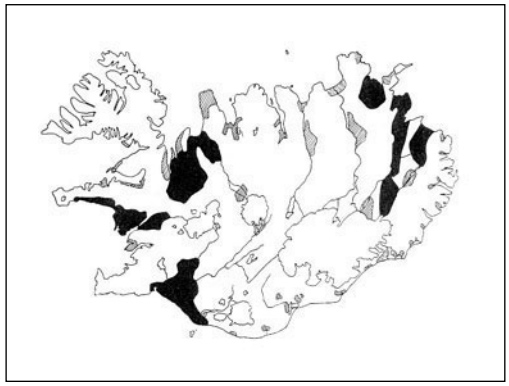
Negative or excluding factors.



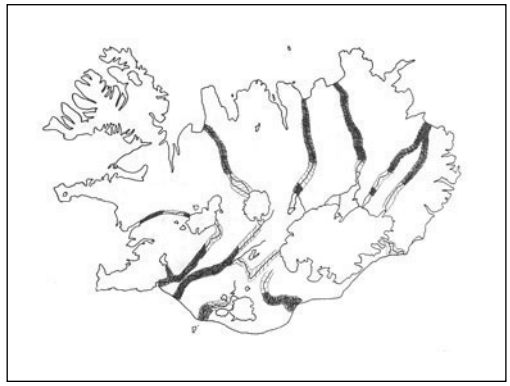
Black shows lavas. They used to be hard to cross over, especially rough lava.



Black: steep areas that are hard to cross. Lines: transportation routes in the 11th century.



Black: wetlands that were hardest to cross. Less ardous areas are shown with shadowing.

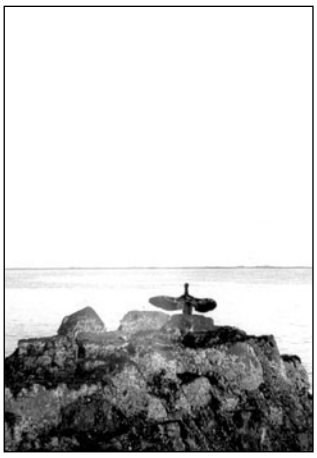


Black: those parts of rivers that were hard to cross – the more easily crossable are in grey.

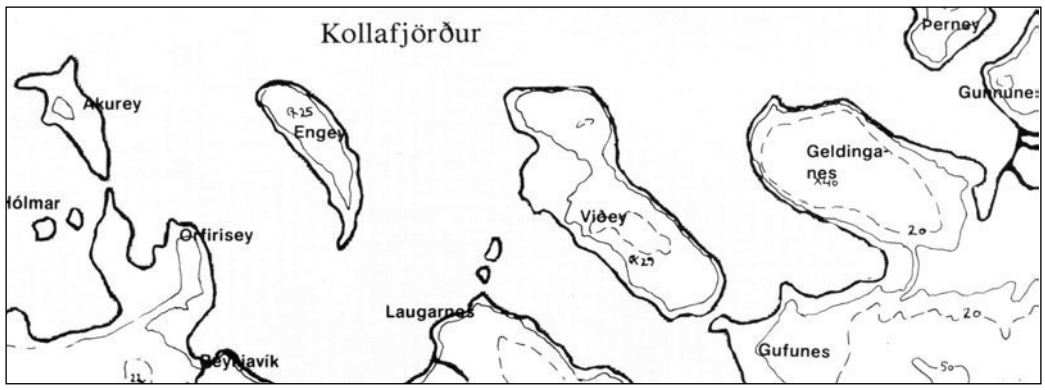
however, were also very valuable for other reasons and are close to the mainland. In contrast, there are almost no islands or even indentations in the coastline along the south coast of Iceland.

The islands near Reykjavík provided opportunities. First and foremost they could be used to isolate types of activities, which was important in a country with no walls or fences. The names of these islands point to these early uses: "Field Island", "Pasture Island", "Woods Island", "Island of the Geldings".

Another example of a mapping was the mapping of various features of the land that are either positive or negative in terms of being able to travel in Iceland at the time of the settlement. The four maps are from this map series. The first shows lava fields that were a great hindrance to travel in earlier times. Map two is marked black to show areas of very steep terrain that were hard to traverse. The third map shows in black wetland areas that were hard to cross, and the fourth map shows with dark shading those parts of the country were large rivers were almost impossible to cross in the early days.



Some birds are found along rocky coasts.



The map shows the 2m depth line along Reykjavík's coast and islands. This is appoximately where the coastal line was earlier, when the land was 2m higher.

3 Examples of Poor Adaptation

The greatest mistake the settlers made in this new country was to settle in low-lying areas open to the ocean, e.g., on the Reykjanes Peninsula. It was also a great mistake to settle too close to the flanks of volcanoes and far up in the highlands.

These early Norse settlers did not know the dangers and were caught unawares by nature but, as the climate turned colder, volcanoes erupted and coastal areas flooded, nature gradually taught them a lesson and they had to pull back from these areas.

There are many stories telling how farms were moved, step by step, away from the ocean as people gradually experienced the bitter taste of what it meant to be open and unprotected to ocean flooding.

Various scientists have carried out studies on why farms have been abandoned in Iceland. For her Ph.D. thesis Gudrún Sveinbjarnardóttir selected certain areas in Iceland for special investigation. The two maps below are taken from her thesis.

The first map shows farms in the East and West Valleys of Skagafjördur that had to be abandoned. There were various reasons for this but the main one was that farming conditions were not good because the sites were too far inland and at too high an altitude.

The other map shows farms close to the Eyjafjallajökull Glacier in south Iceland that have been abandoned. Some of the farms are in the Thórsmörk area and it is likely that the high altitude pumice and ash fall caused the farms to be abandoned.

On the sands below the glacier there have been other reasons at work. Along the coast itself, probably the shifting of the coastline and erosion have had the most effect, but further inland it is not unlikely that floods from beneath the glacier and erosion of grazing lands have had a considerable effect.

Disasters that settlement areas suffered because of eruptions include the famous examples from the Thjórsárdalur Valley and the Öraefi area. In the first centuries of settlement there was quite a large settlement in Thjórsárdalur Valley close to the slopes of Mt Hekla.

The gigantic eruption of 1104 threw out a huge amount of volcanic ejecta and the area was covered with a layer of pumice and ash, in some places several metres in depth.

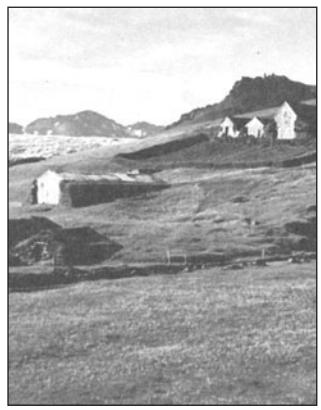
This is comparable to how the towns of Pompeii and Herculaneum in Italy were destroyed and covered when Mt Vesuvius erupted. There the eruption came so suddenly that people were unable to escape but died instantly as they breathed in gas and were covered by ash and mud.

It has not been established whether anything similar happened in the Thjórsárdalur Valley but it is likely that the eruption took place slowly enough for people to be able to escape with their livestock.

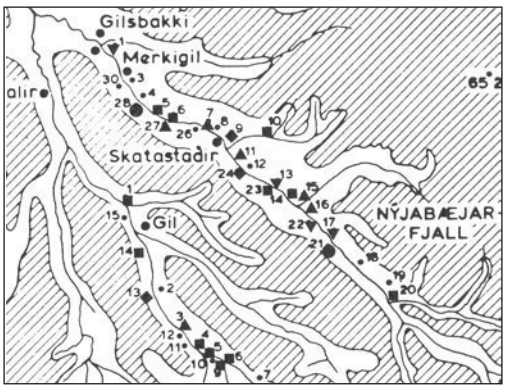
Around the mid-twentieth century one of the farms in the Thjórsárdalur Valley, Stöng, was excavated. The walls of the farmhouses that appeared then are very well preserved but the roofs had collapsed.

Later, new roofs of corrugated iron were built over these walls and the buildings have at times been open to the public.

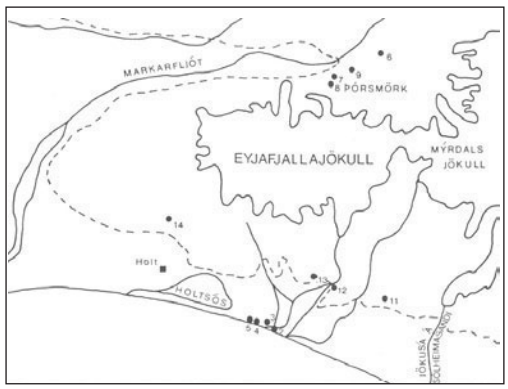
As the National Power Company built the Búrfell Power Plant in this area it was considered to be right that the company would honour the history of the area. The artist and scholar, Hördur Ágústsson, was given the task of producing drawings of how the farmhouses at



Skaftafell is very near a moving glacier.

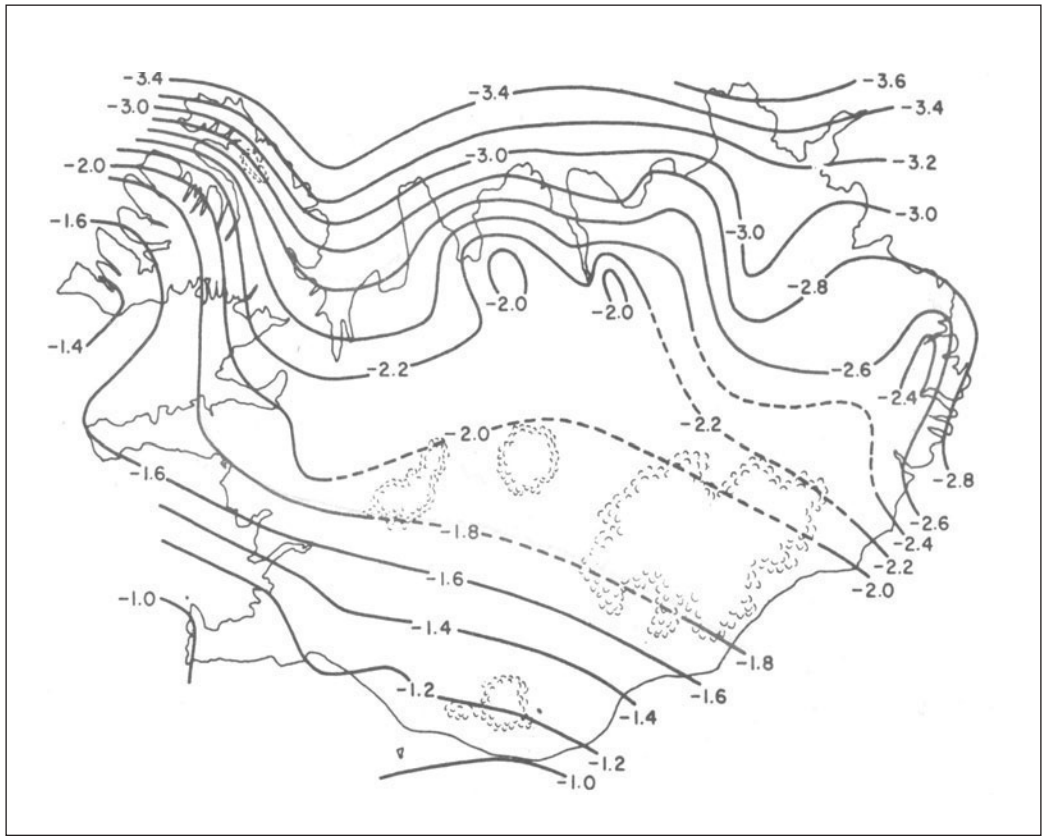


All these farms in Vesturdalur and Austurdalur are now deserted for one reason or another.



Deserted farms in Thórsmörk affected by wind erosion, volcanic ash or weather.

Ábaer is a deserted farm in Austurdalur in Skagafjördur.



A map that shows how much the temperature dropped in Celsius degrees in 1968 compared to average temperatures. The drop was mainly in the north where pack ice surrounded the coast.

Stöng had probably looked. These hypothetical drawings were primarily based on the wall layout of the Stöng farm. These drawings were later used as a basis for designing and building a Saga Age Farm not far from the generating plant at Búrfell, which was opened in 1974 in commemoration of the 1100th anniversary of the settlement of Iceland.

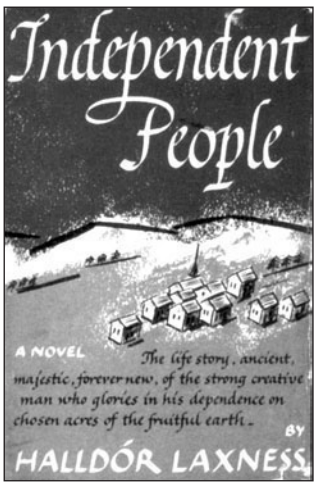
The largest ash fall in the history of Iceland was in the Öraefajökull Glacier area in 1362. The largest part of the ash was carried by wind out to sea but to the south-west of the glacier there had been a settlement called Litla-Hérad, which was destroyed by this eruption. Later this area got the chilly name of Öraefi – meaning wasteland.

Another feature of nature that drove settlers away from certain areas was the coming of drifting polar ice to Iceland. Most commonly this pack ice reached the land at Hornstrandir in the north-west and Melrakkaslétta in the north-east.

Even though the twentieth century was rather warm, Iceland experienced pack ice in 1968. Because of the weather stations all over Iceland a map can be drawn that shows how much the temperature was lowered in that year (see the map above). The most lowering of temperature was at Melrakkaslétta, where the average temperature became 3.6°C colder than in a normal year. This lowering of temperature decreased as one moved further inland. In spite of this the average temperature in the south, where there was no pack ice, was lowered to about minus 1°C.

History records many stories of how much various troubles in farming were connected to the coming of the pack ice. Fishing grounds were closed, the sailing of coastal ships could not be continued, hay production was reduced, etc.

The considerable lowering of the average temperature of course meant that there was a large reduction in grass and hay production. Understandably, the greatest problems were in areas that were already at a critical stage of grass production, e.g., at higher altitudes. In these years of disaster people that lived in these difficult areas had few choices available other than to abandon their farms and go down to the coast to try to save their lives with the food that could be found there.



The novel* Independent People *was popular in USA.

4 Why Adaptation Does Not Come Automatically

The lessons of experience are valuable, but often bought at a dear price. Therefore it is highly regrettable that modern man has forgotten many of the lessons of nature learned by earlier generations. In spite of all the modern means of communicating knowledge, there is little connection between these old experiences and how we plan and implement things.

In addition there are few links between the knowledge of those who have specialized in some of the aspects of this natural history and those who are doing the planning and designing.

In order to remedy this we have to create systematic approaches or theoretical schemes that can help us in adapting settlements to environmental factors.

There are many applicable branches of science to assist us in this task of adapting the settlements to local features, not least geology, volcanology, botany and hydrology. Even though today there exists a great amount of knowledge in these fields the channels to connect this base of knowledge to how to plan in the best possible manner are often missing.

One of the central tasks of planning theory – something the planner has constantly to keep in mind – is to define accurately what conditions suit the planned activity best and, conversely, to define what conditions can be a threat to settlement or can result in added costs.

The planner has to search for scientific data to help him to interpret the data as preparation for his planning. In many cases he has to be instrumental in seeing that such an analysis of the natural conditions in the area is carried out.

This kind of research often requires a great deal of time and therefore the foresight and long-term thinking which planning should be able to foster are so important. Only by thinking ahead in this way can people make the time required for this kind of basic research to provide the information that has to be there before starting to work on the actual plan.

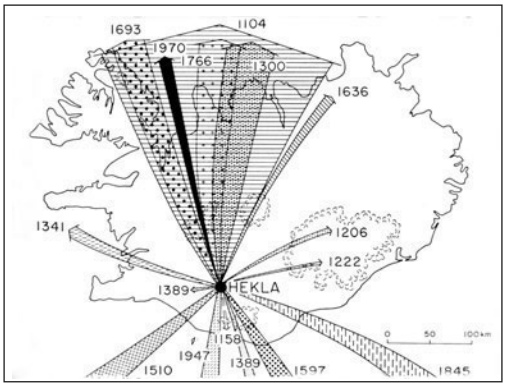
Many scientists contributed greatly in the twentieth century to interpreting and defining the natural features that have been the most dangerous in Iceland in the past.

One of these men was the geographer and geologist Sigurdur Thórarinsson. In choosing his research subject, Thórarinsson constantly bore in mind the question: what geological factors have had the most influence on settlement in Iceland. Therefore his research into such aspects as the area covered by ash from the various volcanoes in Iceland has more practical value than the research of many other fine scientists.

Without the fundamental work of the natural scientist, planners would not be able to proceed to interpret what type of conditions are the most suitable for settlement because their work normally starts where the natural scientist's ends, that is, the planner takes the basic data on the natural features and interprets them on special maps made for analysing the influence of the natural features on settlement and construction.

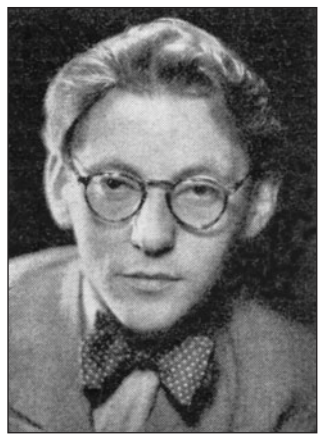
On the next page there is a table that gives an overview of the time required for preparation, as well as the finances needed to produce solid preparation for planning – in this case the planning for building a hydropower plant. As can be seen in this table, it is necessary to allow five years for the basic research work, then come three years for primary design research and primary design.

After that there follow another three years for the research needed for the design and then the

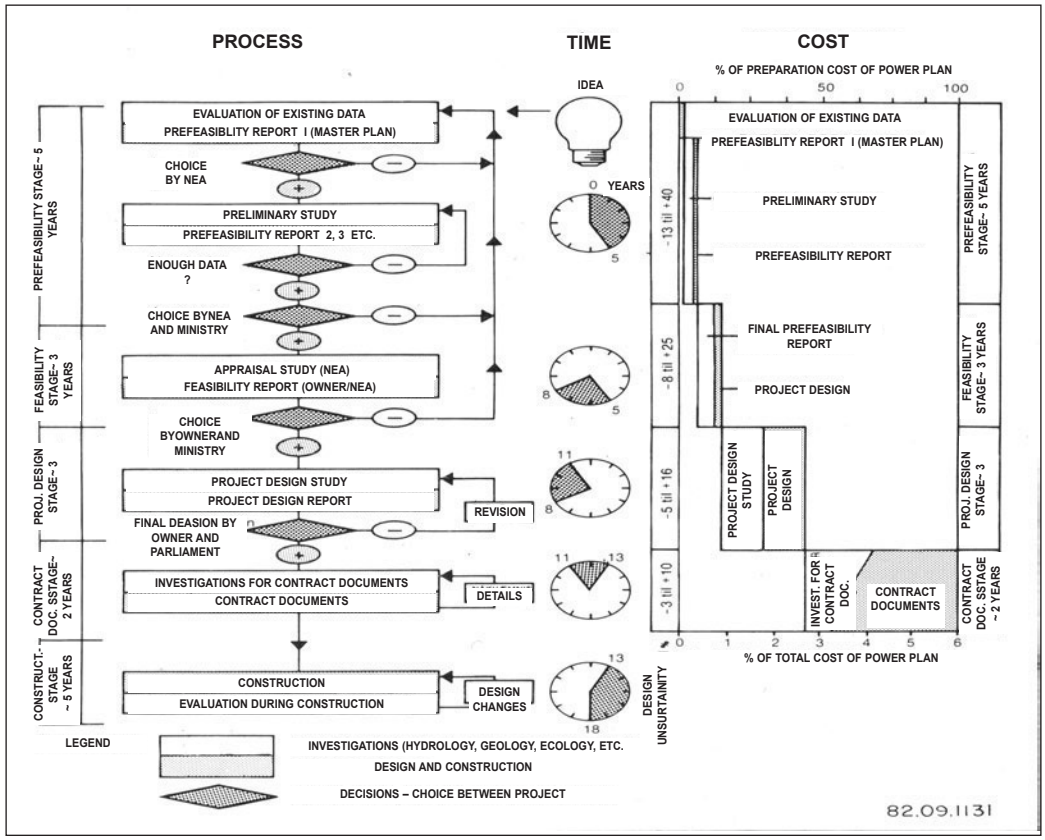


Thórarinsson's map of areas affected by Hekla's volcanic ash. Years of eruptions are shown.

A planner proudly presents a model of a block of flats in Breidholt.



Thórarinsson interpreted living with nature in Iceland.



Planning to build power stations takes a long time. This chart shows the stages of the process in the first column. The second column is how long it takes, and the last column, how much it costs.

planner finally arrives at preparing the building of the power plant itself, where again various kinds of research are needed in order to prepare the bid documents. This normally takes about two years.

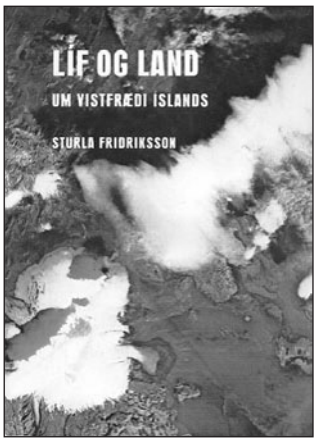
Then, finally it takes five years to build the power plant. In total this type of project takes 18 years. Some extra time might be needed for conducting an environmental impact assessment. Clearly, in the preparation of large projects foresight is essential and the original idea of the project has to have been developed long before it is possible to start to build it.

In the planning of human settlements in Iceland, we know of no comparable examples in terms of research work carried out to prepare a plan. However, as new settlements are being prepared and planned in the Reykjavík area, the planners have the great advantage over other regions in the country that the Capital Area is by far the most researched area in Iceland.

In many cases most of the initial natural science research needed already exists for the Capital Area. Unfortunately the same does not hold true for most places in the countryside. People therefore often start too abruptly with planning so that the time needed for conducting the necessary primary research for the plan simply is not there.

In addition to geological and hydrological research – the most important research in preparing hydropower plants – there is in addition a variety of research that needs to be carried out for the planning of human habitation.

This includes research on the microclimate as well as research on various economic and social factors, especially if the area to be built is located within an already existing settlement area. A common feature of this type of research is that it can be characterized as research on a specific local territory, i.e., a study of all important and specific characteristics of a location in the planning area.



Ecology explains how life adapts to circumstances.

Book Two

First Steps in the Shaping of Settlements

I Basic Factors in the Shaping of Settlements

1 Features of the Land: A Basis for Shaping

Book One included an explanation of the fundamental reasons and the influential factors in how the topography and terrain of Iceland have been shaped. Book Two takes these ideas further and explains how it is possible to read from the environmental features of the country how settlement developed and why settlement survived in certain areas while it perished in others. The first factor affecting the development of settlement was that the settlers, sailing from Norway and the British Isles, had good ships and were good sailors. It was also important that the settlers did not bring much livestock with them when they emigrated from Norway because their ships were small.

The first settlers therefore had to live from what the ocean and the land could give them directly. The natural advantages existed primarily along the coast such that, for travel and food, the first step in the formation of the settlement structure of Iceland was characterized by travel on the ocean and settlement along the shore. The terrains that offered fertile lowlands, good fishing grounds and areas protected from waves therefore suited quite well this very first period in the development of settlement in Iceland.

Soon however the best areas along the coast were taken. At the same time the livestock had increased so that many could live almost wholly from husbandry. Then some of the first settlers started to move further inland. As this process continued and the best inland areas filled up, many even moved up to the edge of the highlands. To put up a farm in that zone had certain advantages; the woods were not as thick and grazing of animals therefore easier. Furthermore it was an advantage for these farms on the edge of the highlands to be able to allow the livestock to graze freely in the uninhabited highlands. The first centuries of settlement in Iceland occurred during a warm climatic period, as shown in the diagram on the next page. During that period the settlements could therefore easily survive at the edge of the highlands. Because of the cooling of the temperature, the fragile vegetation at the highest altitudes soon started to retreat and there was considerably less grazing land. Living in these upland settlements was often characterized by flight, or relocation, of people down to the lower areas, especially in periods of cold spells.

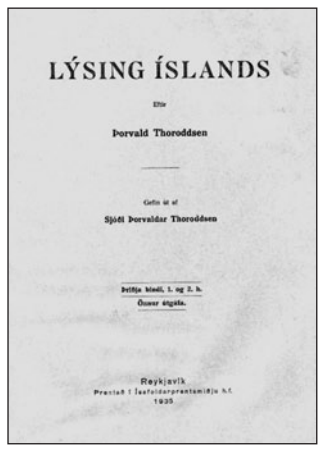
One can easily visualize that the overfill of the lowlands caused by this migration led to increased clashes, even though the fight for land is not considered to have been an important factor in the skirmishes in the Age of the Sturlungs. The internal strife of that period reduced the strength of the nation and the Norwegians started to exert their influence and finally ruled Iceland in 1262.

Fishing started to increase around the mid-thirteenth century with the consequence that an increased number of people lived along the shore. In the latter part of the fourteenth century Icelanders became a part of the commercial system of northern Europe as Bergen was then the capital of both Norway and Iceland and a part of the commercial network of about 80 Hanseatic towns. As a result, the importance of fishing in the structure of the coastal settlement was again strengthened.

The advent of fishing not only benefited the coastal areas but also the countryside because idle time on the farms in late winter and spring could be made productive by sending the farm workers to the fishing stations. When they returned to their farms they had their horses laden with stockfish at the start of the spring season. Soon after that the hay harvesting commenced. Workers from the countryside

Most of the farms in west Reykjavík and Seltjarnarnes were connected to the sea.

When the coastal areas had become crowded, settlements moved inland.

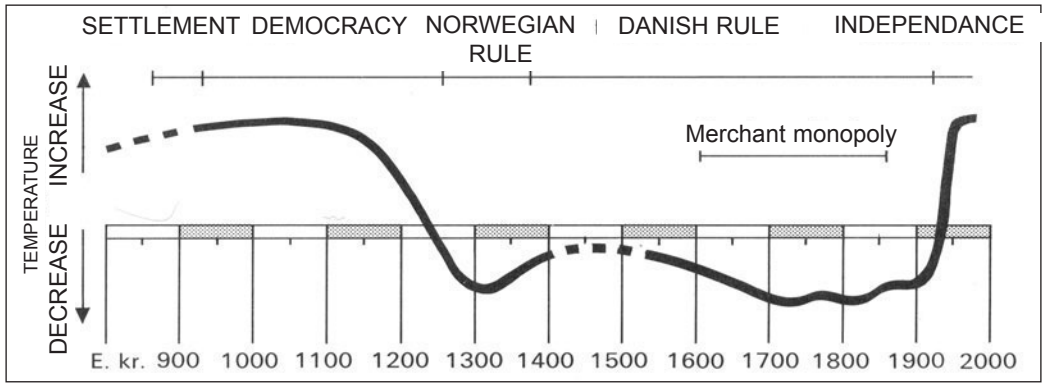

LÝSING ÍSLANDS

Þorvald Thoroddsen

Sjötti Þorvaldar Thoroddsen

Reykjavík

Thoroddsen describes the link between nature and settlement.



Here a temperature chart and an historical timeline have been put together to show a link between good periods in history and good weather. Likewise crises follow cold weather.

moved inland during the haymaking period to be employed as day workers on the farms. Some stayed there until the flocks of sheep had been gathered from the highlands.

This tradition continued into modern times as city people sent their children and youngsters into the country during the summer to work on farms. This co-operation between coastal and inland habitations provided both parties with benefits, especially in the late Middle Ages. This overview shows us that the features of the land are the most important ones in directing where settlement was formed in Iceland and, together with the occupational activities and transportation techniques of each period, were the decisive factors.

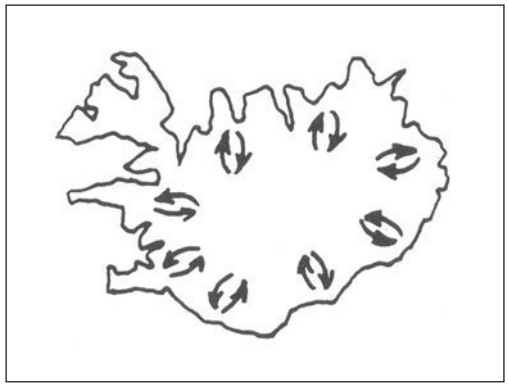
The previous account also makes it clear that climate has greatly influenced changes in the settlement structure. In examining the history of Icelandic settlement patterns one important and remarkable thing is clear and that is that the settlement structure has been constantly changing, a lesson that is often forgotten in the study of modern settlements.

In later periods many of those that have written about this period have interpreted the problems associated with this flux in settlement much too negatively. In doing so, they unconsciously place this era in the rather static world view of today and do not open themselves up to the positive features of fluctuating and dynamic settlement that was characteristic all over the globe earlier in history.

In the geological history of the earth, the coming and going of Ice Age glaciers, as a result of the cooling and warming of the climate, were then not considerable problems because people simply moved from place to place. Earlier this was easier than it is today because there were not that many people and because many could easily move their habitation as necessary.

Today there is much talk about the danger that a warming climate would bring with it. Definitely this is going to lead to troubles, both because of the large number of people today and because we, for the most part, have been creating static societies. But we still have some leeway. This has been made possible, for instance, by creating a Europe with fewer border restrictions. If the southern part of Europe becomes less liveable, perhaps even a desert because of global warming, the living conditions will improve in northern latitudes and people could move to these northern areas such as Iceland.

Trails for caravans of horses often followed difficult paths.



There was much interchange between the coast and inland areas, which was mutually beneficial.

Farmers unloading wool from horses outside a store in Eyrarbakki.

2 The Fundamental Importance of Trades

Fishing and the advantages of living on the coast were what saved people in the desperate years when they were driven from the highlands and did not have access to farming areas in the lowlands. These uprooted people, however, often managed to settle on a croft close to the biggest farmers, who operated fishing boats. This development became partly a foundation for the formation of villages later on.

The settlements of cottages around the lands of the seagoing farmers also provided support for the farmers and in some of the best fishing places seasonal fishermen's huts were established. Workers from the countryside flocked there during the winter and spring fishing seasons in order to get a place on the boats of the sea farmers.

Except for the sands in the south and the north-east, these fishing spots were equally distributed over the country, as the map on the next page shows clearly. The most productive fishing centres were located in the south-west on the Snaefellsnes Peninsula, and in the West Fjords where the schools of fish were abundant, as they still are today. Some of the workers even came across the central highlands from the north of Iceland to go to the fishing centres, as shown on a map on page 66.

An increased number of fishing boats as well as the method of processing saltfish induced the formation of settlements and as schooners arrived in the late nineteenth century the development sped up. With the schooners, people needed better harbours and in places where such conditions were available, as in Hafnarfjördur, Reykjavík, Flatey, Ísafjördur and Seydisfjördur, the fishing villages started to grow. This finally led to the formation of Iceland's first urban areas to speak of and people increasingly started to move to the coast.

This new development in trade, with increasing fishing, resulted in strengthening and increasing various other supporting trades and occupations, such as processing fish, old methods of drying fish, and above all the production of salted fish. Many people took fish home for processing. Later, fish processing work stations were established, next to fields laid with flat stones for drying the fish. Cooking the liver was also important.

Vegetable gardening came to the country in the eighteenth century, which made it easier for people with little land to survive in the small fishing villages. Because of the drying patches and the cabbage and potato patches around the cottages, the settlements were spread out. Vegetable gardening also became an important addition to farming in the countryside.

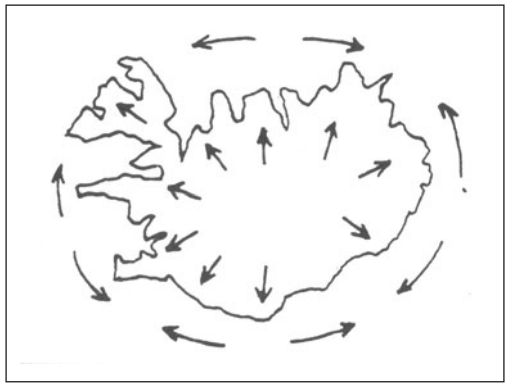
Later, as horse drawn carriages arrived in Iceland, the transportation of agricultural products from the countryside to the urban areas created conditions for the further increase in population in urban centres. Again, this was an impetus for activating the fishing industry still further.

This short overview shows how much the development of trade has had an influence on the settlement structure of Iceland. It also shows how villages developed and later, how their planning evolved.

Looking at the development of the settlement structures in a schematic way we see that originally there was a structure of coastal settlements. With increased livestock and improved conditions for land transport the settlement structure moved towards inland settlements. As fishing started to develop the direction of migration turned around and the people again began to move to the coast.

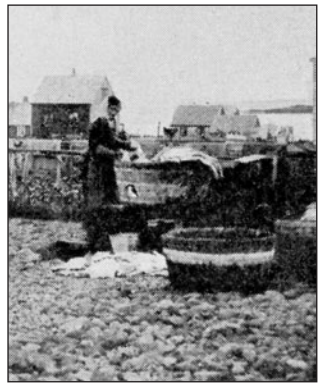
Improved harbour facilities and better ships

Bird cliffs were an excellent source of food.

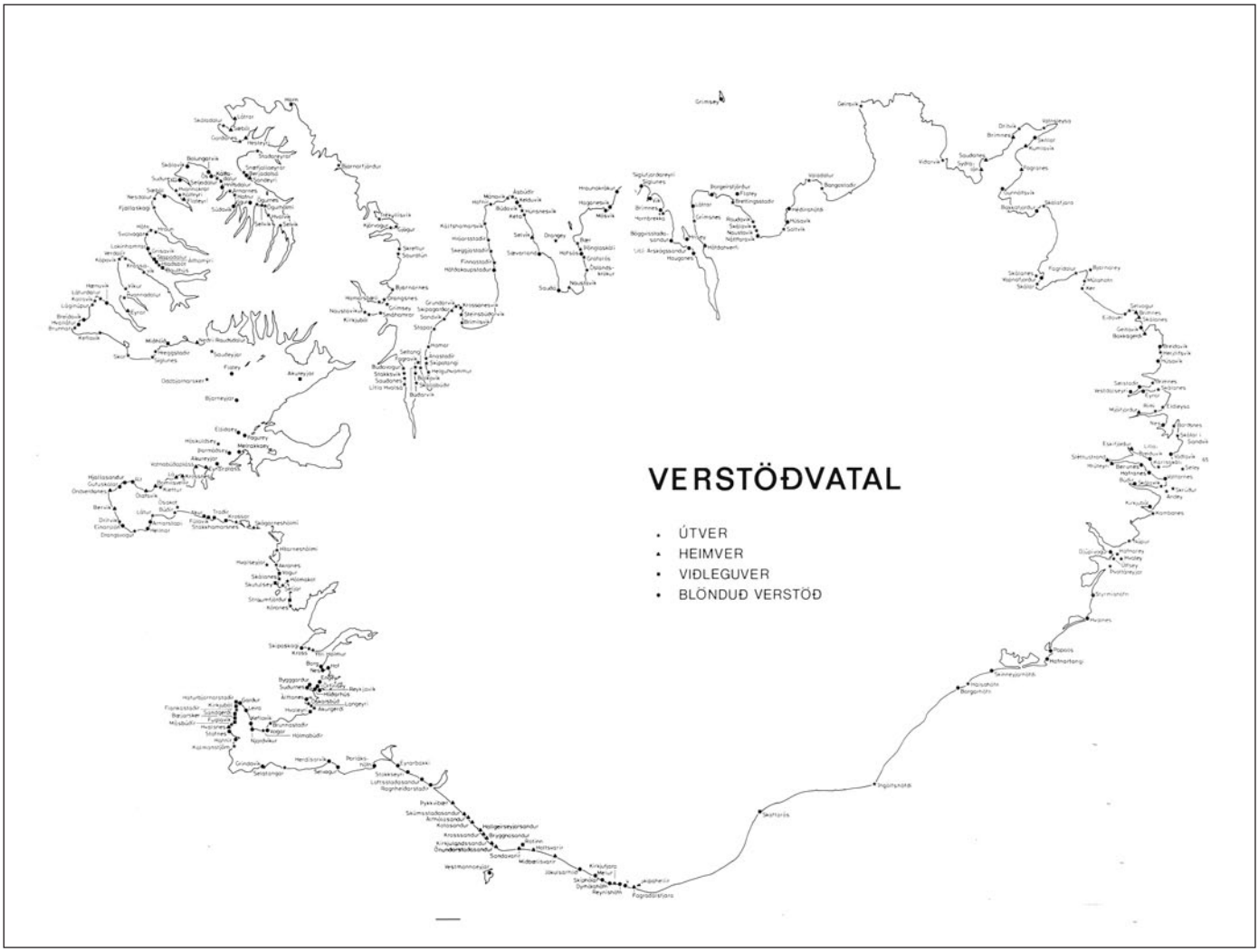


When steamship sailed around the island and modern fishing began settlement moved outward.

Men drawn to the fishing season lived in temporary camps. Some became coastal towns.



Cottage people took fish home for processing.



The fishing originally took place almost everywhere along the coast line, even deep inside fjords. When the amount of fish available on swallow grounds, decreased due to over-fishing, people headed towards outer peninsulas in search of fish.

A multi-volumed work tracing the history of fishing.

meant a great improvement in coastal transportation. Increased production in the country required heavy transport which could only be handled by boats. This added to the strength of the coastal zones around the middle of the nineteenth century and continued all through the twentieth century.

Now, after the advent of the year 2000, a change in various prerequisites of the settlement structure is again taking place. Fishing is no longer the main work that leads to creating other industries. In addition Iceland now has a rather good road system which has meant that ocean transportation has been on the decline. Because the road system is still being improved this development has not reached completion.

The inland areas of Iceland are at a higher latitude and therefore colder and snowier than the coastal areas. Historically this climate had an influence on keeping the settlements close to the shore. If, however, the world climate is going to become warmer, the problems of cold and snow in central Iceland will decrease, with the consequence that it will be easier to live and travel in the central highlands. If the warming is substantial, the highlands will be automatically revegetated and thus be as suitable for settlements and transportation as any high-lying areas in northern Europe today.

If people take the predictions of global warming seriously we can conclude that it is unwise and unnecessary to spend the huge effort that is now being made, under poorer climatic conditions, to revegetate the highlands. It is a better idea to wait and see if nature cannot do the work itself. This would save the Icelandic state the 50 million euros that have been estimated that revegetation of the highlands will cost.

The scenario of global warming also changes the very foundations of all types of environmental impact assessments because, for example, many of today's vegetative communities will disappear and others will come in their place.

3 Assets: A Basis of the Power Structure

The discussion so far has covered the fundamental features that have influenced the forming of settlement structures. We have already reviewed the importance of the features of the land. Now we have arrived at an aspect that in most other countries is the most important influence on how settlements are shaped: who owns or controls the land.

Historically the church or monarch has frequently controlled most of the land and have had a decisive influence on where and how settlements have developed.

Regional development in Iceland has been somewhat different from this because nobody owned the land when the first settlers came to the country. They had therefore a free hand in choosing land for settling – free from the point of view of the rights of ownership.

As time passed, both the church and the foreign monarchs acquired a great deal of land in Iceland but because of how big the country is and how few inhabitants there were, the price of land never became very high in Iceland compared to other densely settled countries. Therefore land ownership did not become a very decisive factor in where villages or settlements developed.

Let us now start by reviewing how the power structure patterns in Iceland evolved. In this respect it is of basic importance that the old land claims and settlements from the time of colonization continued to some degree as basic governmental units in the settlement structure.

Let us first look at the settlement area claimed by Ingólfur Arnarson, as shown in the map below. The lines in this figure show how his original area of settlement later became divided among more people.

The very large scale of the area that the first settlers claimed, like Ingólfur Arnarson's claim to the whole of the Reykjanes Peninsula, is a surprise to many. This came to be because the first settlers understood that their power, and that of their descendants, would partly be based on how much land they owned because they would have some hold on the people living in their area of settlement.

The first settlers probably also envisioned that their settlement area could become a small state like those that were common in Norway at the time. This attitude was borne out in later developments and some of the first settlers became powerful chieftains, who allocated good settlement areas to relatives and other followers.

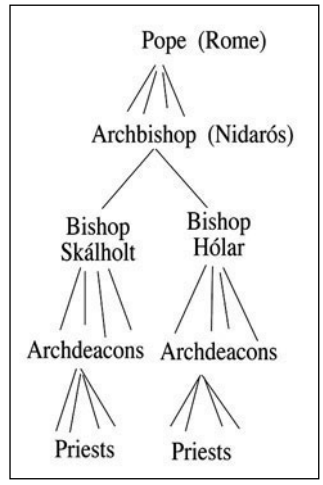
Later the two bishoprics in Iceland as well as the monasteries became powerful owners of land, and the tenants and servants of the church also took possession of land widely in Iceland. The priest-chieftains called *godar* also enhanced their power through the possession of land, even though their power structures were not permanent because the geographical units were loosely defined.

In addition, the power structure of the church and the monarch was strengthened, a power structure that sometimes worked against that of the chieftains of certain areas, often weakening their power. The Catholic Church in Iceland of course was a part of the hierarchical power system of Europe with the Pope in Rome as its head.

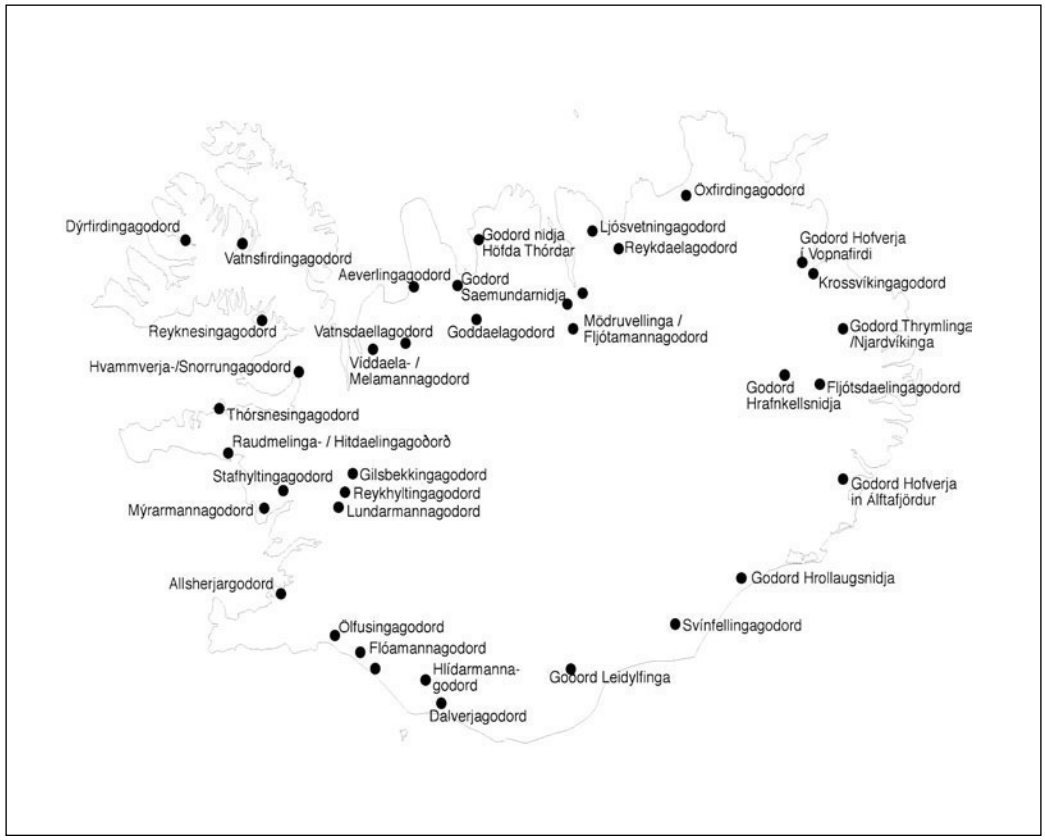
Already in 1056 a bishopric was established in Skálholt and a half century later at Hólar in the north. Skálholt therefore became the centre of the power structure of Catholicism in Iceland. The church soon started to take over social functions and people began to be required to pay a tithe to the church to carry the cost of its

Ingólfur Arnarson's settlement area was gradually divided between other settlers.

Skálholt acquired a lot of nearby land and therefore in effect governed the area.



The church became a part of the papal power system.

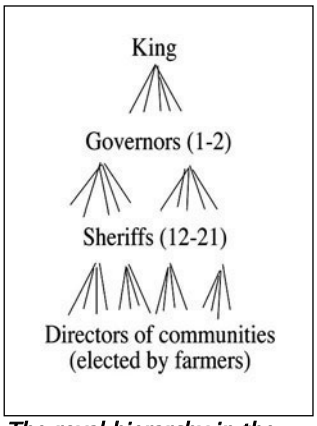


Sites of* Godar *offices in the 10th century. The largest and most powerful property owners became the* Godars *in their district. Therefore these offices were like their own private kingdoms.

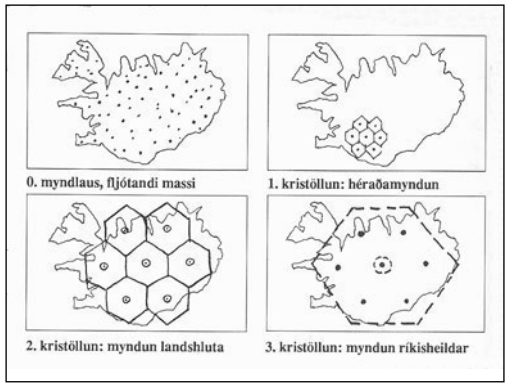
services. Skálholt soon accumulated farms and properties and continued to establish its resources.

The bishops of Skálholt were also initiators in employing merchant ships that could maintain commercial ties with foreign countries, partly because they themselves were great producers of goods and they also needed many types of goods for the various activities taking place at Skálholt.

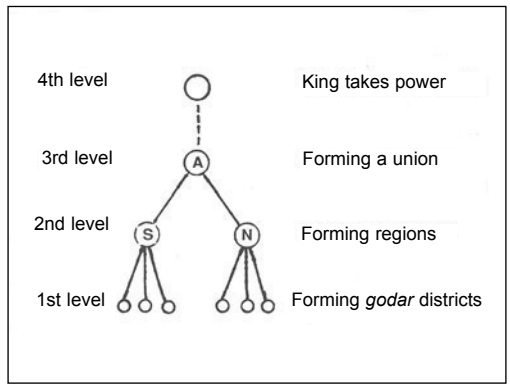
The question as to whether the power of the church had a great influence in preventing the creation of a secular power structure in the country is not clear. On the other hand it is certain that disagreement among the chieftains of the country was so great and that the settlements so dispersed that none of them was able to make himself king of the country. The Norwegian king used the opportunity to push himself into this power vacuum caused by the strife in the thirteenth century.



The royal hierarchy in the first half of the Middle Ages.



Steps in crystallazition of a power system: First powerless, then a system of government.



System of power presented as a tree. The uppermost step never materialized.

4 Possibilities in Transportation

As we now have gotten some insight into how aspects of the land and trade, as well as power structures, were of influence in the early ages of Icelandic history, we now proceed to study how the settlement structure was influenced by the possibilities at hand in terms of transportation. In studying this we pay attention to both topological features and the transportation technology that was available in the country.

Possibilities in transportation have a large influence on how settlements are formed and where the centres of power emerge. In earlier times traversing the country was much harder than it is today.

There were the rugged lava flows, no bridges over rivers, untouched moors and uncleared woods, which all meant that transportation in the area in question was very difficult. On the other hand, the transport of goods and people followed the routes that were the easiest to travel over.

Limited space for transportation over certain landscape features gave the people that lived there the possibility of having some influence or control of over the travel that was dependent on these routes.

Helgi Thorláksson has written an interesting book on these old trails and how the power of the *godar* was linked to them. The book traces a few ancient transportation routes and describes in which areas close to these routes settlements could develop and where the centres of power were.

The pictures below show an analysis of conditions for transportation in south-west Iceland published earlier in *Land sem audlind* (Land as Resource). The first map shows in black where transportation was difficult and the black spots include features such as glaciers, mountains, water areas, and rugged lava. It should be noted that in some ways water areas could be profitable in terms of transport, especially where fast running rivers changed into placid lakes because then it was easier to ferry people and goods over the river in boats. This is the case with Lake Álftavatn which the River Sog runs through.

The route from Reykjavík over the Hellisheidi therefore lay towards Lake Álftavatn and proceeded from there to the upper regions of Árnessýsla County.

The second map is derived from the first one and emphasises the easiest transportation routes. Note the routes from the Borgarfjördur area towards Thingvellir and also that many of the routes have a south-west direction and therefore many point towards Reykjavík.

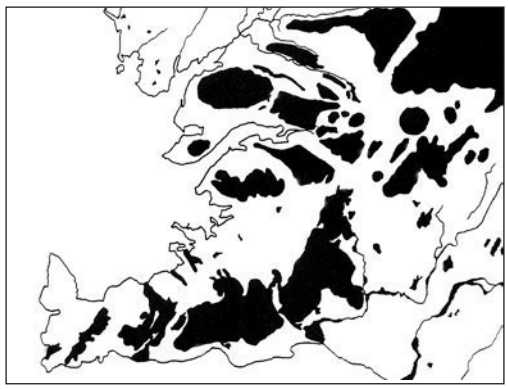
In courses in planning at the University of Iceland students have carried out many such analyses of maps, both as concerns usage of the land as well as maps that clarify conditions for transportation.

The two textboxes to the right list maps that have been worked out in this way. The upper box lists features that were great barriers to transportation in the early ages of settlement. The lower box lists features of the landscape and the surface of the land that all meant that the areas in question were good transportation areas.

As people learned through experience where it was easy to travel in the country, certain routes of transportation manifested themselves which, as a second step, meant that quite early people and governmental officials started to work on transportation improvement on these routes.

Wide wetlands
Large, rough lava areas
Rocky terrain
Large, dense woodland
Rugged territory
Steep territory
Steep mountain ridges
Impassable rivers
Impassable fjords

A list of obstacles to transport in old times.

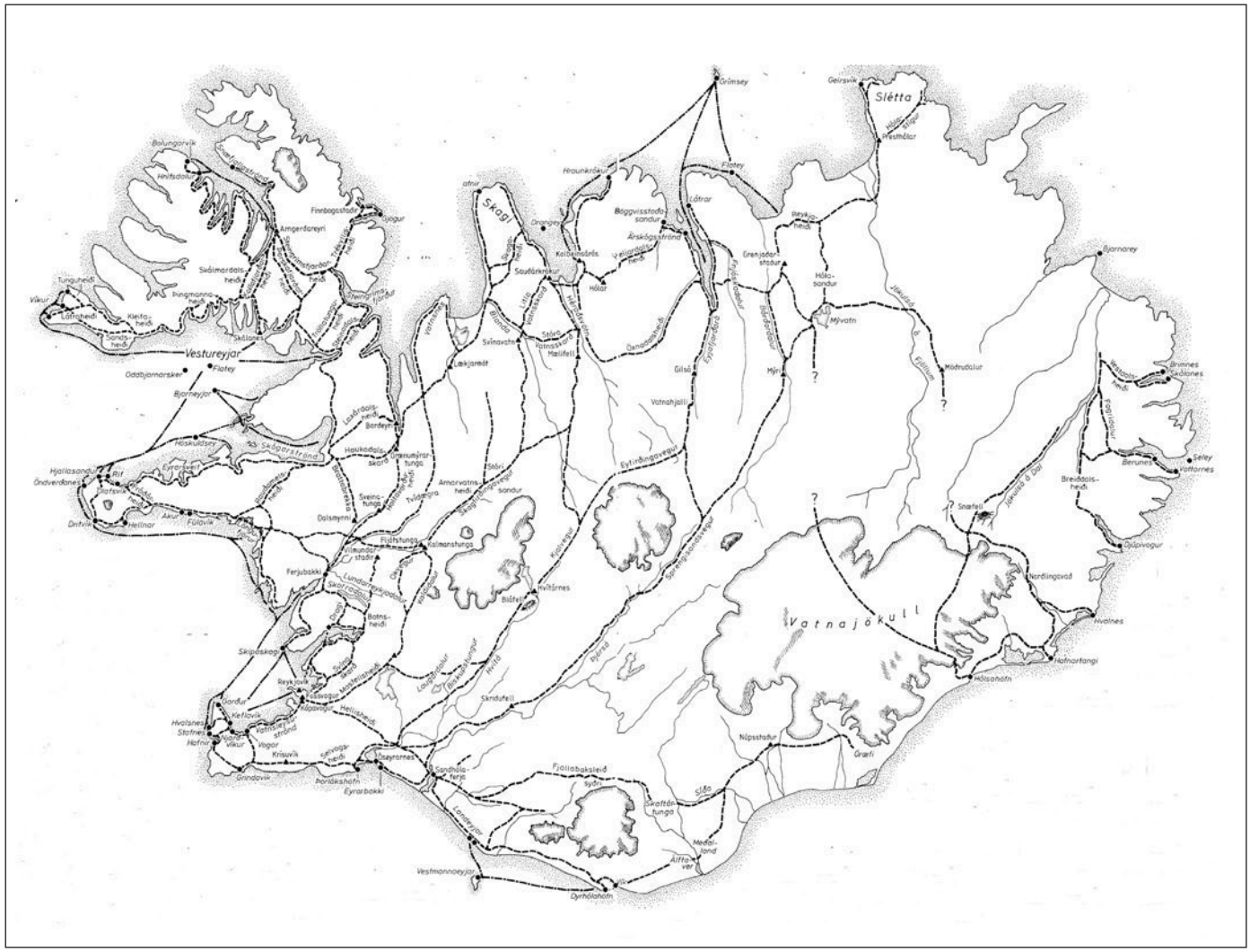


The black areas show where transport was difficult due to mountains, glaciers and lava.

The lines show the easiest transport routes in the old days.

Sandy beaches
River banks
Swallow and calm rivers
Shallow coastal waters
Isthmuses
Hard-snow areas
Good skiing areas
Sheltered sailing areas

The best travel areas at the beginning of settlement.

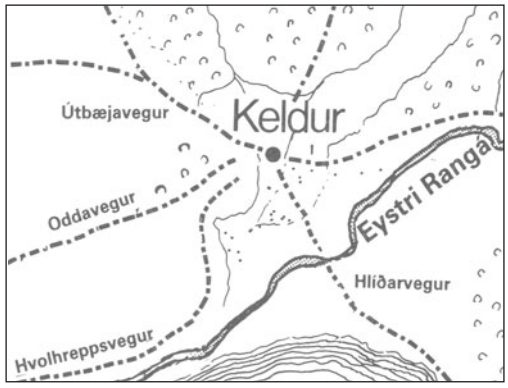


The most important trails to the fishing spots in Iceland. Without much doubt these used to be the busiest communication routes. This reduction of the original map needs to be studied with a magnifying glass.

The route improvements were manifold. In rugged lavas the tops of the lava heaps were rolled over into the small chasms and in spacious wetland turf was cut and piled up to build up "turf bridges". Because of this piling the vegetation layer became thicker and stood higher than the surrounding moorland and therefore these turf bridges became dryer than the land around them.

In many areas rivers were difficult barriers and the authorities in earlier times installed wooden box trolleys that ran over a cable in order to make traversing these rivers easier.

Turf was piled up to create a "bridge" over moors.



Centres of power were often where important travel routes intersected.

The best settlement areas were occupied by the most powerful clans.

1 The Power Systems: Godar and Assemblies

The last chapter explained how various fundamental features like types of trade and transportation were influential in the shaping of settlements. This is the general foundation for the shaping of systems but the next logical step is to try to figure out what else has had an effect on the shaping of the settlement patterns of the country in early times. This will be attempted in this section.

We will here start by tracing how the power systems – the priest-chieftains or *godar* and the assemblies – had their origin in the creation of governmental districts. These types of early governmental regions have a very strong historical foundation. Unfortunately such a foundation was not used when it came to deciding the boundaries of the larger governmental regions and later electoral districts in the country. This has made it hard for a collective power to materialize in the various regions of the country. In fact the early governmental centres in the regions – the sites where the assemblies were held as well as the seats of archdeacons and municipalities – did not become permanent, and hardly any of them are a seat of local government or an urban core today, as can be seen by checking the names on the maps on pages 78, 82 and 84.

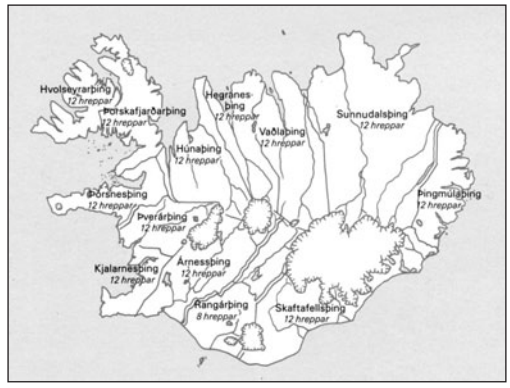
Let us now look at the development of the first godar districts. Even though these districts did not exactly follow geological demarcations, they were one of the first steps in forming the districts and assemblies which then developed. Around 1200, "district states" were formed as powerful chieftains were able to exercise power over two or three godar districts. Árnesthing, for instance, was one such district "state" run by the men from Haukadalur, and Rangárthing was under the government of the Oddaverjar. These assembly areas and district "states" later became the modern counties.

In spite of this historical relevance no permanent urban core was formed at the places of assemblies in these counties, i.e., at Árnes and Rangá. This forming of a core also did not happen at the place of the general assembly of the country, at Thingvellir. At this place a great number of people gathered every summer for the general assembly, judging legal disputes, amusement and trade. The people erected their tents over low stone walls, but most of the activities took place outdoors. This tradition of outdoor assemblies has been continued into modern times, especially with the outdoor feasts and sports events like those of the Icelandic Youth Association.

Though the *godar* districts were not exact geographical units, as the districts for the spring assemblies were decided on, the division of the country into municipal governmental districts started to take shape. Each of the 13 assembly districts had with three *godar* and eight to twelve communal districts, as shown in the picture below. The assembly districts are described further on page 77; the following page describes how the assembly district developed into regional assemblies, which then became the basic elements of the governmental structure the kings of Norway introduced as they acquired power over Iceland in the late thirteenth century.

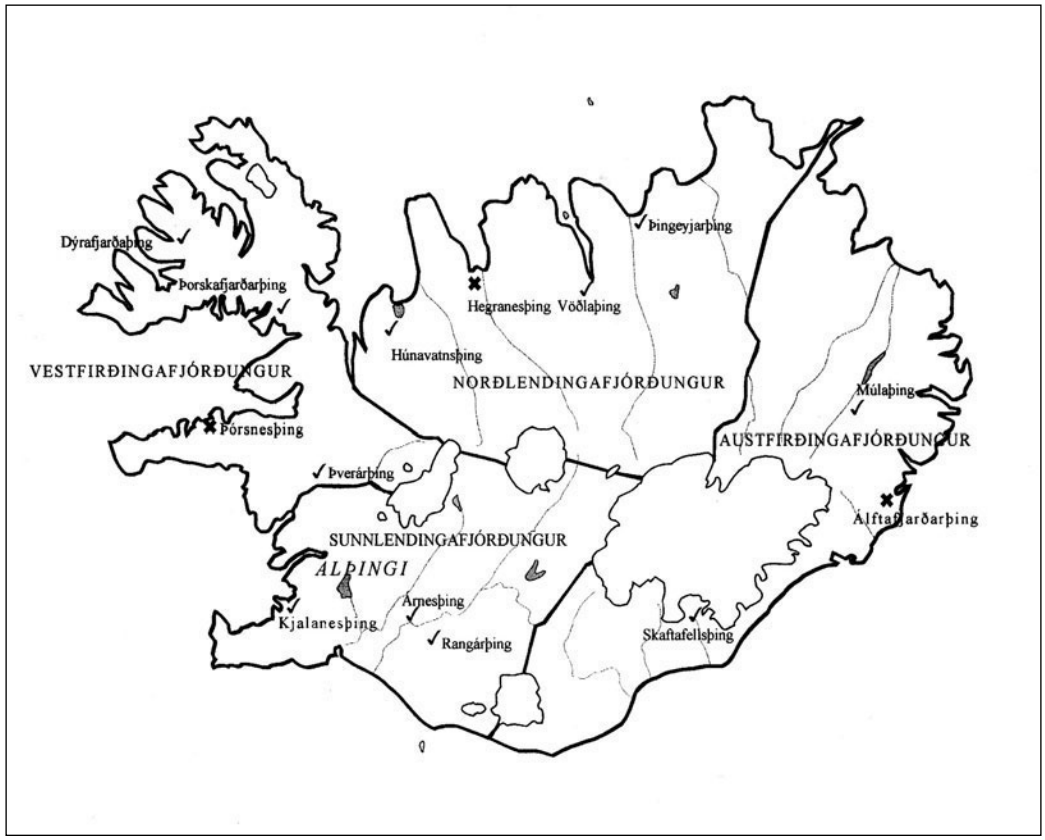
As the county districts were established, Iceland was divided up into still more districts, and in the time since then the county districts often have often numbered around 20. In some cases the same sheriff or county magistrate has been in charge of two counties, as is the case with the Gullbringa and Kjós Counties.

The Althingi began at Thingvellir in 930 AD, where it remained for 900 years.



Counties were formed in the 10th century, each with 3 godar*.*

History of Local Governmnts of Iceland.



The four quarters of Iceland were established quite early. The regional assembly places are shown on the map.

A lower governmental level, i.e., the local districts or *hreppar*, were started surprisingly early or in the early tenth century. In these districts local people had the task of finding ways of supporting the poor and the autumn round-up of sheep from the highlands.

As the church accumulated power during the eleventh century, the tithe law, created by bishop Gissur Ísleifsson, meant that parishes were given the task of collecting and dividing the tithe. This is an indication of how the parish was already by then a firm unit of this local government, something that is considered to be unique in Europe. The book *Saga sveitrastjórnar á Íslandi* (The History of Local Government in Iceland) by *Lýdur Björnsson* gives an account of this.

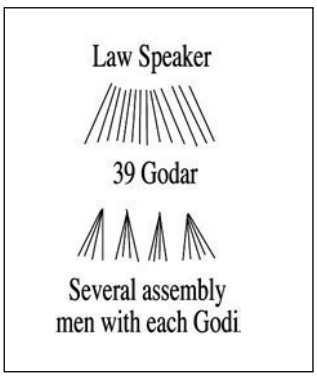
As the spring assemblies developed, a new upper level of government crystallized, i.e., the four quarters of the country, but it is not clear how important they were.

The map above shows the boundaries of the quarters and the spots marked X are where people think the quarter assemblies took place. In the south quarter historians think that the assembly or "thing" place was close to Thingvellir at Mt Ármannsfell.

None of these assembly places of the quarters manifested themselves later as urban cores, nor did the assembly places of the spring assemblies that are also shown on the map. With the introduction of the quarters, exact geographical division lines of the governmental units were created. Each quarter had three spring assemblies except for the north quarter, which had four.

Shortly after the Norwegian kings had become kings of Iceland as well, the importance of the quarters was reduced as governmental units, i.e., they lost their role as poor relief districts but continued to be legal jurisdictions. The king could influence who was appointed Law Speaker of the country, originally only one but later two, i.e., one for the south and east and another for the north and west. Later these Law Speakers were elected at the Althing, the general assembly held at Thingvellir.

The quarters have a rather strong image in spite of their lack of real power. They surface in the tales of the four formal Guardian Spirits of the country, one for each quarter. The inhabitants of the quarters were often united in their struggles against the Norwegian kings.



The Althing parliament was in charge of enacting laws.

2 Conditions Shape the System of Transportation

There were two systems of transportation in Iceland: on the sea and on land. The settlement structures that developed in connection with these systems were very different. As the horseshoe still had not arrived in Iceland and little improvement of overland trails had been made, transportation by sea was the easiest mode, especially within fjords and bays. Island settlements were therefore in many cases important places, though there are surprisingly few islands along the coast of Iceland. Islands are most numerous in Faxaflói Bay, Breidafjördur Bay and in some other limited areas in the country.

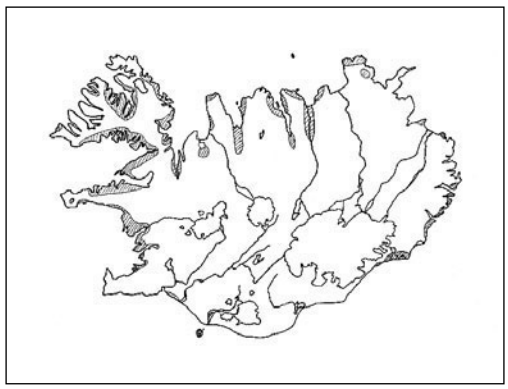
In these bays, sea transportation was dominant and centrally located islands in bays like Videy, Flatey in Breidafjördur, Hrísey in Eyjafjördur, Flatey in Skjálfandi and the Westman Islands were among the most important places in the country. Because of sea transportation it was quite convenient to have a centre of commerce on Flatey in Breidafjördur, and the farmers from the areas around the bay – Bardaströnd, Dalir and Snæfellsnes, went there in their boats. Something similar can be said about the Westman Islands – they were for some time the commercial centre for some of the settlements on the south coast.

This settlement structure, connected to ocean transport that often had its centres on centrally located islands in the fjords, lasted in Iceland until the twentieth century, i.e., until land transportation took over as the dominant transportation mode in the country. What happened after that was that most islands around Iceland were deserted. Today, of the dozens of islands in Breidafjördur which earlier were some of the most dynamic settlements in the country, only one island, Flatey, is still inhabited. Today Flatey only thrives from the fact that there is still a ferry that goes across Breidafjördur – a ferry that connects the island to the land transportation network. This makes the island usable but the housing there is now primarily used by summer guests and tourists.

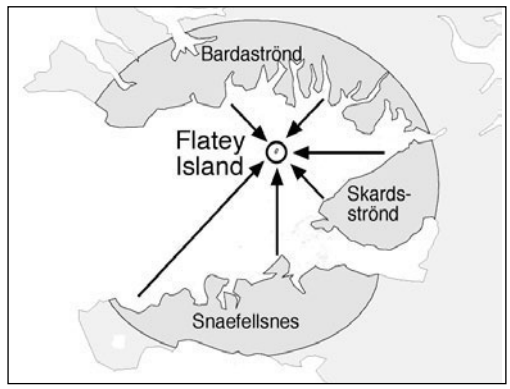
In addition to the positive features connected with living on islands in the period of sea transportation, as the boat was the only vehicle suitable for heavy transport, islands also provided the huge advantage that livestock were protected by the surrounding ocean from various predators that were hard to control, such as foxes and later mink. This "fencing off" of the islands by the ocean also meant that the livestock were not able to get away, quite an advantage in a country with almost no fences. These advantages of islands were not only linked to islands in the ocean but also to islands in broad rivers. Farms located on islands or which had islands within their boundaries were therefore quite sought after in early times, and the map below to the left shows the areas in Iceland where these advantages of islands were enjoyed.

Land transportation trails often went along the ocean, the banks of rivers and lakes. Travelling thus on the boundaries meant that the traveller did not need to trespass by crossing farm fields, and this also led to the fact that some of the land trails were directed above settlements at the edge of the highlands. These ancient transportation trails can be seen on Björn Gunnlaugsson's map of 1849.

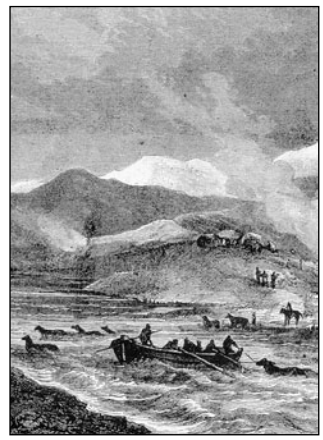
The large map on page 70 shows an enlargement of the south-west corner of Gunnlaugsson's map. On this map the transportation routes have been drawn with a thick line. In this way it becomes apparent that



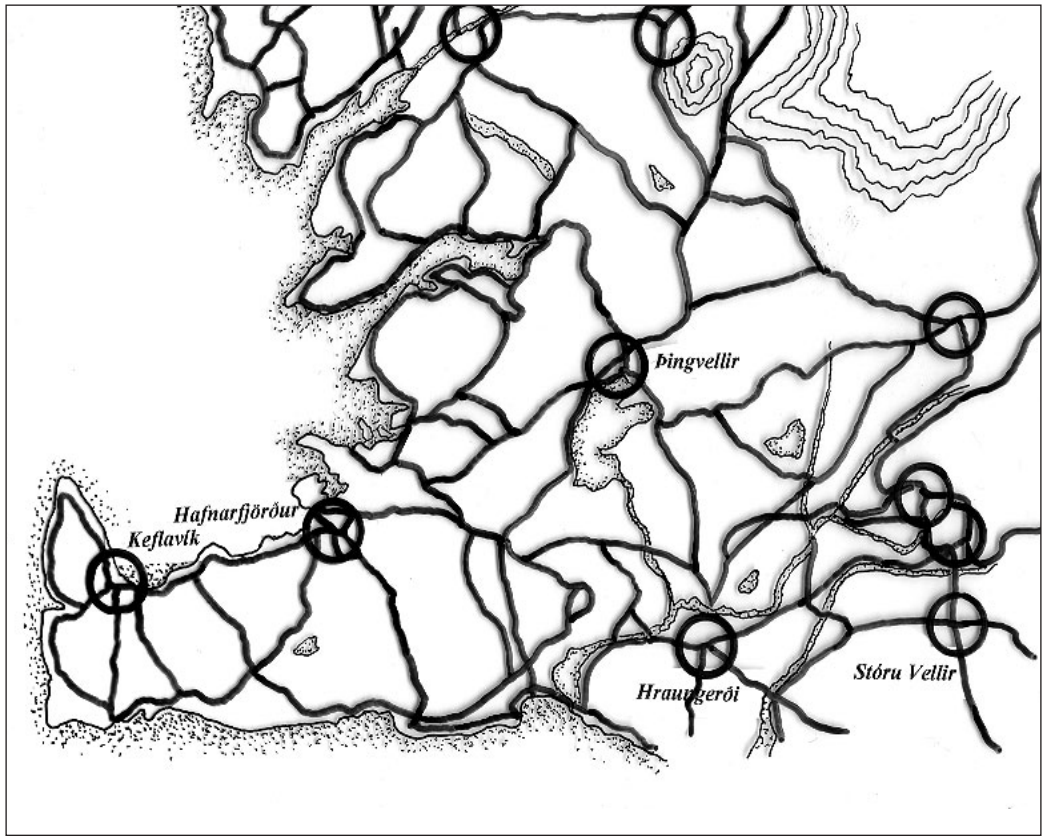
Coastal areas with islands and areas near islands in rivers had certain priviliages.



While boats were the only transportation, stores were well located on an island.



Ferries stabilized certain routes of communication.



The main transport routes in south-west Iceland according to a map from 1849. Many routes go over highland areas. Circles show crossroads, which often were seats of power.

the net of land transportation was rather elaborate, and it is surprising to us today to observe how many of the routes were in areas which are now considered to be highlands. On the map a circle is drawn around places where many transportation routes come together. By studying these spots, we realize what has previously been indicated, that crossroads often create conditions for the concentration of power. The same phenomenon can be observed in larger countries, i.e., urban cores have often been formed where communication routes come together.

In the southern lowlands the uppermost centre on the map is Haukadalur. Below that there is another circle which is Hruni. Helgi Thorlákssson wrote an essay about these transportation centres in Árnesingur.

In the southern part of the map there are two ancient and important farms marked in the Gnúpverja district – Stóri-Núpur and Stóra-Hof, and further south Stóru-Vellir. Somewhat to the west there is a circle where Hraungerdi is. Surprisingly the node of transportation in the Capital Area was not in Reykjavík but further south, close to and a little inland from Hafnarfjördur. The node in Keflavík, on the other hand, is close to the early communication lines on the Reykjanes Peninsula. In the Borgarfjördur districts there are two circles – one close to Reykholt and the other near Húsafell.

There were many features that were obstructions to communication, especially the largest rivers, mountain regions, fjords, rugged lava and forests. By mapping these obstructions one can acquire an understanding of what it was that shaped the system of transportation. The study of the transportation system of earlier times can be visualized, and at the same time we get a better idea of where the settlement units were as well as how the settlement patterns of the country evolved.

One can easily sketch many interesting research subjects in this field, subjects that distinguish themselves from the commonest social research subjects of historians in that the research is based on geology and planning. Within these two disciplines research primarily centres on the characteristics of the landscape.

Trolleys opened communication lines across rivers and canyons.

3 Laws of Form that Shape Settlements

Three laws of form – all connected to the circle – have a great deal of effect on how settlement units and systems of power are created. Settlement areas need to have the density of the circle, i.e., they should not extend outward for great distances. Secondly, an area has to have a clear centre, and in addition, the lines of communication should preferably run through this centre or close to it. Often strong urban centres are created close to crossroads, which frequently are close to the centre of a circular space.

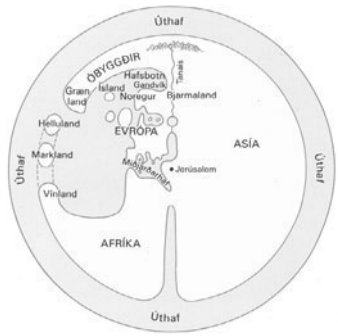
The basic reason why the shape of the circle is so important is the topological fact that it is the densest possible arrangement of units in a two dimensional space. Also it is a mathematical fact that one cannot have a more central area than that of the centre spot in the middle of a circle. In the early ages a minimizing of distances that could be achieved in a circular arrangement as well as the importance of the shortest possible distances from a centre to all other parts of the region in question, was fasted as solid social and economic reasons. Therefore many old towns are almost circular in shape and the central core of towns is very often close to the very centre of a circle.

By studying the overall geometry of countries, we see that many important countries have a shape that comes close to the form of a circle, and in addition that the focal point of many strong countries is quite often close to the geographical centre of the country. This one sees clearly in Germany with Berlin close to the centre, and also in France where Paris is also centrally located. This geometric location and circular shape has contributed to more agreement about these centres of power than is the case in countries that are "stretched out" and do not have the capital in the middle.

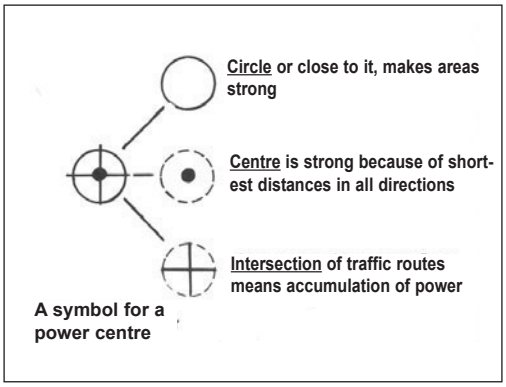
One can thus argue that the shape of a country that does not come close to being a circle greatly contributes to the country's problems. We can mention countries like Italy, Korea and Vietnam. These countries have at times been split between north and south, a political division that has contributed to political strife. The location of Washington DC, to give another example, on the east coast of the USA has resulted in a somewhat subdued admiration for this capital on the west coast of the country. Some countries have taken the radical step of creating new capitals close to the geographical centre of their territory; examples are Madrid in Spain, Brasilia in the middle of Brazil, and Mexico City at the geographical centre of Mexico. A big problem in modern planning is that the law of the circle is often not respected enough; an example of this is how the Capital Area in Iceland is stretched in all directions. This is counter-productive for the economic feasibility and social cohesion of the area.

The areas in Iceland suitable for settlement are frequently defined by landscape features that can be easily shown on maps, for example mountain areas and the height of the land above sea level. Impassable rivers also strongly shape entities. Therefore an investigation of such physical conditions on a map of Iceland can give us an idea of where the habitable spaces in Iceland are, and used to be.

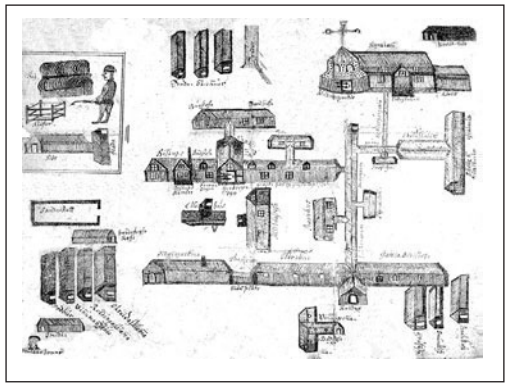
The author of this book has drawn numerous maps that help, in this way, to define what were the settlement spaces, and thus the settlement structures, in the early ages. These maps are presented in many places in this book. The map on page 66 and the little map on the next page are examples of these maps, but they show how habitable spaces in the western part of Iceland can be defined rather easily by the 100 metre



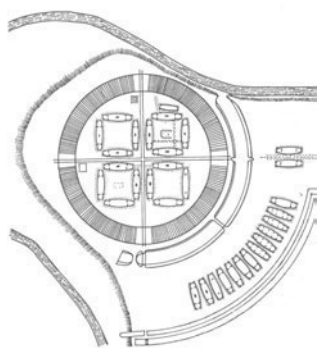
The early Norse view of the world was circular.



Three form principles which all enhance power centres, especially if all three apply.



Lack of transport means made density crucial. Skálholt in the 18th century.



A Viking village designed using a circular mould.

This picture of Heimaey at the end of the 19th century shows how the village adjusts itself to the landscape features of its location.

contour level.

Harbours have often become the centres of urban settlements in Iceland, with a settlement ordering itself around the harbour in a collar or circle, as with the towns of the Westman Islands and Hafnarfjördur.

The development of other geographical aspects in the Reykjavík area has also been negative, primarily in terms of the location of commercial centres. Today such centres are no longer placed at the centre of settlement units but rather along the highways and therefore most often at the outer edges of neighbourhoods. Examples include the shopping centres of Mjóddin, Smáralind and Smárinn. This kind of off-centre geometry means that it is not possible to let these commercial centres become centres of neighbourhood areas and therefore opportunities are lost to provide neighbourhoods with a focus and thus to make them more lively.

In some historical examples, the importance of the density of the circle is enhanced by the need to build protecting walls, and mathematically the shortest wall surrounding an area is that of a circle. This clean circular form can be seen in the picture of the Viking village on the previous page. A diagram on the same page shows the arrangement of the housing at the bishopric of Skálholt. The layout is close to a square, which means that it comes close to the density of a circle; short walking distances were very important in such old villages, and many of the buildings on the drawing are connected with corridors. In excavations, for example at Skálholt and Reykholt, archaeologists have discovered that corridors between buildings in centres like this were quite common.

As we investigate what settlement areas in Iceland have been the most powerful we find that the strongest areas, as a rule, came closest to having the layout of a circle. A map on page 75 shows that this is the case with Skálholt, which is located close to the centre of the large circle in the south-west. In the north the Hólar bishopric is also located close to the centre of the core area of the northern part of Iceland. In the case of Skálholt the large circle includes three of the largest agricultural areas in Iceland, Árnessýsla and Rangárvallasýsla counties and the Borgarfjördur area.

Something similar can be said about the large circle surrounding Hólar because inside it are the three most important agricultural areas in the north: Skagafjördur in the middle, and Eyjafjördur and Húnavatnssýslur to the east and west.

Settlement areas in W Iceland defined by the 100m altitude line.

4 The Althing – First Step Towards Governance

Following the *central place theory,* centres of governance or capitals are often placed in the middle of regions or countries. This could not happen in Iceland because the central highlands were – and in fact remain – uninhabitable. The most important settlement areas were in the south-west, i.e., in Borgarfjördur and in the Rangárvellir district in the east. This area of habitation also extended out onto the Reykjanes Peninsula and the innermost part of Faxaflói Bay. If one draws a circle around this south-west area, Thingvellir is close to its centre.

The land routes to Thingvellir were rather good from Borgarfjördur over Uxahryggir by the Ok Glacier. From the south-west the path went over Mosfell Heath and from Grímsnes over the Grafningur route. In addition, people from the north, had an easy passage to Thingvellir through Kaldidalur Valley. People from Eyjafjördur came over the highland route of Kjölur and inhabitants of the north-eastern and eastern parts came by the highland route over Sprengisandur.

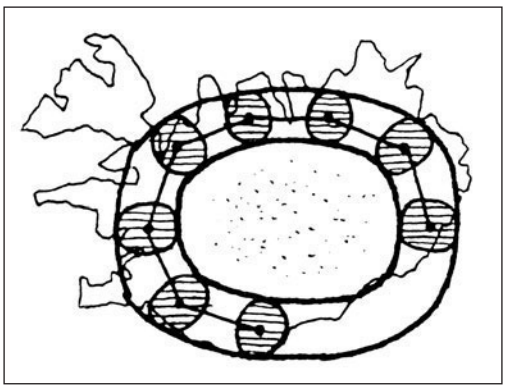
It comes as a surprise that a permanent urban core did not materialize at Thingvellir. The explanation is partly that, in order to reach this area, one had to pass over rather high routes. These routes were easily passable in the summer but not in other seasons. In addition, Thingvellir lacked good agricultural land or close proximity to the sea, which meant no readily available catch from the ocean or crops, necessities for any urban area in Iceland in older times.

If the Althing, – as a place of central governance, – had originally been placed in the Reykjavík area with a close connection to good fishing grounds, all-year ocean transportation and productive agricultural areas, that would have provided the citizens with a livelihood, an urban core most likely would have been formed there, just as it frequently was in other countries around places of governance. The Althing was in fact later moved to Reykjavík in 1798, but economic depression in the country had then grown to such proportions that the Althing was disbanded after two years.

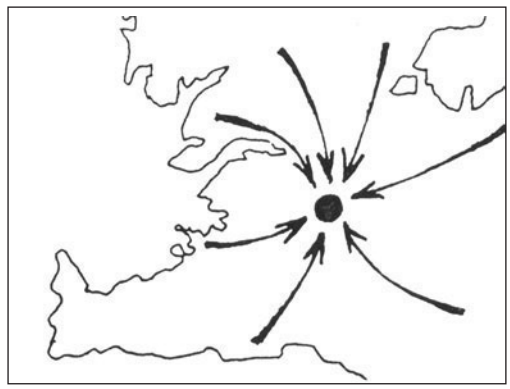
Some good things came out of this depression, like the establishing of the two Land Commissions that were at work in the latter part of the eighteenth century. They created the policy that the scattered centres of governance should be moved to Reykjavík or close by. In spite of these times of disaster and in spite of disbanding the Althing, finally a centre of governance and an urban core started to form in Reykjavík. The last map on the next page shows, visually, the great difference in the suitability of the peninsulas and Thingvellir as a seat of governance. Here it needs to be stressed again that the centre of a country also had to have access to all the other main conditions that a large urban area needed to have at this time: ground for cultivation at a low altitude and good fishing grounds, as well as safe land and coastal transportation for delivery of agricultural produce from farm areas not too far away.

The map also underlines the importance of sea transport and communication with foreign countries. This feature is certain to have been of central importance as the Danes decided that their centre should be located at Bessastadir on the Álftanes Peninsula close to Reykjavík.

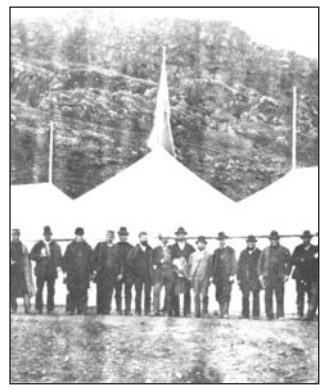
Nationalistic Icelanders however thought the proximity to the Danish power on Álftanes and Seltjarnarnes and in Reykjavík was insupportable. In addition, the glory of the antiquity and historic importance of the Althing as the principal gathering place of a free nation



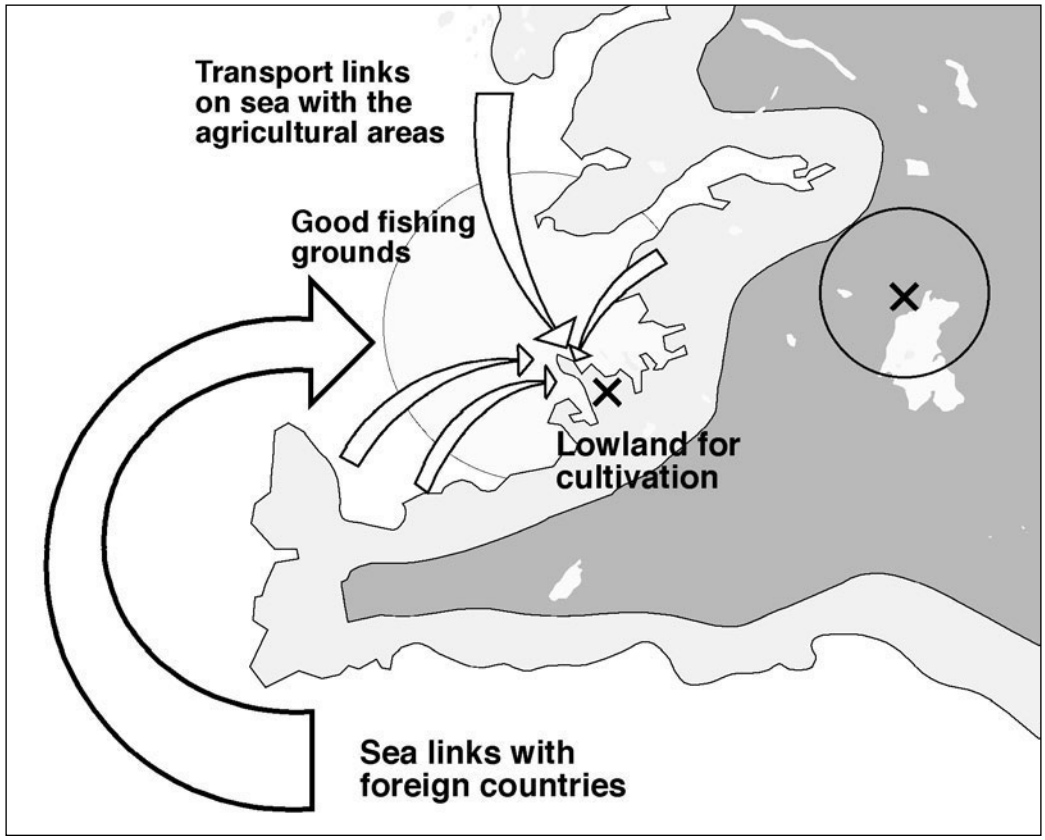
The settlement was like a collar around the country – with the centre empty.



Thingvellir is in the centre of south-west Iceland, and transport routes are simple.



Men came to Thingvellir to prepare law cases.



The unique advantages of the Reykjavík peninsula as a future administrative centre. Thingvellir lacked these qualities, and it was very hard to get to there in much snow.

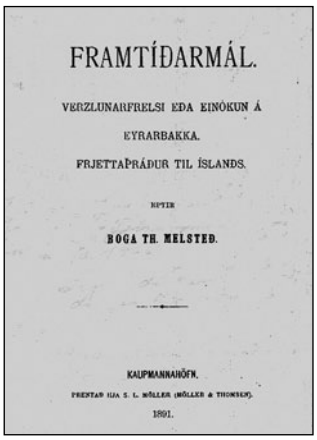
in Commonwealth times inspired the freedom fighters of the nineteenth century. These romantics in some respects lacked a sense of reality and they did not realize how flawed the location of Thingvellir would have been if it came to the re-establishing of the Parliament, which meant of course that the place chosen was destined future seat of government.

The realist, Jón Sigurdsson, the most important freedom fighter, understood this and he had much influence on the decision that the Althing should be placed in Reykjavík, which was the final step in making Reykjavík the future capital of Iceland. Sigurdsson's answer to the romantics was that it was within the power of Icelanders themselves to make Reykjavík an Icelandic rather than a Danish town.

As the Althing was re-established in Reykjavík in 1846 many of the representatives were elected by the king, but native electoral district representatives formed a group to push ahead with the demand for freedom from Denmark.

In order to galvanize the Icelandic parliamentarians' resolve they established the Thingvellir Meetings, which took place before the parliament was instituted in Reykjavík. There, because of the distance from Reykjavík to Thingvellir, it was easier for the people to meet at Thingvellir, where they gained inspiration from this ancient and historic place.

It is interesting to study how contemporaries of the freedom fighters were envisioning future projects in the nineteenth century. Bogi Melsted wrote a book that presents the draft of a future vision. Melsted uses the method of "back-casting", which is an antithesis to forecasting. This method was carried out in such a way that the future is described from a chosen point in time after an event has happened. Melsted chooses to describe his ideas on what he feels will become the development of two towns he thinks will be most important about half a century later, or around 1944. These two towns are Reykjavík and Eyrarbakki in the south. Melsted describes Reykjavík at this imagined point in time: "Reykjavík was then already a considerable town with 12-15,000 people, steamships came there from foreign countries every week…." His description of Eyrarbakki is: "Eyrarbakki had been growing much more rapidly than any other commercial town in the country and it had now reached 6000 inhabitants." These predictions did not turn out quite as he expected because Reykjavík had grown to 45,000 inhabitants whereas Eyrabakki only to 500 inhabitants.


FRAMTÍDARMÁL.

VERZLUNARFRELSI EÐA EINÓKUN Á EYRARBAKKA.

FRJETTAÞRÁÐUR TIL ÍSLANDS.

EFTIR

BOGA TH. MELSTED.

KAUPMANNAHÖFN.

1891.

Melsted sang Eyrarbakki's praises in 1891.

1 Systems of Religious and Secular Power

As countries are being built various cultural features have an influence on how the structure of settlement develops. Originally Iceland was a heathen country and the culture and the structure of the *godar* communities were dominant. In the year 1000 the country officially embraced Christianity and the church was established in Iceland. The administration of the church was, according to European tradition, hierarchical.

The first step in the development of the church was that some chieftains built churches on their estates. Soon, however, the bishoprics in Skálholt and Hólar were established and then gradually the organization of the church progressed. As time passed the bishops put ever more demands on being in control of these churches and their lands and farms. This led to strife between the religious and secular proponents, in which the church gradually prevailed.

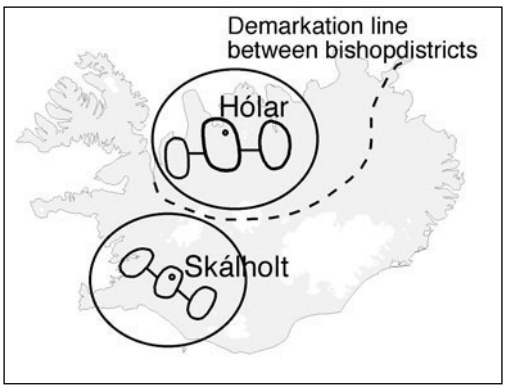
The topological features of Iceland were not supportive of any overarching power for the whole country, resulting in the fact that the settlements were actually like a collar around the island. The result was that both the power structures of the church and secular chieftains were weak. This power vacuum induced some chieftains to swear fealty to the Norwegian kings and the Norwegian kings to seek dominance over Iceland. In the late thirteenth century the Commonwealth ended and Icelanders formally accepted Norwegian domination, albeit with certain provisos. Later, this foreign power was transferred through the terms of the Kalmar Union to the Danish kings.

The early society was based on the importance of the family, with power distributed, a system not unlike some aspects of the Catholic Church. The monasteries, in the beginning, also were distributed over the whole country. The founding of the bishoprics in Skálholt and in Hólar, and later the hierarchical train of governing levels associated with the bishoprics, was the origin of the cultural re-structuring of the national state to a state that was rather centrally directed.

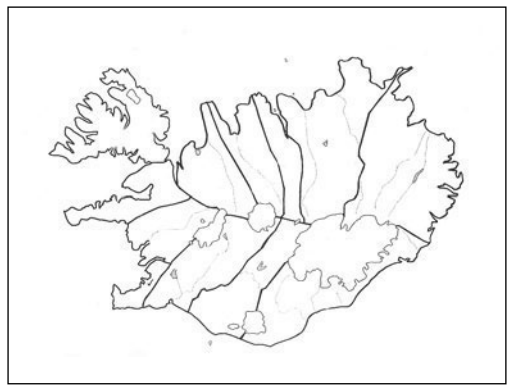
The new Catholic power in the country brought with it from abroad new systems of thinking. The primary seat of power was of course in Rome. The separation of the upper hierarchy of the church from the common folk was underlined by the fact that they spoke a different language: Latin. Services in the churches took place in that language and the churches were neatly divided between the choir – where the prelates had their place – and the commoners who stood in the nave and back of the church. Benches were installed later. The Catholic Church in Iceland thus induced a distance between its own ruling class and the subjects, even if social distinction was never as distant as in most other countries.

The whole of Europe was divided into archbishoprics, with the archbishop at Trondheim acting for all of the north Atlantic region, including Greenland. Within that domain there were ten bishoprics, Hólar and Skálholt being two of them. From this it is clear that, only 200 years after the first settlement, Iceland had started to be a part of *internationalization,* which at that time was primarily linked to religious and cultural areas. Later, as the Norwegian kings took control in the thirteenth century, they brought to Iceland the hierarchical system of government that was already common in Europe.

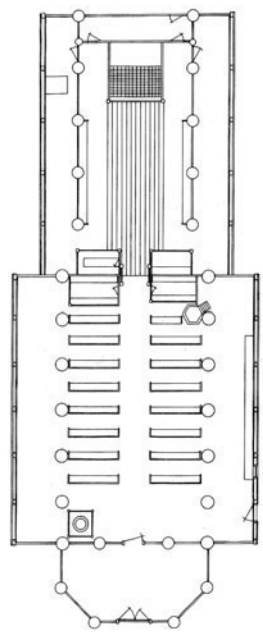
As systems like those that have been described



Skálholt and Hólar were at the centre of the most important areas in the country.

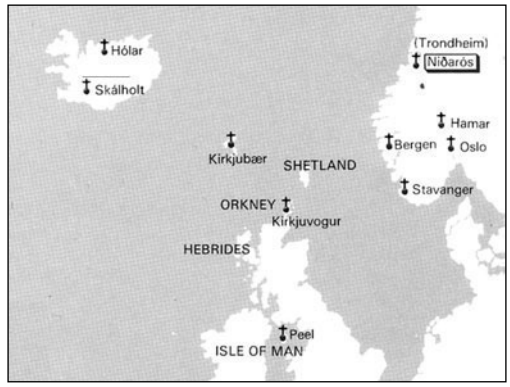


Assembly regions under Norse control were the beginnings of separation into counties.

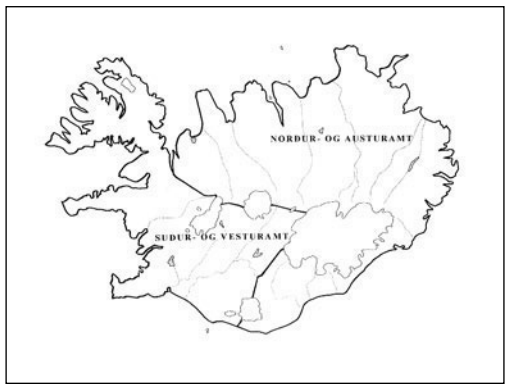


Space for the clergy was clearly defined at Hólar.

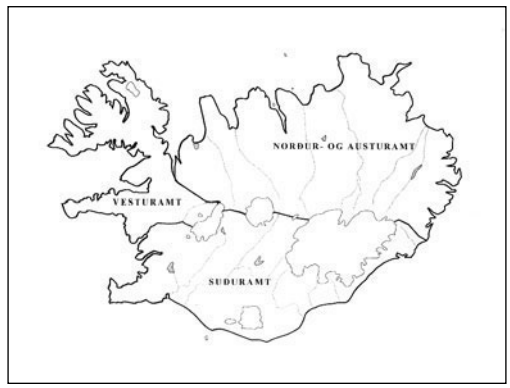
The Danish Empire, which Iceland belonged to, used to be much larger area than it is today.



Nidarós was an archbishopric. The map shows bishoprics that were a part of its domain.



Denmark was divided into amt districts. In 1770 two amts were established in Iceland.



The amts were abolished as Home Rule came to Iceland; these were the three amts then.

have been introduced into a country, the nature of the society in question changes. A ruling class came to the fore, receiving its power from foreign centres. Thus the spirit and dignity of the common man declined proportionally. Even though a negative picture has been sketched here, it is however a fact that many good things came from becoming a part of the cultural and educational system of Catholicism. Also, the system of governance that the Norwegian kings introduced was necessary for structuring this amorphous society and shaping it so it could become more capable of dealing with advanced modern developments.

In 1398 the Scandinavian countries were united under one king. This union disintegrated somewhat later; Iceland and Norway both became dependencies of the Danish king. This change was most likely a stroke of luck for Iceland because Denmark was more advanced culturally than Norway, which had previously owned Iceland, and in closer connection with central European culture. The Danish empire stretched over a large area at that time.

Much later Iceland became a bishopric within the Danish system of governance, later divided into districts. The Danish governor, who resided at Bessastadir, close to Reykjavík, was primarily in charge of commerce and jurisdictional matters. Denmark, as a foreign power, was not very interested in strengthening the dependency of Iceland by building urban centres but rather in increasing tax income to help run the government in Copenhagen. Some Icelanders went to Copenhagen to go to school, but if they wanted to have any influence over governing the country they had to try to find a job within institutions and ministries located in Denmark.

The Catholic Church was in a certain competition with the secular power but the Danish king got a welcomed opportunity to break that power as the Protestant religion spread over the northern part of Europe. By embracing Lutheranism, the Danish king was able to confiscate a great deal owned by the church and to see that a new clergy took charge. The Catholic bishop at Hólar, Jón Arason, put up a fight to retain the domestic powers connected to the church, but he was beheaded and the foreign secular power, with its negative influences, became even stronger than before.

University of Copenhagen taught Icelandic scholars.

2 Law as an Instrument in Planning

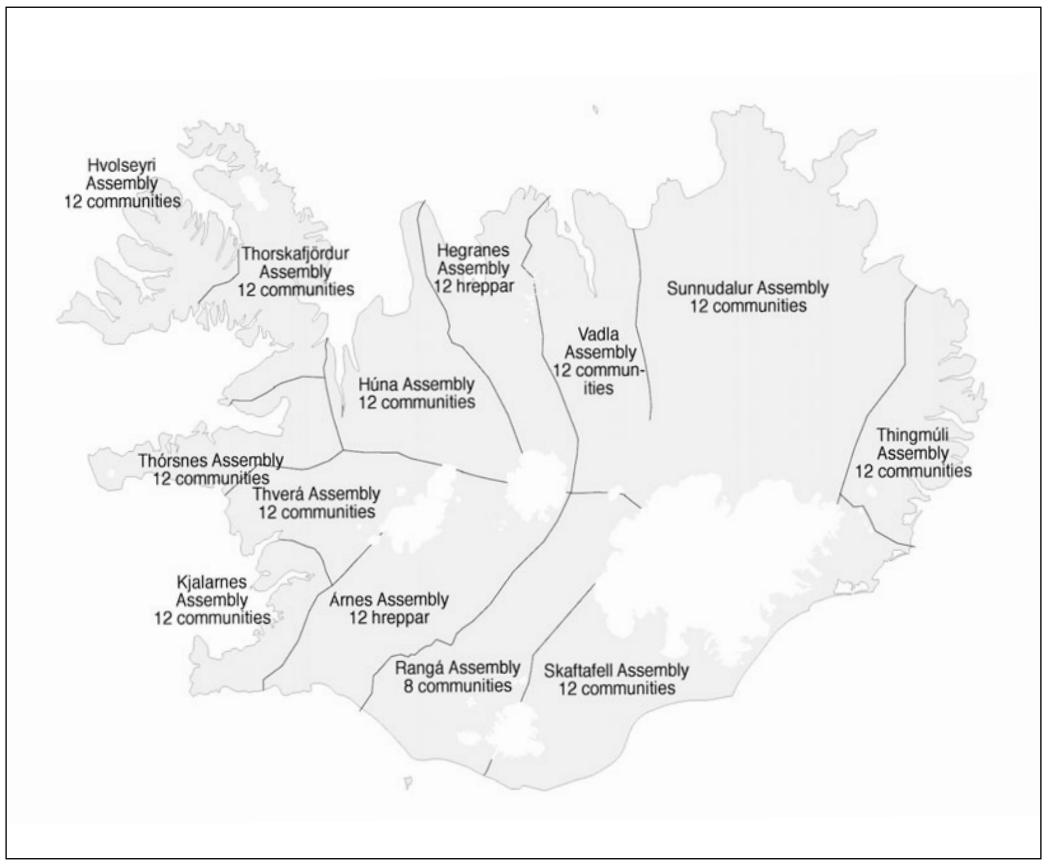
An assembly, the Althing, was established at Thingvellir in 930. As can be seen in the old law book, *Grágás*, a considerable part of the law that was passed dealt with land use, the use of grass lands and sheepherding and grazing rights. These aspects of the law were actually, piecemeal, forming the foundation of the land-use plan of the country, and therefore legislation should be considered as one of the most important features in early planning – and, for that matter, at any given time.

As Iceland came under the rule of the Norwegian king in 1262, various directives were transmitted from Norway on how things should be organized in Iceland – as later from Copenhagen, and now recently from Brussels. In the law promulgated by King Eric in 1294, the first directive on roads was an-nounced: "It is a duty of farmers to make roads according to the directions given by sheriffs and lawmen."

It has already been mentioned that the division of the land into four quarters introduced the first geographically defined administrative districts. Other sites that were somewhat later defined geographically were the demarcations of the legal districts and the sites of the spring assemblies. The map below shows the division of the country into these 13 districts; each of them is thought to have consisted of 12 local districts, except for the Rangá district, where there were 8 local districts. This is actually a draft of the assembly division the Norwegian kings introduced as a part of their governmental system around 1400, which is shown on the next page.

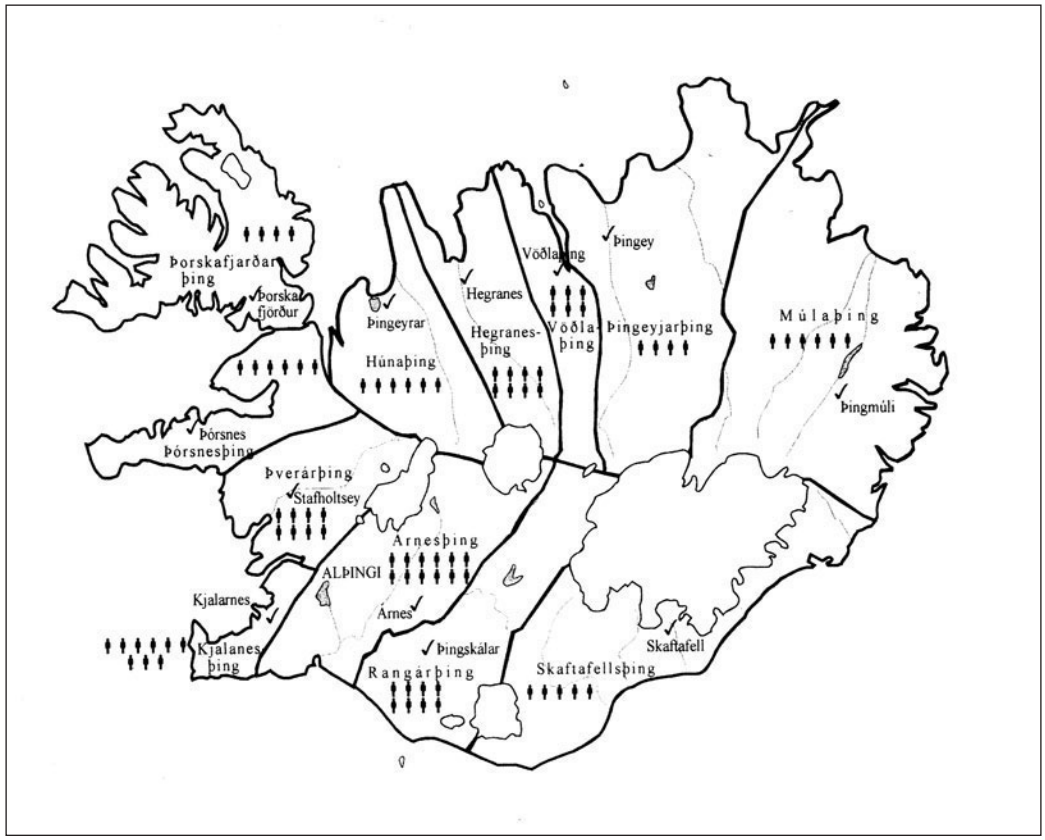
In comparing that map to the county divisions until 1650, as shown on page 82, we see that the division of the assemblies was an intermediate step in the development from the Thingháir assembly districts in the direction of division into counties that was then introduced and was effective in Iceland for a very long time.

The division into counties is still operative but the counties of today have very few responsibilities compared to earlier law. Today, their tasks include such responsibilities as police matters, real estate concerns and mortgages. Today the county magistrates are actually chiefs



Historian Lýdur Björnsson's suggestion as to how the country was divided assembly areas ca. 950. He also suggests the number of districts within each country.

Bergen was for a long time the capital of Iceland.



The old thinghás bear some resemblance with the counties presented in this map. The map also shows the sites of the old assemblies and the number of representatives.

of police but not long ago they also had jurisdictional power. A judgement from the Human Rights Court of Europe needed to point out to Icelanders the internationally accepted division between investigation and judging. Following this district courts were established all round the country. The historian Björn Thorsteinsson describes in his book *Íslenska skattlandid* (Iceland as a Tax Land) how the tax districts were established as geographical units with the introduction of the law books *Járnsída* and *Jónsbók* in the late thirteenth century. It was primarily the agents of the king that were given control of these tax districts.

With these governmental changes, the position of the Althing also changed and was considerably weakened. A part of the Althing, the *Lögrétta* or Law Court, to some degree still functioned as a legislative institution but was, however, made into a court. The Althing had now become a parallel of the Norwegian legislative assemblies but had first and foremost the task of governing the country on behalf of the king. The Althing consisted of 84 members who were known as "Committeemen".

The county sheriffs or magistrates gained a good deal of power because they were given the right to appoint people as representatives of their counties to the Althing. Each county had 4-6 representatives. Therefore each assembly corresponded to what we call today electoral districts. The office of the Law Speaker was replaced by the office of Lawman. The Lawman presided over the Althing, a position that corresponds to the president of the parliament of today.

The 84 Committeemen were, however, not the only members of the Althing as it also included officials representing the king. These officials were the forerunners of the members appointed later by the king when the Althing had been re-established in Reykjavík in the mid-nineteenth century.

To sum up: The Althing retained some of its legislative power, which was positive because it created laws that were interpreted from an Icelandic point of view, and Icelanders still looked to the Althing as the representative of the nation against the foreign power of the king.

It is notable that Bessastadir was selected as the seat of the governor around the mid-fourteenth century. This means that rather early the foreign power looked towards the Reykjavík area and the nearby peninsulas as a centre of the government of the country.

A map showing the site of the Althing in 1789.

3 Foreign Blueprints for Iceland

It has frequently been pointed out that as new countries are being settled, the immigrants bring with them blueprints from their home countries of how to conduct business, build houses and form patterns for settlements. Therefore old settlements in New England in the USA have English characteristics but those of Minnesota have dominant Scandinavian features.

Iceland was also settled by people moving from elsewhere, primarily from Norway and the British Isles. Little research has, however, been done on how much influence the origin of the immigrants had on how people built and settled in Iceland. This is, as a matter of fact, rather difficult to do because there are few building remains and descriptions are scarce; furthermore, archaeological research is practically in its infancy in Iceland. Even though the excavations have revealed the shape of the foundations of some of the main buildings in the country, there is still a long way to go in terms of creating an overview of how people lived and how the settlements were shaped.

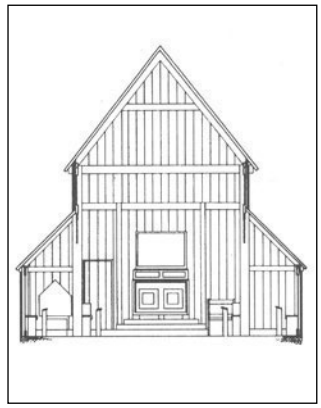
Maps that show where the main settlement areas of people from a given country were located give an opportunity to draft a picture of what is likely to have been the main characteristics in a particular settlement in earlier times. The small map below shows where people from the Norse colonies in the British Isles or who were of Gaelic origin settled in Iceland. These areas have been determined by tracing old Gaelic place names on maps as well as marking out where ruins of circular buildings are. Circular houses were more common in these Gaelic areas than in other areas in Iceland, and such buildings were much more common in the British Isles than in Norway.

One of the few ruins from earliest times that can be recognized on the surface of the land is a *kuml* (heathen burial mound). This enabled archaeologist Kristján Eldjárn to create an overview of their location. The map below is a simplified picture from his dissertation and it probably points to the areas where heathen Norsemen mostly had their domiciles.

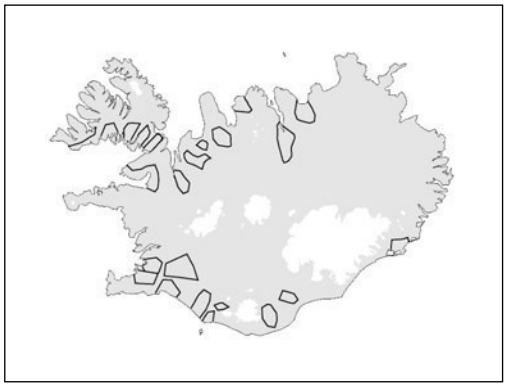
Many might perhaps wonder why there are not more references in this book to the famous ancient account, *The Book of Settlements,* a record written about 200 years after the first settlement and which describes and documents which areas were settled by the first settlers. The answer is that written accounts are not as dependable as physical ones and some scientists even think that *The Book of Settlements* might have been written in order to strengthen the position of power circles in terms of their claims for land.

Accounts of settlements increased in number in the Middle Ages. It is primarily documentation of the buildings and the properties of the church which provide good accounts; the reason for this is found in the intricate regulations of the Catholic Church which documented descriptions of their estates during the bishop's visitations around the country. Good descriptions exist for example for most of the church buildings in Skálholt and Hólar, the two seats of the bishops. These churches were stave churches, built of wood according to the Norwegian tradition, and the church at Skálholt in the late seventeenth century was the largest wooden building in Europe. Architecture historian Hördur Ágústsson has made drawings of these churches based on the foundations that have been excavated, but none of these remarkable buildings has been preserved to our time.

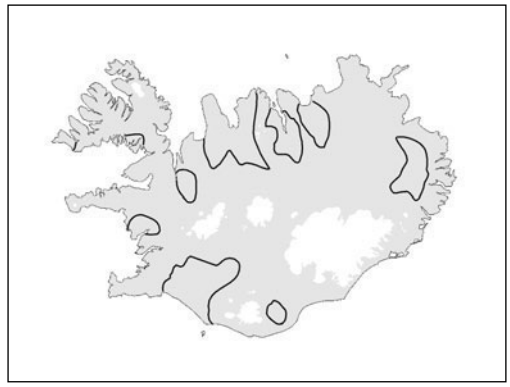
Icelandic wooden houses were very similar to



A stave church. A section in the choir of Skálholt Cathedral.



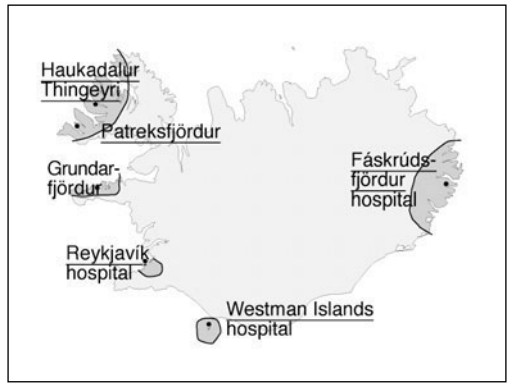
The British settled mainly on the northern and southern coasts of Iceland.



Pagan graves have been found mainly in the areas marked.

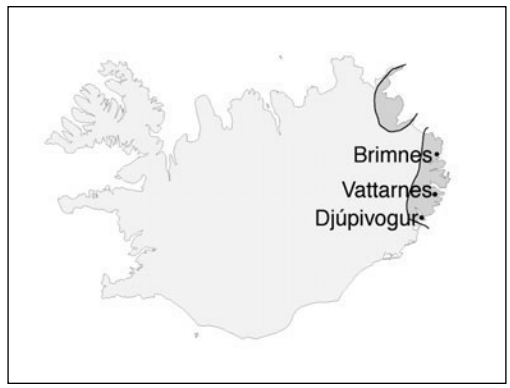
The Norwegian Sveitser style, under Swiss influence.

"Danish areas" in Iceland are mainly connected to their commercial and administrative areas.



French influence in Iceland is mainly seen in the east and west, and in Reykjavík.

Norse whaling and herring fishing in the 19th and 20th centuries influenced settlements.



Faroese fishermen fished all around the country, but processed the catch on the east coast.

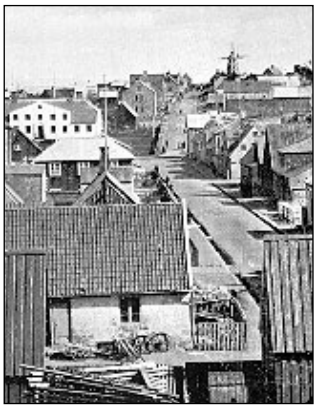
Norwegian buildings at first and the settlement patterns also. At first they were characterized by a system of manors in the Norwegian spirit, but later there were systems of small sublet farms or tenancies.

When the Danish king gained power over Iceland in the early sixteenth century Danish influence increased. This was primarily in the south and west where the Danish governors maintained their headquarters and the most important commercial centres were. Therefore Danish characteristics prevailed there, something that can still be seen today.

At the end of the nineteenth century, the Norwegians started to fish for herring in Iceland, mainly in the East Fjords and in the north. Their whaling stations were, however, mostly set up in the West Fjords but later also in the East Fjords. Because of this, "Norwegian towns" were established in these parts of the country, often because the Norwegians brought their houses with them on their ships. Therefore, the east and north have more Norwegian characteristics than the south and the west of Iceland.

Englishmen and Germans were very influential during the Middle Ages but their building and cultural influences are less visible today than those of the nations already mentioned. When Frenchmen from Brittany sailed to Iceland to fish from their two- and three-masted vessels, they established hospitals in Reykjavík, in Fáskrúdsfjördur and on the Westman Islands. They were not allowed by the authorities to process their fish on land but they came into the fjords and salted their fish out on their ships. However, they came to shore to conduct business with the locals. A great many Frenchmen are buried in these places and in Fáskrúdsfjördur there is still a French graveyard. French consulates were established in many places and large buildings were built for the consulates in Fáskrúdsfjördur and Reykjavík. The one in Reykjavík later became known as Höfdi House, where the historic meeting of Reagan and Gorbachev took place in 1986.

The writer Elín Pálmadóttir, who has done research into the French period in Iceland, estimates that between 100 and 120 French schooners came to the country for fishing each year in the latter part of the nineteenth century and up until World War II. This means that there have been around 4000 French sailors in Iceland. These ships did not come much to the north side of the country because of the danger from the pack ice.



Danish style buildings were dominant in Reykjavík at first.

1 Systems of Secular Governance

All evolution of societies towards modern ways involves the construction of various types of systems. This chapter describes, in five sections, the development of the most important of these systems, starting with secular governance.

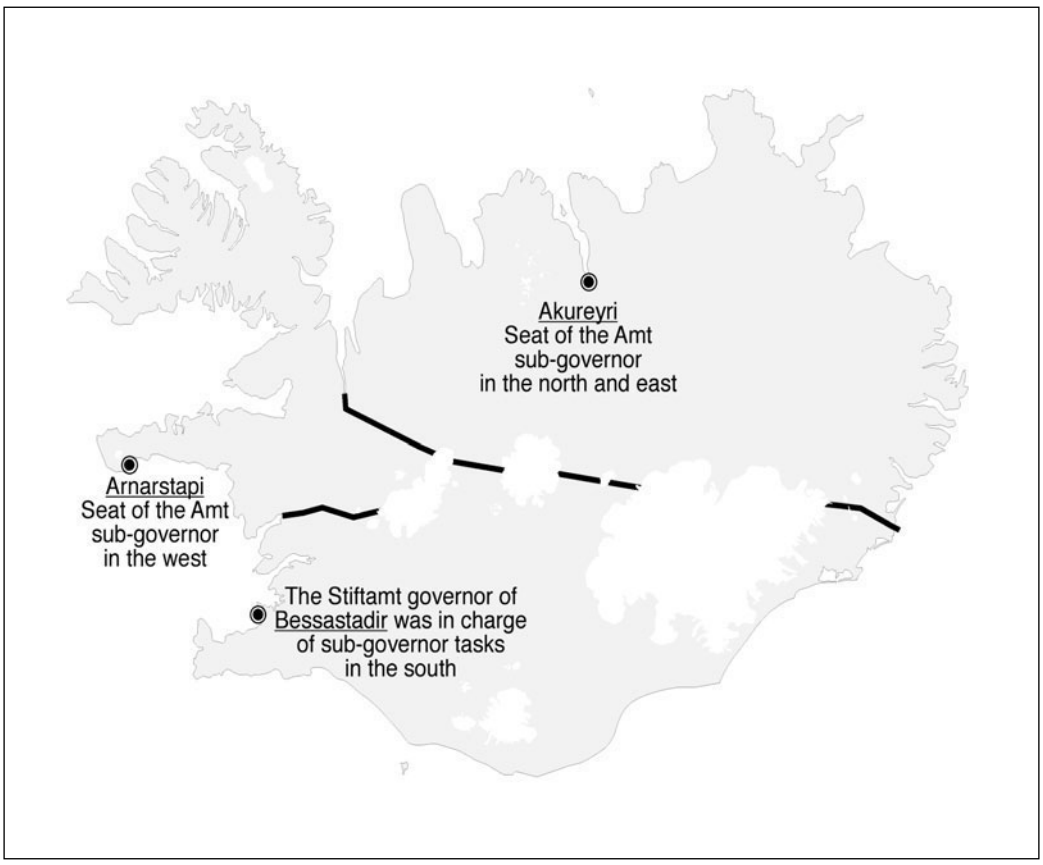
The conversion to Protestantism in 1550 meant that monasteries and most of the properties held by them became the property of the Danish kings. The conversion therefore strengthened Danish rule and Icelandic officials became ever more dependent on its whims. What followed was that this foreign power had an easy hand in running the country and the acceptance of the monarchy in 1662 did not significantly change things.

The first monarchs started to re-organize the governmental system of the country according to the same scheme used in other parts of the Danish empire. The *stiftmannsembaetti* (office of governor) was at the top of this more defined system, and the duties of this office increased during the following centuries. The first governors were more or less absent from Iceland because to start with they were located in Copenhagen. Later, or from 1684, Bessastadir became the domicile of the Danish governors.

The office of bailiff was established in 1683. The best known of these bailiffs was the first Icelander appointed to that office, Skúli Magnússon. He later took the initiative in establishing an industrial village in Reykjavík called the "New Industries", in 1752.

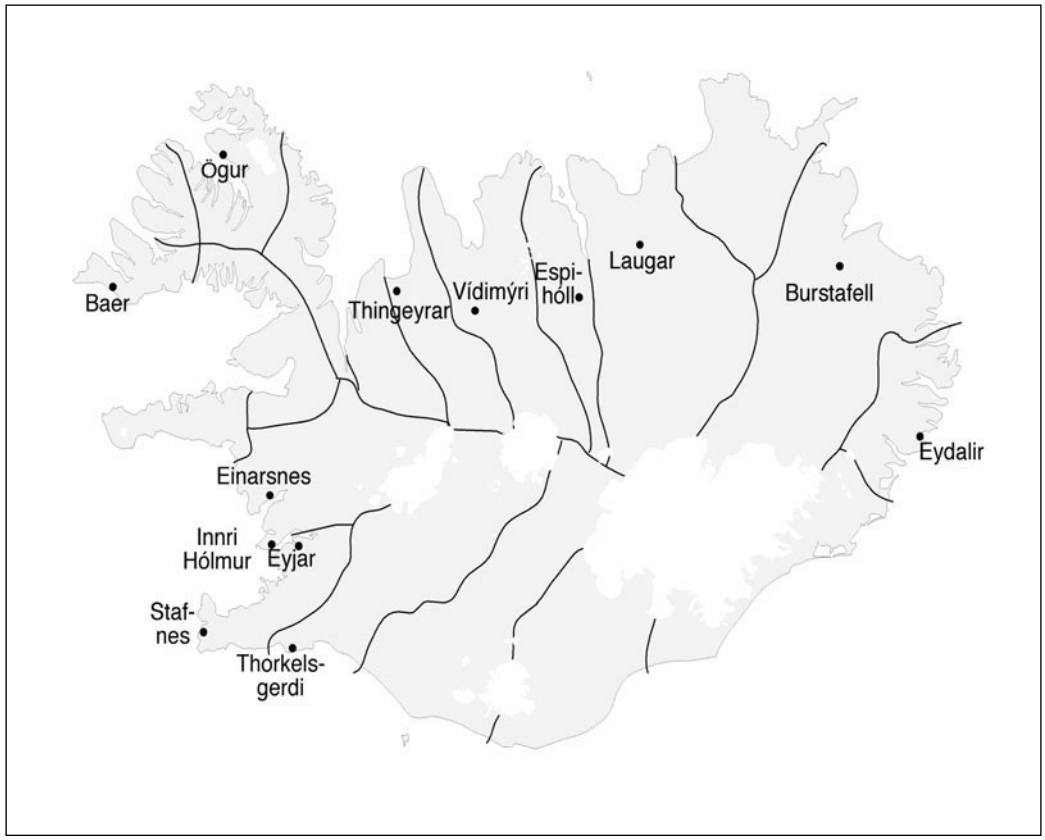
The office of the *amtmadur* (deputy governor) was established in 1688 and in 1770 the country was divided into two such districts. The demarcations of these districts underwent some changes in the course of time and the domiciles of the deputy governors were moved a couple of times. This was unfortunate because this meant that there was less likelihood that the domiciles of officials could become sprouts for development of regional centres. In spite of this, the districts had some influence on the forming of settlements.

The next levels of governance, beneath these districts, were the counties and the sheriffs or county magistrates, and then the level of local government, the communal or local districts. There the directors of the local districts (*hreppstjórar*) were the representatives of the



In 1787–1904 Iceland was divided into three amt–districts until Icelandic Home Rule. Many people think that abondoning this intermediate goverment level has weakened the countryside.

The domicile of the North Amt governor ca. 1900.



Sheriffs were officials of Norwegian kings during the Middle Ages. Today their mandate is not as broad. The map shows devision of the country into counties around 1650, and seats of sheriffs.

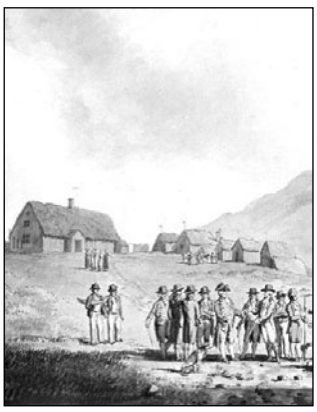
government and the *oddvitar* were the heads of the local councils. Historically the counties are much older than the *amt*-districts.

The geographical division of governmental levels was fully formed with the division of the country into counties. This had already happened in Norway in the latter part of the twelfth century. In Norway the king gave the office of sheriff (county magistrate) to men from his court. In the thirteenth century this distribution of power in Iceland started to come from Norway. The demarcations of the counties are based on what used to be the old spring assemblies; the area of each spring assembly was called a *thingbá.* This division into counties seems to have been fully formed around 1400. The demarcations of the older assemblies and the *thingháir* were not static but moved back and forth. Several of the twelve old *thingháir* have havethe same areas as today's counties but the others were divided into several counties.

After the Reformation in 1550, the power of the kings increased and the bishoprics and men of the church lost much of their early power.

The county and *thingháir* divisions acquired increased meaning after the re-establishment of the Althing in 1843 because the county divisions were used as a foundation for the division of the country into electoral districts. There were 23 counties but in some cases one sheriff was in charge of two counties. The local districts were at a lower level of governance within the counties, and in 1872, with the institution of giving one representative from each local district a seat on the county council, democracy was promoted. The county councils earlier saw to various important tasks, but in the late twentieth century most of these tasks were taken from them and finally they were abandoned.

In 1970 Áskell Einarsson published an important book, *Land í mótun* (The Forming of a Country). The book traces, historically, how the settlements developed and explains how the various regions were supported by the various early secular and religious systems of governance. Einarsson mentions for example the importance of Skálholt and Hólar as regional headquarters in the two halves of the country, south and north. Another of Einarsson's hypotheses is that abolishing of the *amt*-districts, that were a kind of regional government, contributed to the strengthening of Reykjavík as a centre and thus to the weakening of the countryside. Because of this, Einarsson concludes that the *amt* should be re-established.



The sheriff's seat at Innri Hólmur south of Mt Akrafjall.

2 Systems of Religious Governance

After the church had been established in Iceland in 1000 it gradually gained increasing secular power. The church gradually came into possession of a considerable amount of farmland as well as certain rights that came with the land. In time it became the task of the church to be in charge of education in the country and many of the churches and monasteries were seats of scholarship, but first and foremost it was the two bishoprics that were the main seats of learning.

A great change happened in the position of the church when the Catholic Church was abandoned and the Evangelical Lutheran Church took its place in 1550. These changes, even though some were inconvenient, increased the integration of secular and religious power and brought several positive features.

Even today, the church is very much connected to the state government and by law all Icelanders become members of the church at birth. People have to denounce their membership if they want to convert to other religions or stand outside an established religion. This direct connection of church and state, many claim, has weakened its position and its work and of late there is much talk about the separation of state and church.

At all times, there was strong disagreement between the secular and religious powers in Europe. In Iceland, this disagreement is best known as *Stadarmál*, an altercation that came about because the bishops had become so powerful that they wanted to take over the farmlands where farmers and chieftains had built their churches. As secular power started to increase in the fifteenth century, it became one of the most important tasks of its leaders to break up the locked power system of the church. The men of cloth understood that this was necessary and had a hand in shaping the new Evangelical faith of the Reformation that had been initiated by Luther. This wave of change moved north in Europe and the kings that had become stronger during this time used the Evangelical faith as a weapon to attack the power centres of Catholicism and confiscated the properties of churches and monasteries.

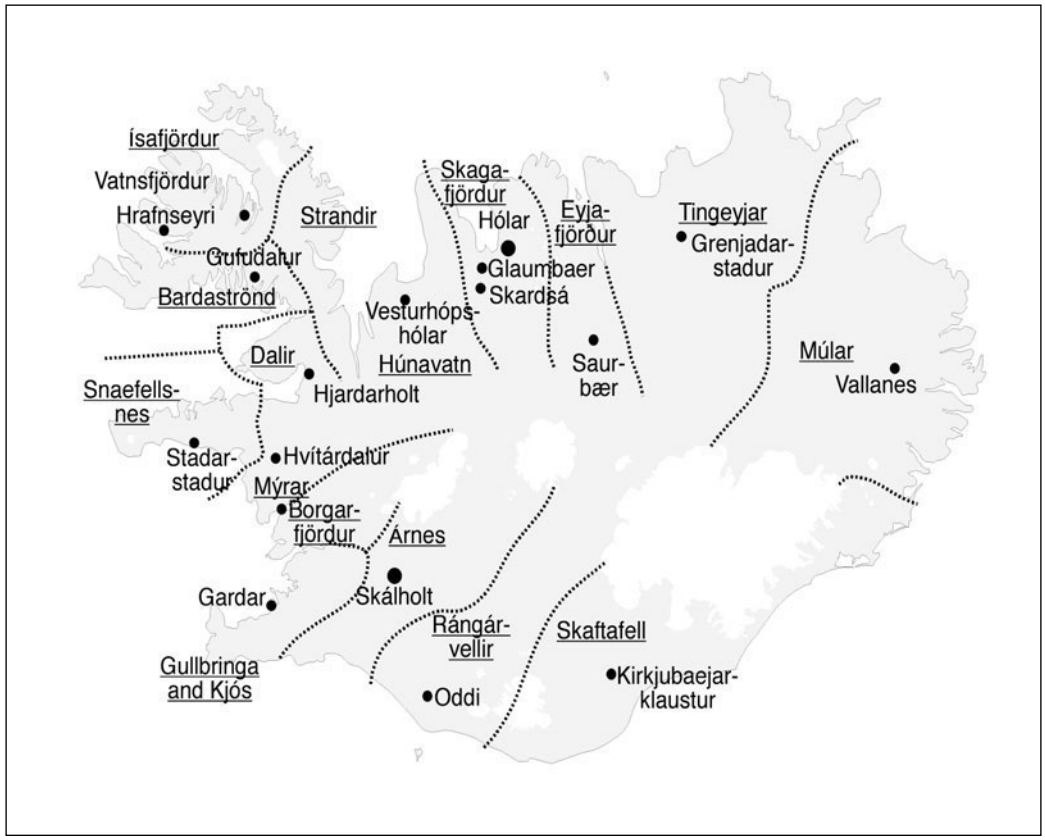
As this happened in Iceland, much change in the power system of the country started to occur. The principal centres of the country, Skálholt and Hólar, were now under the auspices of the secular power and the monasteries were simply abandoned. The secular power strengthened their centre in Bessastadir and established two outposts, one the island of Videy and later in Reykjavík. This transfer of power from the church to the king was therefore of fundamental importance in making the Álftanes and Seltjarnarnes areas a centre of gravity for almost all governmental activity in the country.

The Catholic Church, of course, was a rather closed system of religious outlook but it was, nevertheless, important for Icelanders in many ways. First and foremost this was because the administrative system of Catholicism was based in the countryside, which also meant that it was to a certain degree a decentralized system. The learning seats of the monasteries were, for example, located in all parts of the country. Most of the monasteries possessed some farms and in some areas the devoted also gave them the rights to various natural resources so that they were for the most part self-sustainable. Although the communities of the monasteries were rather closed in most places in Europe, this was not so much the case in Iceland. Because of

The bishoprics and the monasteries were the centres of education in the beginning.

The Reformation in 1550 spelled the end of monasteries.

Gudbrandur's Bible, *1584. Printing strengthened education.*



The arcdeaconries around 1550. Their names derived from the same local names as the county names (underlined). The map also shows the archdeacon seats in the country.

this openness the monasteries had an important educational and social role within their regions.

The secular seats of learning that became most powerful after the conversion were not as evenly distributed in the country as the monasteries had been. Almost all of them were located quite close to the seats of the two bishoprics.

The archdeaconries constituted an in-between level in the governmental system of the church, i.e., between the bishop and the various church sites. They were soon formed, and the map on page 84 shows the division of the country into these archdeaconries, which gradually acquired added tasks in education and in the supporting of the poor.

Now we have come to the eighteenth century, when it was considered right to provide education for the common man, primarily as concerns Christian theory and the ability to read. Many priests became great initiators of public education but a later system of certain travelling teachers was introduced in various regions, teachers that taught children at centrally located farms. Often, this teaching took place on church property, but not always. As the priests had become officials of the kings, a more direct contact between the secular and religious officials evolved. In some cases the regional or district centres in the country were simultaneously seats of secular and religious power.

In the Middle Ages, several great disasters and epidemics struck Iceland, such as the Black Death, and finally the *Móduhardindi*, the "Haze Hard Times" that resulted from a hard-hitting period of volcanism in the latter part of the eighteenth century. These disasters resulted in increasing the power and importance of the church.

At this time the scientific reasons for natural disasters and epidemics were not known and people therefore sought other explanations for these terrors. Sometimes the explanation had its roots in superstition and the church used these terrors to publicize religious explanations of what caused calamities. Therefore the fundamentalist movement became very strong within the church in the Middle Ages. Bishop Jón Vídalín was its best-known advocate. The psalmist Hallgrímur Pétursson gives a very graphic insight into this world of religious thinking.

The seat of the archdeacon in Glaumbaer, Skagafjördur.

3 Systems of Commerce, Harbours and Fishing

After the systems of church and secular governance, the structure of the commercial system is the most important in terms of how the settlement patterns of the country developed. Originally there was not much commerce in Iceland because there was little productive capability and the urban development of Europe was so early in its development that markets for imported goods were not yet well developed.

In spite of meagre production, however, there was, at all times, some commerce in Iceland. The map below, to the left, shows the most important commercial harbours in the Commonwealth Age. At this time, transportation was still via the flat-bottomed Norwegian ships that could enter shallow estuaries and lagoons. Many of these harbours were therefore in the inner parts of fjords, which meant that the cargo ships almost reached into the middle of agricultural areas.

The system of commerce was organized in such a way that in the spring ships came with their goods from abroad. Some of the merchants stayed in the country during the summer but sailed back again in the autumn with the agricultural produce that had been produced in the countryside during the summer.

In the fifteenth century other European nations started to come more to trade, primarily the English and the Germans. They came on ships that could not as easily be pulled ashore as the Norwegian ships, so that harbours with deeper water and suitable for them now were found further out in the fjords, as the map to the right shows. Many fishing harbours later evolved still further out in the fjords as the fish catch diminished within the fjords; some of these harbours were even placed on the ends of peninsulas.

At this time the fishing had started to increase considerably and therefore it was not of much use to go fishing in the inner parts of narrow fjords, but rather it was obviously much more economical to place the fishing harbours at points on the coast where a wide circle of ocean area surrounded the point of venture for the boats in order to minimize the distance out to the fishing grounds.

Increased fishing meant that the urban spots where they were located were strengthened and at the same time many of them became commercial harbours for the exportation of the fish and also, of course, for the importation of goods. This is the beginning of *centrifugal force* in the development of settlements in Iceland. This force, caused by increased fishing and the need to move more harbours outward to be nearer the fishing grounds, resulted in pulling activity in the country away from its centre to its outermost edges.

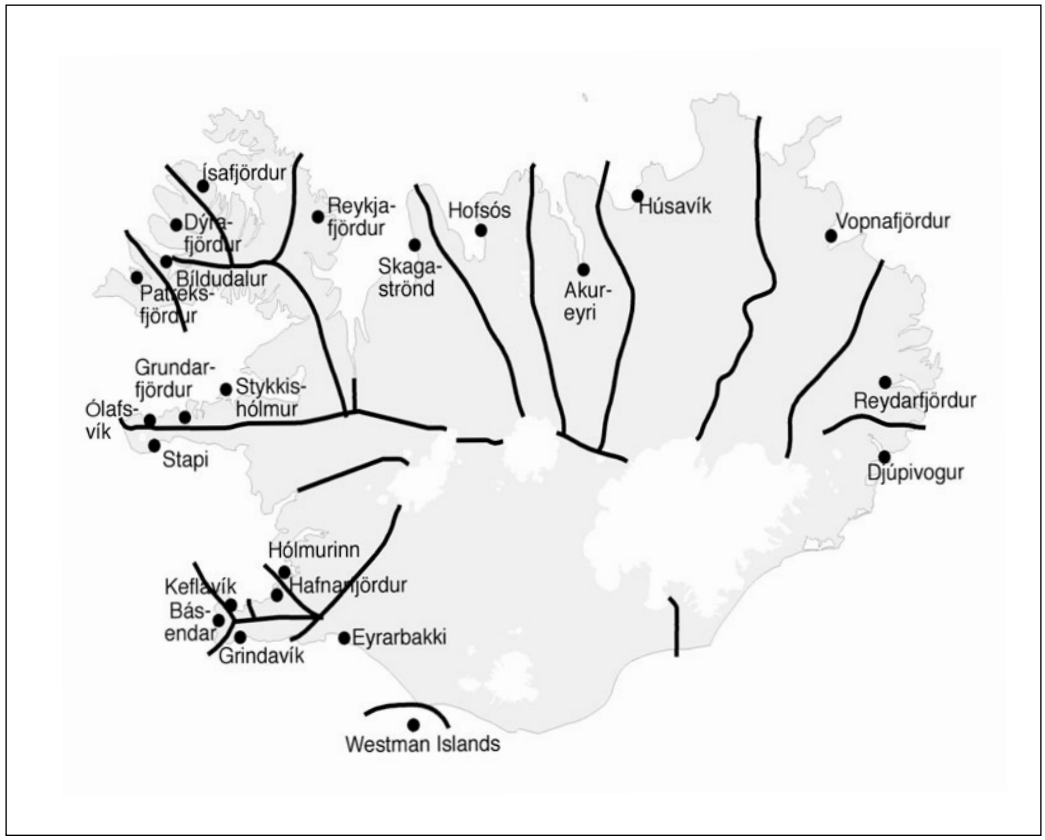
As many people still were living inland in the agricultural areas, the moving of the centres from their earlier location in the middle of agricultural areas at the head of a fjord to the ends of peninsulas meant longer distances to go to commercial centres. The strengthening of these fishing points meant that some auxiliary settlements developed around these new harbours.

In order to gain more profit, the Danish kings sold monopolistic rights for commerce in certain harbours and later to certain commercial areas in Iceland. This new division into harbour and commercial regions followed, for the most part, the county demarcations. The selling and renting of these licences meant that only those who had paid for the right were allowed to conduct commercial activities. Division into commercial regions was only partly based on the

In the Saga Age flat-bottomed ships were able to sail into rural areas at the heads of the fjords.

Smacks used deeper harbours further out in fjords, a location also good for fishing.

The lagoon in Hvalfjördur where the village Búdir was.



In the time of monopolistic commercial rights, the country was divided into trade regions that mostly coincided with the counties, and certain trade harbours were assigned to them.

local needs of people to be able to reach a commercial spot in a comfortable way. The main criterion for choosing a commercial centre was that the harbour was good and also that there were good conditions for building the housing needed. As fish accounted for a considerable proportion of the export goods, this meant that these export harbours were also suitable as centres of fishing as well. In this way this new system of commercial centres to some degree became the foundation of the new fishing towns in Iceland.

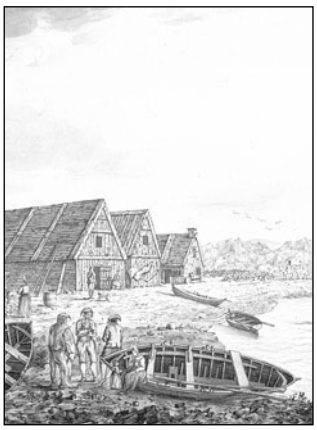
In the seventeenth century mercantilism came to the fore, as well as humanism, in northern Europe, following the Renaissance in Italy. Around 1750, the Danish kings became interested in improving the lot of their subjects in the lands they held sway over. As a matter of fact, the idea was not least to strengthen the dependencies in order to collect increased revenue from them. In order to pave the way for improvements in various areas the king sent scientists to explore Iceland.

At this time, the number of Icelanders that held public office had grown in number. These people were also inspired by progressivism to improve and had an important role, together with the king, in experimenting in industry with the establishment of the *Innréttingar* (New Industries) in Reykjavík.

The nations of Europe had long before this time understood that supporting certain urban cores was a precondition to improving settlements so that specialization in various fields could evolve. Because of this thinking a directive was issued in 1786 to reduce the number of trading centres that were allowed to conduct commerce to six. In addition, there were other auxiliary commercial spots.

The first and second Land Commissions that created this policy made proposals for several other measures meant to strengthen these commercial centres. One of their proposals was to move various other types of activities to these places and to bring handicraftsmen in several trades to Iceland where they were secured special rights with letters of citizenship.

Gradually the market for Icelandic fish products increased in Europe because of the enlargement of the towns that followed increased industrialization. The increased amount of money available in Iceland could be used for the bettering of the fishing boats and later to build a fleet of schooners in the second part of the nineteenth century, resulting in an increase in the number of towns.



Trading houses in Hafnarfjördur, late 18th century.

4 Systems of Transportation

Previously, an account was given of how the natural features of the country had an influence on how the transportation systems were formed. Part of the surface transport system in the country was, at this time, routes across the central highlands. As the highlands started to erode to a considerable extent, there was no longer enough grassland for the horses and as the topsoil disappeared, rocky sand or desert was all that was left. This meant that it became hard to go on horseback over the highlands and increasingly fewer chose those routes.

The Middle Ages were a time of famines and cold spells, so the strength and courage of the Icelanders to take on difficult ventures was reduced. Superstition of all sorts increased and included a belief in imagined settlements of outlaws in the highlands; people were certain that trolls and ghosts were lurking in these vast and dark territories. This is a clear sign of how subdued Icelanders had become, reaching a peak in the eighteenth century. Gradually the nation started to build up strength again, in part because of knowledge that dispelled some of the superstition. One of the things that was central to this renaissance was to re-establish the highland routes. In order to further this cause people established the *Highland Route Society.*

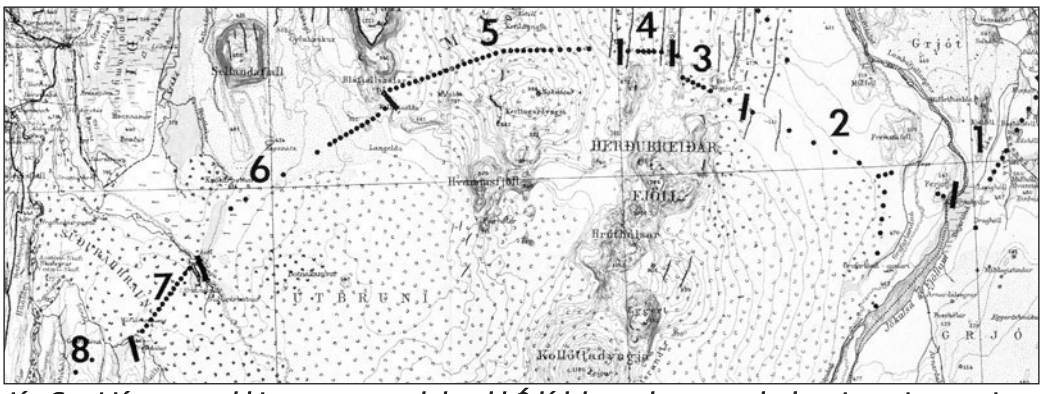
The Danes started to bring forth several proposals in the eighteenth century on how living in Iceland could be improved. In 1776 the Danish authorities issued the Reskript, a rather specific directive on how roads and bridges should be built and ferries established. In this very same year, regular mail and passenger ship service to Iceland was initiated. To start with, the mail harbour was at Bessastadir.

Early in the nineteenth century the mail harbour was moved to Reykjavík, which was one of the more important steps towards the strengthening of the town because this led to Reykjavik's becoming the centre of transportation in the country. Somewhat later a mail distribution system within Iceland itself was introduced and the mail carriers were called *landpóstar* or national postmen. A decision was made on the frequency of the mail deliveries and in many cases the postmen also had the task of acting as guides for travellers.

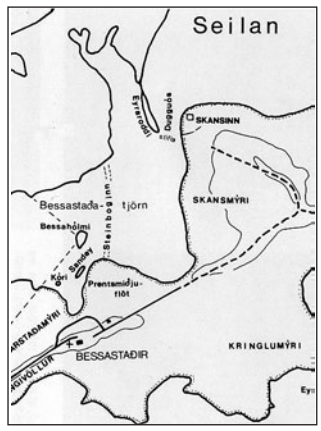
Later in the nineteenth century, stagecoaches similar to those seen in American cowboy movies were bought for this service. They transported the goods, the mail and passengers to the neighbouring areas of Reykjavík. It still took a long time until the road system had been improved to such a degree that cars could be introduced for this service. Partly the car services were organized in such a way, on behalf of the state, that people were given licences for certain routes, which obligated them to maintain a certain frequency of mail deliveries and other transportation within Iceland.

The transportation system of the country, because of the lack of roads, was actually first and foremost coastal transportation with steamships. This was partly conducted by the mail ships that made a stop at several harbours as they came from Denmark to Iceland.

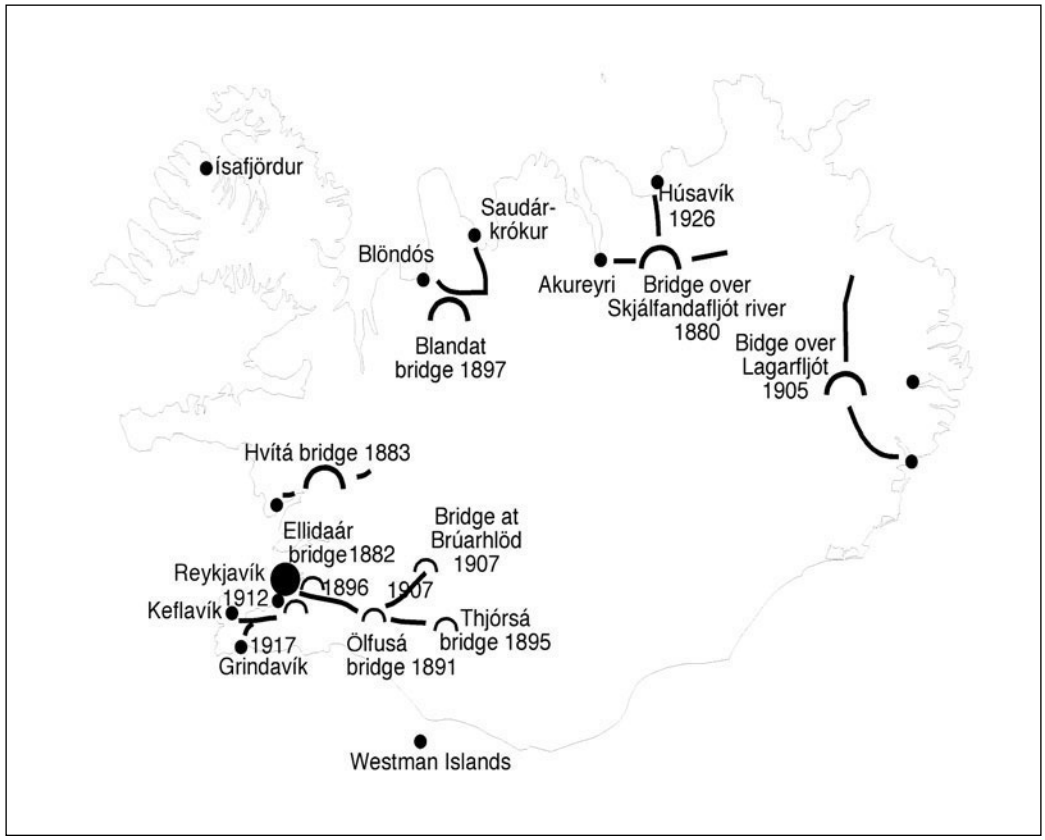
A final step in this development of shipping was the establishment of specific circular coastal shipping route and in the early part of the twentieth century the Icelandic state itself established a company, *The State Shipping Company,* which provided transport to dispersed settlements in the countryside, something that was necessary because these places, in many cases, were not connected to the road system until the middle of the twentieth century.



Jón Gauti Jónsson and his team mapped the old Ódádahraun lava route by locating cairn remains and studying old travel descriptions.



Seilan, the harbour at Bessastadir. Skansinn was a fortress.



Transport was greatly improved between 1890 and 1920. Road improvements and bridges were built, connecting country districts and large towns, for mutual benefit. Phone lines were also added.

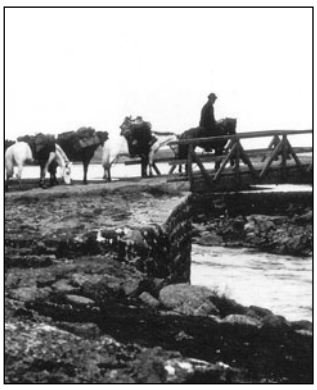
A new directive of transportation issued in 1861 opened a new epoch in land transportation. This was primarily because the directive divided the road system up into categories and the state started to allocate an annual budget for road building.

In the first legislation regarding roads in 1894 the roads were divided into transportation routes, national routes and mountain routes that were to be paid for by the state treasury, and county roads and local roads that were to be paid for by the counties and the local districts. The directive gave an order that good roads should be built in the most populous towns as well as to the neighbouring areas. These transportation routes were decided on before the car had arrived on the scene. Therefore, they were meant to serve as transportation routes for pack trains and later horSE drawn wagons as the Age of the Horse Wagon started.

The first car came to Iceland in 1904. It was, however, only for show and experimental purposes. It was not until 1913 that Canadians of Icelandic decent imported a Ford car with a flatbed and started to operate it. The short Age of Horse Wagons was a necessary and important step for preparing for the advent of the Age of the Car because of the many bridges that were built in that era. These bridges are shown on the map above, as well as some important roads. These bridges and the short roads were a precondition for being able to transport a considerable amount of agricultural produce to the urban centres. The urban settlements had finally started to grow but the difficulties in supplying food from the countryside were a bottleneck on development.

The transportation of food from the countryside became particularly important as World War I started because then the importing of food from abroad was much reduced. That the car had been brought to Iceland just in time was lucky because it could be used for transportation of agricultural produce to Reykjavík, mostly from farmlands in the south.

As we review this history of transportation we marvel at how unbelievably late any considerable steps were reached, particularly in road building. The road round Hvalfjördur, north of Reykjavík, for example, was not opened until 1932; before that time people going north had to drive to Thingvellir and then over the Kaldidalur Valley wasteland, south of Langjökull Glacier, and on north.



A farmer leads his packhorses over the Ellidaár bridge.

5 The Educational System

The pursuit of learning and literary endeavour was originally connected to certain main estates, large churches, monasteries and the two bishoprics. Christianity brought the scholarly traditions of Europe to Iceland and some of the priests and bishops went abroad for their education. As time proceeded there was a considerable community of ecclesiastics, and schools for educating the priests were established in Hólar and in Skálholt.

Those who wanted to study law and other worldly subjects after 1736 had to go abroad. Most of them went to Copenhagen, as was natural because Copenhagen was at that time the capital of Iceland and the University of Copenhagen therefore also functioned as a university for Iceland. As the New Industries were established in Reykjavík, and also the trading towns somewhat later, many foreign craftsmen were brought to Iceland to teach and practice their skills and many Icelanders went abroad to study crafts as well as higher learning.

Times were desperate in Iceland at the end of the eighteenth and into the nineteenth centuries following the major eruption in 1783-84 in the south of the country and the *Móduhardindi* ("Haze Hard Times") when the resultant gaseous blue haze and poisonous ash killed livestock and made growing crops difficult. In this period, the centuries-old Skálholt School was closed and a new school, Hólavallaskóli, established in Reykjavík as its replacement in 1786. This school too was closed down in 1804 but somewhat later was started anew at Bessastadir. The bishopric of Hólar was also abolished and the last year of teaching there was the winter of 1801 – 1802. Education of children had been the responsibility of priests for some time but after 1800 some of the first primary schools were established, the first one close to Bessastadir, established with a grant from the Thorcelli Fund.

The Age of Enlightenment in the eighteenth century helped people understand that learning and education would also pave the way for improvements in agriculture. At the beginning of the nineteenth century Icelanders started to go abroad for practical training in agriculture, primarily to Denmark. In 1872 the Danish government issued a directive for the establishing of agricultural schools in Iceland and in 1880 the first such school was established in Ólafsdalur in Dalasýsla County. The next agricultural school was established at Hólar in 1881, then in Eidar in 1883 and at Hvanneyri in 1889. To start with, the farming schools were the properties of the *amt*-districts and run by them. All these schools, with the exception of the one in Ólafsdalur, have continued to be centres of education.

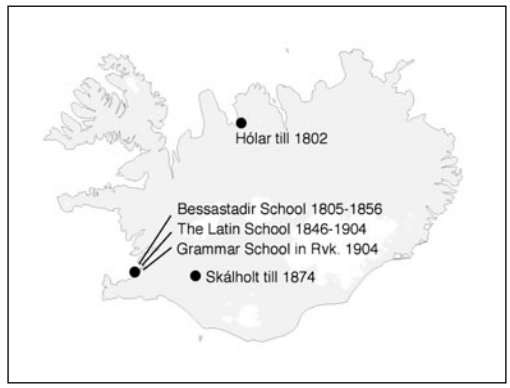
Reykjavík started to be built up as a centre of education and schools in the nineteenth century with the establishment of the Latin School in 1846, the Seminary in 1847, the Medical College 1876 and the School of Law in 1908. In 1911 these schools were combined to form the University of Iceland.

Two secondary schools were established in the nineteenth century. Mödruvellir School in the north was established in 1880 as compensation for the elimination of the Hólar School earlier. When the Mödruvellir School burned, it was moved to Akureyri and later became the Akureyri Upper Secondary School.

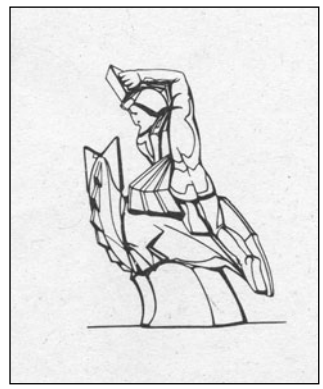
In the south, Flensborg School, initially established as a primary school, was converted into a secondary school in 1892. It had the task of running a teacher's training until the Teachers' College was established in Reykjavík in 1908.

In 1900 folk-schools were established at

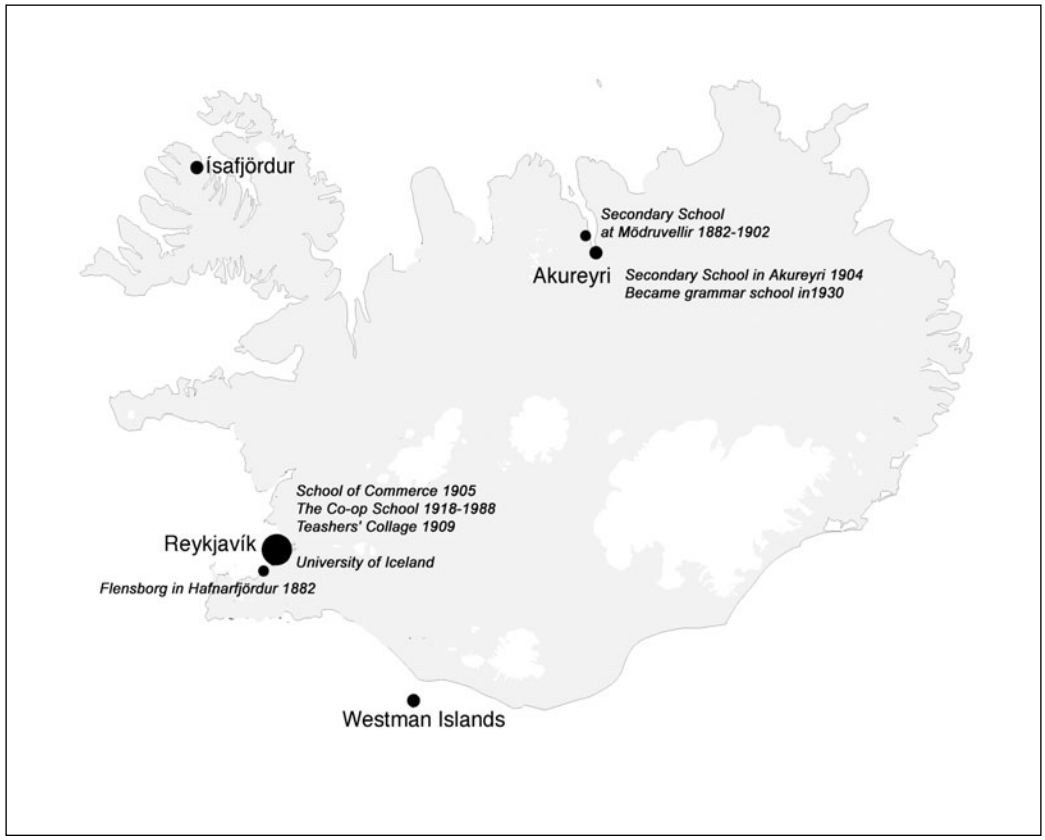
The bishoprics and monasteries were centres of education.



The main higher education schools in the late 1700's and early 800's.



Saemundur arriving on a seal from a Black Magic school.



Secondary and private schools that were built in the latter half of the 19th century. All were built in or around Reykjavík and Akureyri, thus strengthening these towns.

Hvítárbakki in the west and at Núpur in the West Fjords. A women's school was established in 1871 in Reykjavík and later in a few other places. These schools in the countryside did not develop into urban centres except at Akureyri, where, in that Northern Capital of Iceland, the school had great importance in strengthening the settlement.

Because of the negative influences of the Industrial Revolution on life and the environment of towns, as well as the wish to improve education in the rural regions themselves, quite early an ideology was postulated that had the goal of having many of these schools develop into rural centres. The proponents of this policy hoped that this could contribute to maintaining the ancient Icelandic farmers' society as a central aspect of Icelandic settlement culture.

By comparing the three maps in this section we can see, for example, that the first educational centres, the monasteries, were pretty well distributed over the country. What happened at the end of the eighteenth century was that some of the educational institutions that had been established in the countryside were moved, primarily to Reykjavík. The third map shows that this development continued in the latter part of the nineteenth century. This can be seen as a sign of how, already, the countryside areas and rural areas were declining, but it also needs to be pointed out that there was a real need to improve Reykjavík, and later also Akureyri, as strong centres of learning.

At the turn of the century in 1900 the great majority of Icelanders were still living in the countryside. The fight for independence from Denmark and an increased pride in what was Icelandic induced many of the freedom fighters to call for the strengthening of the countryside. This policy became central in the ideology of the Young Peoples´ Movement. The politician *Jónas Jónsson from Hrifla* was at the forefront of this new national movement that aimed at improving the cultural and educational independence of the rural areas. A special farmers' party, the Progressive Party, was established and became quite powerful in the first part of the nineteenth century, often leading the government. This rural policy therefore was instrumented to a considerable degree by political powers. In many places the government started to build regional schools and regional centres – most preferably in places where geothermal hot water could be found.

A fire in Módruvellir strengthened Akureyri's position.

Book Three

Plan Development of Towns and Regions

I Categories of Settlements and Types of Plans

1 Primary Causes of Urbanization

The settlement structure of most countries consists of both rural and urban areas. The urban areas and their settlement structure are most commonly formed first and the development of urban cores grows out of the patterns or structures that have already been formed in the rural society.

How some of the settlement structures developed have been introduced earlier in this book and, as we have now established this foundation we can, as the book proceeds, better understand where and why settlements could develop into urban cores. The development of urban areas started very late in Iceland – the next section will explain why. This section will start with a brief review of some of the primary causes of urbanization common to most countries in the world.

The primary causes of urbanization, however, differ somewhat according to local conditions, types of trade and in general the nature of the society in question. Nevertheless there exists a rather coherent theory on primary causes of urbanization, though there are different theories as to what have been the main reasons for the development of urban settlements.

The following description is based on the most traditional division into categories of settlements. In this account there is no specific reference to how urban areas developed in Iceland. The most common causes for urban development are:

I An authority of some kind settles in a certain place, for example a secular or religious power – and the place gradually becomes a town.

II Agriculture reaches a high level of development. Because of this various types of processing industries, food production and commerce evolve and form an urban core.

III Fishing leads to the forming of a town. Here it is actually the services and the commerce connected with fishing that brings about urban development.

IV Some type of industry comes to be:

1 Primary production, for example, salt and metal and coal production

2 Secondary production, for example, lumber or iron products

3 Service industries:

a) Services for other industries, e.g., blacksmiths and mechanics, and these trades increase

b) Service to the settlements, e.g., carpenters, food production, etc.

V Culture, e.g., seats of learning or university towns

VI Leisure (e.g., Blackpool and Baden-Baden)

Even though this chronological sequence is rather common as to how these basic types of towns came to be it is, however, not always so. What most often happens, as towns have been formed – for example as industrial towns – is that they gradually become more diverse, and today most towns are a combination of the various primary features.

Let us now start to review, briefly, what most commonly led to the formation of these primary types of cities. We will also take a brief look at what types of urban activities most often go together and point out, in the process, how certain things occurred in Iceland, though this subject will be dealt with in the next section.

The most common primary cause for the formation of an urban centre is that people need to gather in a place to conduct activities that concern society as a whole, for example for a burial or for worship. Places chosen for such gatherings often grow to become urban centres.

Those who were in charge of religious services often acquired certain power within their society so that they and the religious centres sometimes took over some other social functions. The result was that these men often eventually evolved to become, all in one, the secular, religious and cultural authority. As Iceland was first settled, the centrally governed Christian faith had not been introduced in northern Europe. The heathen religious services, which the *godar* (priest-chieftains) were in charge of, were most often made up of a family or a small group of people, so that these functions did not induce the growth of centres. A hierarchical structure, which can build up large religious centres, was therefore not operative in the first two centuries of settlements in Iceland.

Humankind's utilization of fauna and flora for their livelihood also goes through many steps of development, the first steps being gatherers, hunters and shepherds that roam the country. To start with the first settlers could allow themselves the luxury of living off of primary production because the country was untouched by man and everywhere plenty of food was available. It was easy to hunt and fish because "the game was still tame and unaware of man", as one of the sagas tell us.

As the number of inhabitants increased,

Intersecting roads and bridges led to urban areas.

people, to a larger extent, had to depend on livestock for their livelihood. The livestock needed a considerable amount of grazing land because the land, in general, was rather infertile. Therefore, quite early, it became common to drive sheep and horses to the highlands because of the lack of grazing land in the lower areas.

Various agricultural tools can help increase the productivity of land, both for haymaking and other types of crops. Because the climate in Iceland started to get cooler after the first centuries of settlement, the climate did not remain suitable for growing wheat, which is actually the type of agriculture that can best lead to urban development.

Wheat farms can be close together and even form a kind of a village, if the fields are organized in such a way that their shape has the form of star that beams out from the centre. In Iceland, there is only one village that has this star form: Thykkvabaer. That this could happen in Thykkvabaer is probably because of the fertility of the soil there. Because this geometry of a star arrangement of the farms in this area is quite ancient, it probably came to be because of wheat production in earlier periods. Today potatoes are the main crop in Thykkvabaer.

The introduction of various types of tools could increase the productivity of the land as, for example, irrigation systems where water and the minerals in the water are distributed over the fields.

A basic tool which the original settlers had was the ord or coulter plough, which opens up the soil, and in the process oxygen penetrates deeper into the soil and improves growth. In Iceland the productivity of the soil was not increased to such a degree that the farms could be placed close enough to each other to result in the formation of agricultural villages.

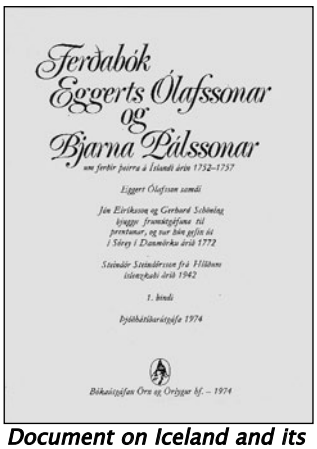
The third type of urban centres are those which originated because of the development of fishing. Fishing in Iceland started simply, with people on farms close to the shore pushing their boats into the ocean to go fishing. Further development of fishing from this primary stage did not occur until a market had opened for fish products in foreign countries.

When Bergen in Norway had become the capital of Iceland the exported fish mainly went there because Bergen had the big advantage of being an outpost of the Hanseatic League. Prior to that, homespun cloth was the main export article, but the exportation of dried fish was what provided Iceland with the opportunity of increasing its income.

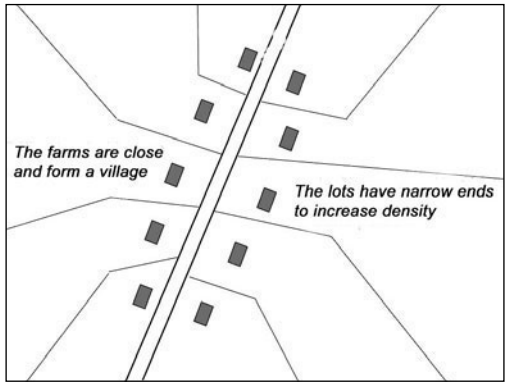
The fifteenth century, known in Iceland as the English Century, was in many ways positive for Icelanders in terms of the development of fishing because the English came to Iceland both to fish and also to buy fish, bringing with them goods that they either sold or mostly bartered for the fish they wanted. In this same period the Hansa merchants also started to come to Iceland. A conflict of interest in some places in Iceland led to fights between the Hansa and the English. German merchants became most numerous in the sixteenth century.

This type of free trade had the positive influence that a few little fishing villages and commercial spots started to develop but then, unfortunately, many things started to change for the worse. The main reason for the decline was not least the cooling of the climate at the end of the seventeenth century. Another reason was that the Danes introduced a commercial monopoly in 1602. What followed was that the prices of export goods soon started to decrease, even to half of the earlier price.

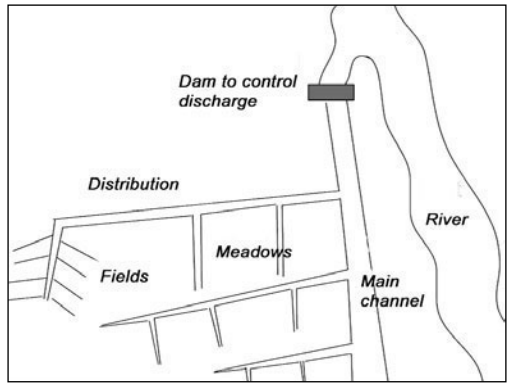
This lowering of prices meant less incentive for Icelanders to increase their production and at the same time also meant that there was less money available to buy equipment to improve the capability for production. The tools that


Ferðabók
Eggerts Ólafssonar
og
Bjarna Pálssonar

Document on Iceland and its condition, early 18th century.



The star is a traditional agricultural town's shape, and Thykkvabaer resembles that shape.



Irrigation systems were not common in Iceland. The largest ones are in Skeid and Flói.

would have been needed for that included better fishing boats, better fishing gear, and better fish processing stations.

Around 1700 desperation in the country had grown to such a degree, among other things because of volcanic eruptions and years of cold spells, that officials came together to list the worst of these – both in terms of climate, governance and commerce – in hopes of being given assistance. The class of educated elite that had now developed in Copenhagen was rather open towards these pleas.

What followed was that the king organized a research journey for two scientists to conduct a general assessment of the condition of the country. These two men were Páll Vídalín and Árni Magnússon, who, among other things, compiled their findings in the *Lexicon of Farms* and in 1703 also conducted the first general census as a part of this effort.

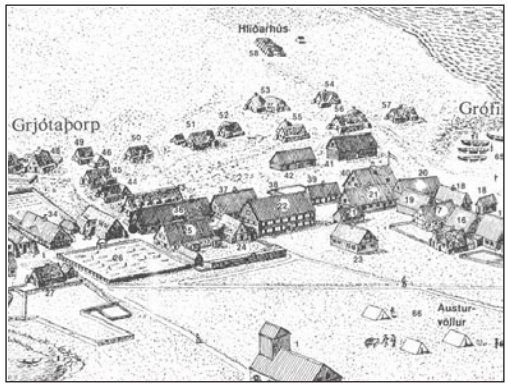
After this successful venture, other researchers were sent to Iceland in the first part of the eighteenth century, for example Bishop Harboe, who conducted a survey of the educational situation of the nation. This new search, based on the belief in learning and entrepreneurship, led the new Icelandic officials to begin to change things. Skúli Magnússon was the first Icelander to fill the office of bailiff and took the initiative of founding the New Industries and creating the concept of the first industrial village in Iceland.

The king supported the establishment of the New Industries and gave the farm of Reykjavík to be used as its location. Various factories were established there for the weaving of cloth and for producing ropes and other goods needed for fishing.

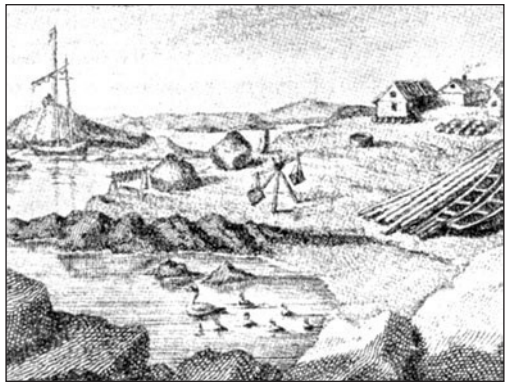
The king also sent Icelanders two schooners so they could start fishing from decked ships, the first they had done so. The operation of these factories started rather well but gradually various difficulties emerged and a few decades later the programme was almost totally abolished.

In spite of the misfortunes some activities in the little village of Reykjavík evolved slowly for the next 100 years or until Reykjavík, around the middle of the nineteenth century, started to take off in terms of urban development because of the rapid growth in fishing with schooners.

The terrible period of volcanic eruptions and years of cold spells at the end of the seventeenth century, as well as blockades because of the Napoleonic Wars that closed off the markets, were among the reasons why the early attempts at developing Icelandic industry



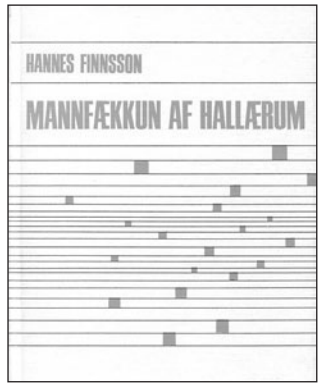
The industrial village at Adalstraeti marked the beginning of Reykjavík.



The harbour in Flatey, where the outfitting of schooners first started in Iceland.

became so difficult. By 1820 things had started to improve a little, primarily because boat ownership started to increase. The Age of Schooners started around the mid-nineteenth century on Flatey Island in Breidafjördur and in Reykjavík in 1866. The modern type of urban growth had therefore finally started, most of all because of the economic importance of fishing.

A typical fishing village. From the* Travel Book *of Eggert and Bjarni in the late18th century.



Bishop Finnsson wrote a report on catastrophies.

2 Why Urban Development Came Late

The main reasons why urban development takes place have now been explained. This development in Iceland was often linked to new occupational activities and the increased value of what the country could produce. This was often achieved by planned governmental actions and by the introduction of new technologies. This progress primarily occurred in the fields of agriculture and fishing, but the development of industry has been hard to achieve in Iceland.

Let us now first review how considerable centres of government developed in Iceland even though the first early sprouts of a government for the whole country had already materialized with the establishment of the Althing parliament in 930. There are mainly four reasons why towns with government centres developed in Iceland later than in Europe:

First, the geographical features of the country were such that it was divided up into strongly separated spatial units.

Secondly, settlement only really developed like a collar around the country. Often the lowlands which were suitable for urban development were encircled by mountains and in the regions where there were large flatlands, as in Borgarfjördur and in the south, the settlement areas were divided by large rivers which were difficult to cross. This made it hard to make them into integrated units because travel between regions was hard except farther inland at higher elevations where there was less water in the rivers. Because of these features a very long time passed until a transportation system, worthy of the name, had been developed.

The third reason for the late development of urban cores is that farmers were mainly focused on producing food for themselves and their own people. Therefore people were not very dependent on each other and there was so little excess production that a ruling class that could have organized commercial activity was almost non-existent. The absence of a wealthy ruling class resulted in the fact that the farms were most often the property of the farmers themselves, which furthermore contributed to the absence of regional chieftains that were, as elsewhere in Europe, almost a rule.

The reason for the formation of a ruling class in other countries was often that the farming regions could expect unruly tribes and rampaging gangs of bandits. Because of this the public often considered it positive that there existed some higher power in the area, an earl or a small king, who was able to build up an army and create a safe haven within a fortified town. As invasions occurred, farmers could flock within its walls to seek shelter from the warlords.

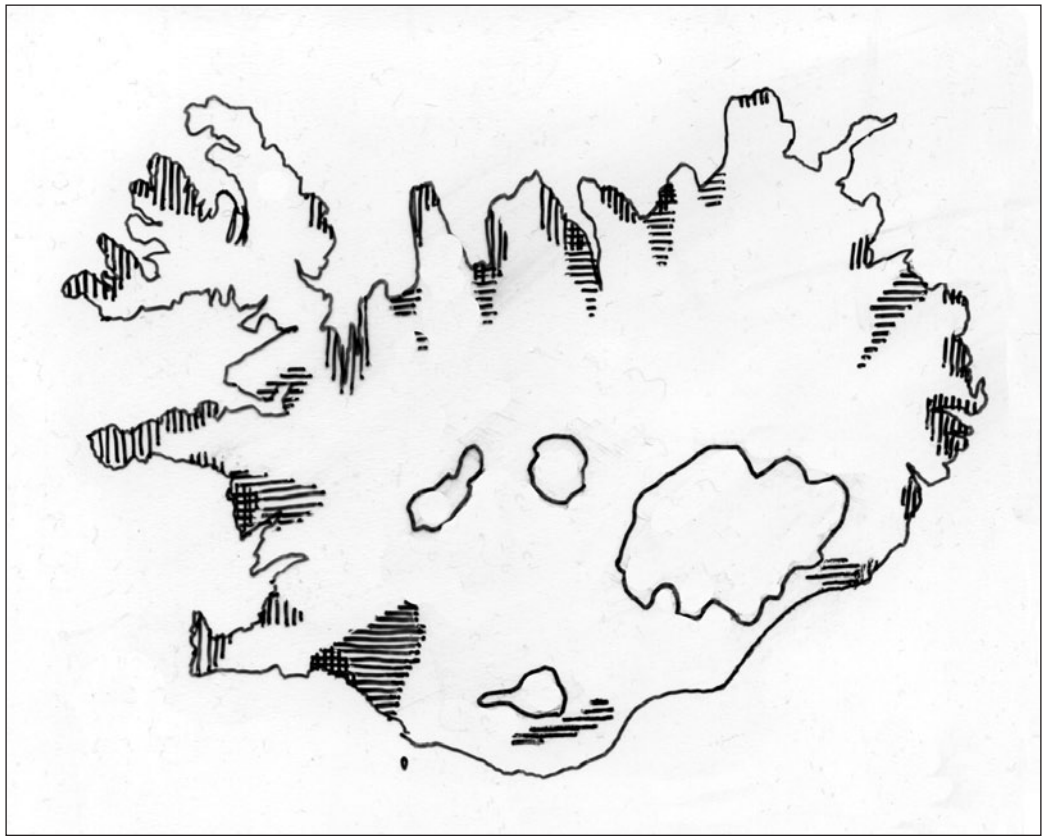
The existence of an army and a governing chieftain within these walled towns meant that considerable amounts of food had to be brought into the towns from the surrounding areas. As the farmers brought their produce to the market an opportunity developed for providing them with amusement. Later, classes of handicraftsmen and tradesmen started to develop, producing various things that both the citizens and the farmers could make use of in their work.

What we see here are the first steps of specialization. Specialization of knowledge or technology helps make activities more productive and thus makes societies richer. The increased productivity means wealth is created that can then be channelled to the building up of cultural activities within cities, activities that were not directly part of what was needed for sustaining a livelihood. Many of the early towns

Best areas for farming: earlier moores and wetlands.

The black areas are lava and land over 100 m, where farming was difficult.

Shaded area shows land with much vegetation. Today this is still the best farm land.



Large agricultural areas: horizontally lined, and areas best fitted for fishing: vertically lined. These areas would have been the best for urban settlements, especially where the two coincide.

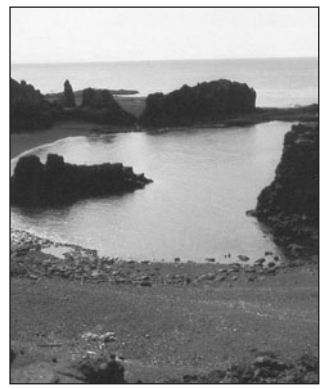
in Europe were strengthened by international trade, and as countries in Europe started to make countries in other continents their colonies, some European cities became still more powerful, especially the seagoing ones.

The fourth reason why governmental towns did not develop in Iceland in the Middle Ages was not so much the fact that there was no overarching executive power in the country but rather that this activity was too dispersed. The regional governmental centres were the seats of the sheriffs (county magistrates) and the *amtmenn* (deputy governors), but the governor lived for most of the time in Copenhagen, like almost all other officials of the Danish empire. It was not until Icelandic nationals were given official positions that some of the officials showed some initiative in building something up in Iceland. The first Icelander to hold the office of bailiff was Skúli Magnússon, who was enthusiastic about improving the lot of the nation.

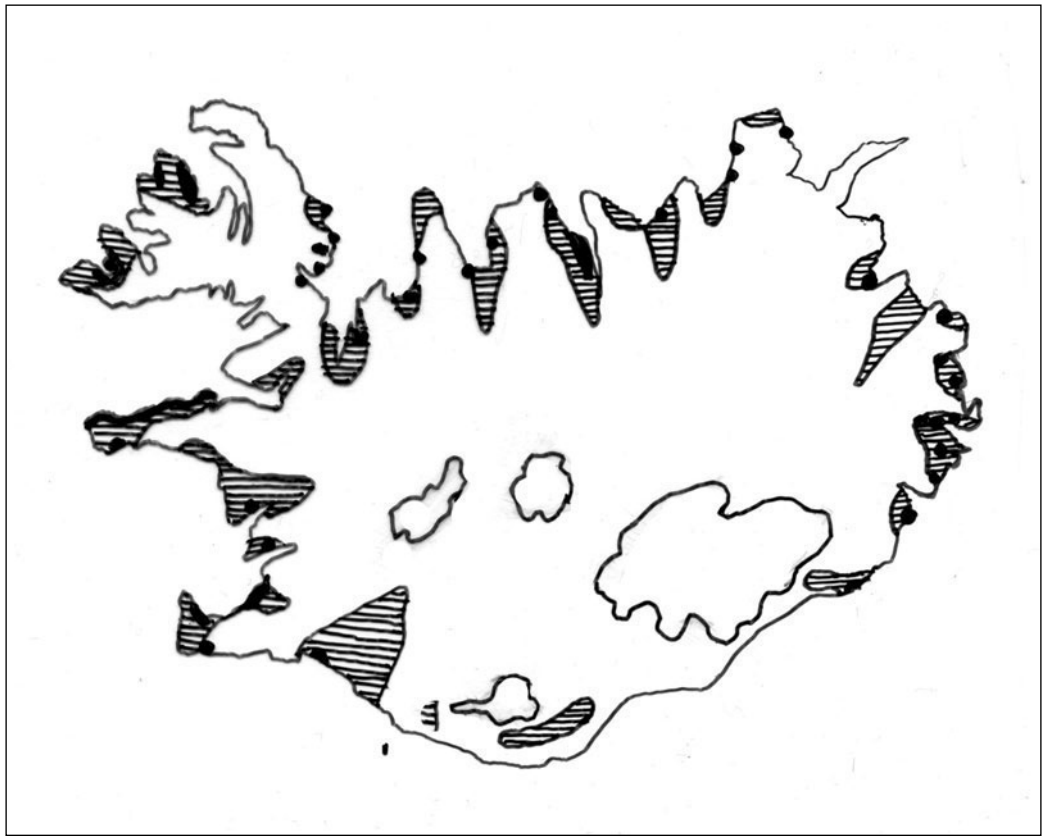
The farms were the centre of Icelandic life and also of production. No specialized villages were needed for processing agricultural produce as tasks like processing and weaving the wool, smoking the meat, and rendering fat took place on the farm and even within the home. The home worker tradition could, in spite of this, have developed to a higher degree if there had been more power and enthusiasm. Icelanders could have produced more valuable agricultural products for export purposes. An attempt was made to do this with the establishing of the woollen mills of the New Industries in Reykjavík, but this attempt was ultimately not successful.

Ocean fishing had already started in the thirteenth century and fishing outposts with boats for seasonal fishing had been established in many places in the country. The problem was that the small fishing boats could only catch the fish in the few weeks in the winter and spring seasons when the fish were in the shallows to spawn. When these migrations to the spawning grounds failed, people did not have the schooners to seek the fish in deeper waters.

People from the countryside migrated to the fishing spots to become fishermen in these two seasons. This "system" made good use of idle time on the farm in late winter. These people helped increase the amount of fish caught, which increased the importance of fish at home



Dritvík on Snaefellsnes is a natural harbour.



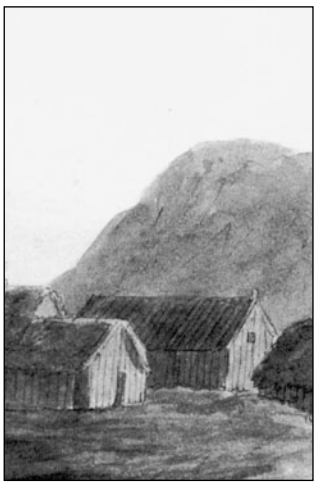
Areas of fishing and agriculture. Few of these areas led to urban developments because in these areas there were few good natural harbours.

as well as for export. When the fishing season ended, these workers went back to their home farms for the lambing and then haymaking in the summer.

In many places there was a willingness to strengthen the fishing industry and operate it all year. In order to be able to do so, Icelanders had to get hold of decked ships in order to operate during the stormy seas of winter. Unfortunately, it was only easy to construct harbours for schooners in parts of the areas where fishing had started to develop. The lack of natural harbour areas in some of the larger agricultural areas was a greater problem, however. This was because they were located either deep in the shallow fjords or on the sandy, shallow coast, such as at Mýrar in the west and on the south coast. Because of the lack of good harbours in conjunction with the agricultural areas the chance for both to support each other could only happen in a few places.

One theory maintains it was first and foremost a negative attitude on the part of the farmers – who did not want to lose their workforce – that stood in the way of the development of urban areas along the coast. The primary reason for this negativity was that agriculture was still, at this time, very dependent on manual labour and made little use of technology. It was therefore not until improved technology was utilized in the practice of Icelandic agriculture in the latter part of the nineteenth century that the number of farm jobs decreased and people were forced to move away from the countryside that enough manpower was available in the little coastal villages for the further development of fishing.

Only Skálholt and Hólar qualified as cultural centres in Iceland. In both these bishoprics there were schools as well as other cultural activities. Earlier some of the monasteries were cultural centres, but with the advent of the Reformation in Iceland in 1550 most of the monasteries disappeared from history and ceased to be possible sprouts of urban cores. It was not until the Skálholt School was moved to Reykjavík and various other cultural activities slowly started to develop in this little town that Reykjavík began to emerge as the capital and a cultural centre.



Buildings in Skálholt, late 18th century. Possibly the school.

3 Types and Levels of Planning

There are two basic types of planning in the broader sense which deals with various aspects of society and planning in the narrower, and the more technical and physical sense, where planning is divided into levels. These *levels of planning* are applied according to the level of decision making that is being dealt with in each case.

The main *types of planning* in the broader sense are the planning of governmental systems, economic planning, planning of trades, technical planning and infrastructure planning. These types of planning have been described in the last few sections, which give an account of how the governmental system in Iceland was formed and how it originated from decisions that had already been taken by the first *godar* (priest-chieftains) at the assemblies and later from the division into regions and commercial districts.

The early governmental system of Iceland was brought to the country from Norway and the Althing or parliament established in 930; an Icelander named Úlfljótur studied the Norwegian law of the Gula-assembly and this, amended, became the basis of Icelandic law at the time. Secondly, the organization of the Catholic Church, after Icelanders accepted Christianity in 1000, was important. These two imported systems of government were the reasons why Iceland after only two centuries had a hierarchical judicial and legislative system – but lacked a true executive.

The beginnings of economic planning were primarily introduced through the Danish king's organization of commerce in the Middle Ages. Even though many complain about some of the drawbacks that came with this strong division of the country into commercial districts, it remains a fact that without this type of planning thrifty commercial centres would hardly have developed in many regions of the country.

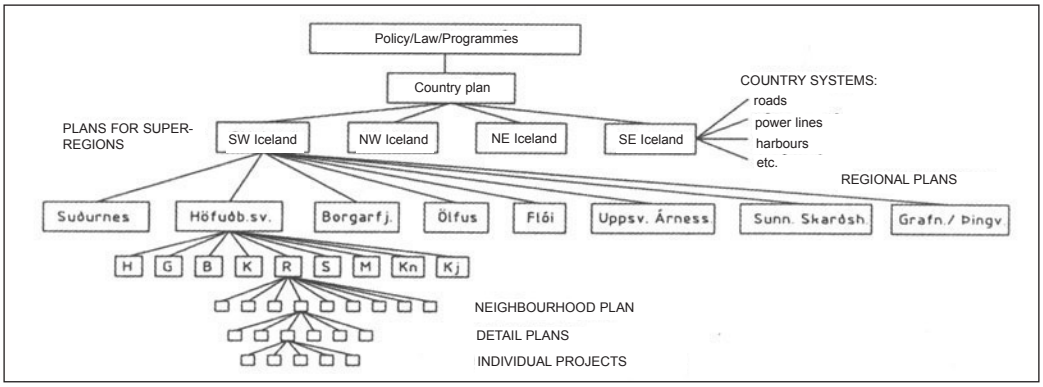
Many will be willing to claim that a freer form of trade could have resulted in lower prices of goods. But this centrally organized commercial system gave some assurance of a permanent location for a commercial area and secured a certain level of service, even in bad times. It has been a habit in Iceland to elevate isolated instances where a merchant, because of his monopoly, gave his customers bad deals. Most of the merchants, however, were quite reasonable. On the whole, however, the Danish monopoly was not good, partly because, in order to pay for the licences, the merchants had to squeeze more profit from the Icelandic trade.

Industry and industrial development were for the most part not governed top-down. The merchants were active to some degree as entrepreneurs in importing such tools into the country that could improve agriculture and the processing of agricultural goods. Examples of these tools were equipment for processing wool and leather as well as tools of various types for food production.

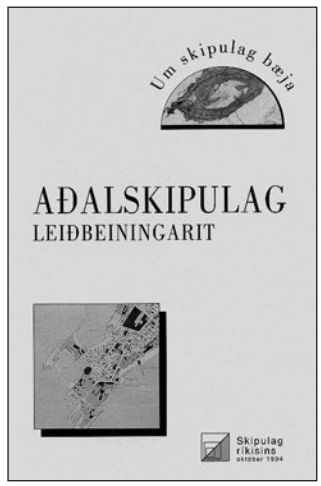
In the late eighteenth century the government in Copenhagen started to send advisors to Iceland to help with building up industries. The government also started to give travelling grants to Icelanders that wanted, for example, to learn about economic pursuits in other countries.

Let us now proceed to the levels of planning that were shaped by the type of government that was prevalent at each time. For most of the time, there were three levels of government – the *amt*-districts, the counties, and the communal or local districts, and over these, of course, the fourth level, the king in Denmark.

If the division of the country – as it is shown on page 100 – into governmental units or levels is compared to the planning levels of today, then the *amt*-districts come closest to corresponding



This diagram shows the various types of planning levels. The regional planning level is divided into seven areas, and the Capital Area is made up of eight municipalities.



A guide on how to make a master plan.

This is the same scheme as below, presented geometrically. The largest circles signify the three Amts. *Within each there are the counties, and in the* S Amt *the local communities are presented symbolically.*

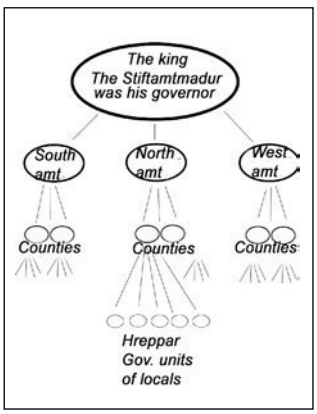
to regions, and the electoral districts decided on in 2003 are similar to those of the *amt*-districts of the nineteenth century, with the exception that the north-west is lumped with the west and the West Fjords are in the north-west electoral district. Besides these three electoral districts in the countryside, there are three electoral districts in the Capital Area.

In the latter part of the twentieth century The Regional Development Institute started to make plans for the larger regions of the country. This venture was not very successful, but perhaps the three new countryside electoral districts will provide an improved base for such regional plans. The regional plans attempted in the late twentieth century were soon transferred to a lower level, i.e., for smaller regions, and never developed into the kind of overview plan that was aimed for at first.

The early division of the country into counties corresponds to some degree with the areas where physical regional planning work has taken place. This type of planning is based on the willingness of the local government districts to carry out such regional plans. The old communal districts correspond to the local districts of today, except that in the last few decades a process of unification has been taking place so that in some areas the newly formed communities have reached the size of the early counties. All these levels of government have, in some respect, been involved in the planning of the various aspects of society – educational, legislative and social concerns.

Even though many have complained about the European monarchs in the period in which they came to power, their coming, however, had the positive effect that European countries now have governmental and executive power that is strong enough for various modern tasks. Monarchs came to power in Denmark and the strong state government that resulted was able to finance such pursuits as sending scholars to Iceland to conduct a methodical study of the country.

That these kings possessed more governing and planning power than had been known before was of great importance to Iceland at this time. If this power had not been established in Denmark it would have taken longer to pull the people out of the misery that existed in most places in the Middle Ages, not only in Iceland but also in most other rural districts of the Danish empire.



The govermental structure as a hierachical tree.

II The First Urban Developments

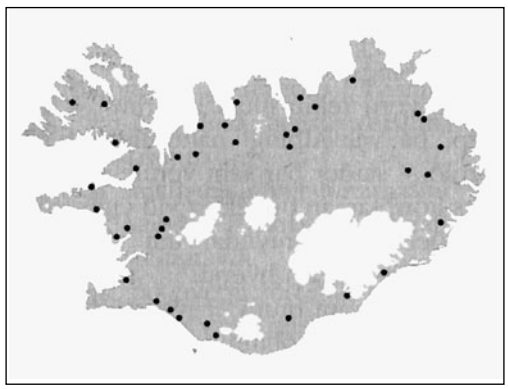
1 Large Farms of Chieftains and Church

This section will explain how the first urban developments came to be in a country that up to this time only had rural areas. The description has the goal of providing some understanding of what led to the formation of urban centres, as well as to see whether some of the laws that were governing their growth earlier are still at work. Some of these urban spots were actually only large farms, and some of them still function as community centres.

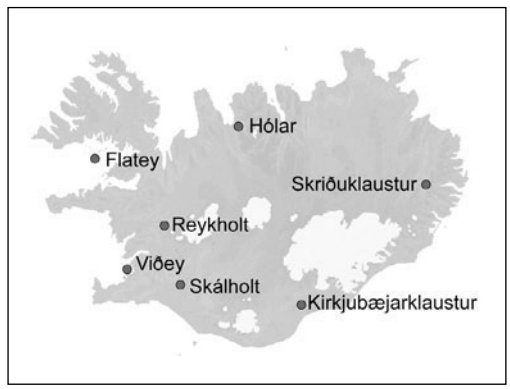
It comes as somewhat of a surprise that in the Age of Settlements there were more large farms reaching a size that could be called hamlets or villages than was later the case. The reason for this is that they divided up the entire country, yet they numbered only 435, according to *The Book of Settlements*. The strong position of the early farms increased when the chieftains became *godar* (priest-chieftains). By the time of the establishment of the Althing (parliament) in 930 the population of Iceland is estimated to have been about 60,000. In heathen times there were 36 *godar* in the country, later increased to 39. Besides being priests who saw to carrying out the rites of the old religion, they were also chieftains of their regions and the leaders of their districts in district assemblies and also at the Althing.

These chieftains divided their areas of settlement primarily among their relatives. They were therefore often also the family or clan leaders, a strong position to hold. To maintain the power of the old main farms there was a rule not to divide them up among siblings but to let them pass undivided to the oldest son. A part of the power system of these main farms was cottages and licensed farms that strengthened the position of the main farm. Furthermore, many powerful regional chieftains were able to accumulate other farms and many of them, in due time, became wealthy landowners.

As the Age of the Sturlungar started in the twelfth century there were already small units of militia in the country. The most notorious of them were under the Sturlungar, Haukdaelir and Ásbirningar families. The increased power of the chieftains of these groups enabled them to send their sons for further education abroad as well as on leisure trips to foreign countries. Moreover, they became so wealthy that they



The first jurisdictional divisions were into pagan chieftain domains, with unclear borders.

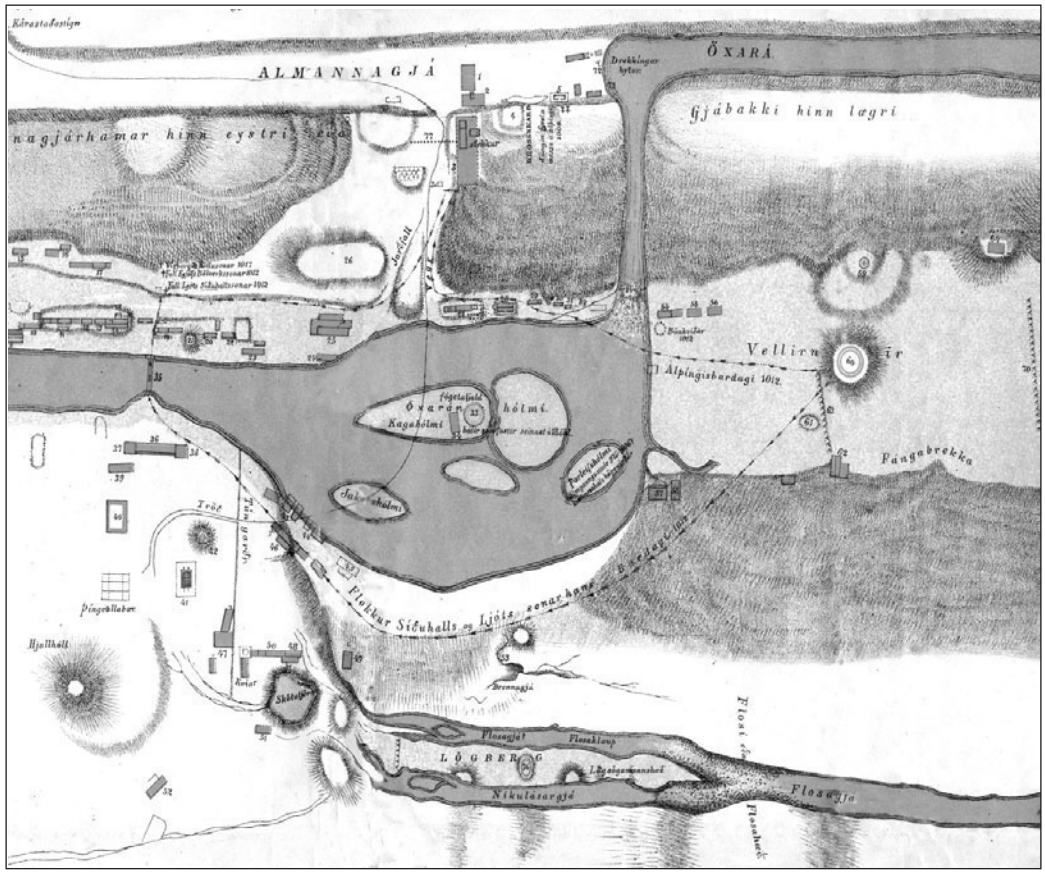


These Church headquarters led to settlement clusters, and some remain like that today.

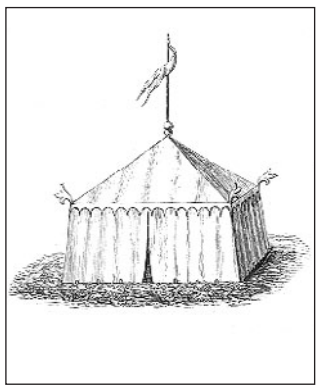
Many of the worldly manors originated in the times of the pagans.

Farms located near good transport routes, and with good farm land, often became clusters.

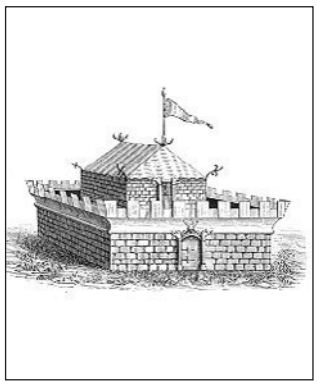
Reykholt is still a manor in its region.



Gudmundsson the Painter worked on preparing the 1000th anniversary of Iceland at Thingvellir in 1874. Most of his proposals did not materialize. The map shows his idea of this outdoor parliament.



Gudmundsson designed various types of tents.



Gudmundsson termed this camp "a fortress camp".

could build up cultural centres on their farms or in a designated place within their region. The best known of these cultural centres are Haukadalur, Oddi and Reykholt, which were, simultaneously, centres of secular power, learning, and culture as well as the sites of schools.

The church system started as individual churches were built, owned by the chieftains and located on their main farms. Later, the activity of the Church was strengthened and a bishopric was established in Skálholt in the south in 1056 and at Hólar in the north in 1106. When the tithe was introduced, the monies enabled the Church to become practically the only operating domestic power, together with the communal districts.

The priests of the individual churches had many responsibilities in their regions. As religious and cultural centres the bishops' seats at Skálholt and Hólar became rather large villages. Skálholt, as the first and prime centre of these activities, in fact became the first year-round village in Iceland.

If, on the other hand, we were to choose to define places of assemblies and fishing centres that were only active for a part of the year as villages, then the Althing meeting place at Thingvellir was the first village to speak of, as during a brief period in the summer thousands of people flocked there to conduct various types of business as well as to see to legislative and judicial functions. The old manuscripts describe the activity at the Althing during this time.

As the painter *Sigurdur Gudmundsson* was put in charge of preparing the ceremonies for the millennial anniversary of the Althing in 1874, he conducted a study of the old descriptions and drew the location map shown above. Gudmundsson also drew how he thought the booths (or tents) at Thingvellir looked. The two pictures to the left show two such drawings taken from a book published with his work in 1878.

The times since then have produced much more data on the planning of this first "urban area" in Iceland. Strangely, excavations there have only recently started and we will have to wait until they have been finished before a clearer picture of the arrangement of the building units can be produced.

2 Places of Commerce and Fishing

The sites of commerce, at each given time, give us an idea about where the main production of export products came to be. The areas around these commercial spots were also most often the main settlement areas.

In the ninth to thirteenth centuries agricultural products were still the main exports. The maps below show the commercial harbours. In the fourteenth century fishing was greatly increased and this strengthened many of the commercial harbours. As the first map shows, the north and the east were deprived of this development because the winter and spring fishing seasons were mostly to the south and west of the land. This was one of the reasons why these two parts of the country started to get ahead of the other two. Some of the commercial spots were very much strengthened through the development of fishing, such as Grunnasundsnes at Stykkishólmur, Hvalfjördur, Therneyjarsund by Reykjavík, Hafnarfjördur, Básendar and Grindavík. It is a common characteristic of these new harbours that they are most commonly in the outer parts of fjords or at the ends of peninsulas.

Around 1340, Norwegian merchants started to sail to some of these new harbours in Iceland, such as Maríuhöfn in Hvalfjördur that, at the same time, was the main commercial harbour of the Skálholt bishopric. Other important commercial harbours were the Westman Islands, Eyrarbakki, Dýrafjördur, Gásir and Gautavík. None of these places developed into a permanent settlement but huts were built, the remains of some still visible today.

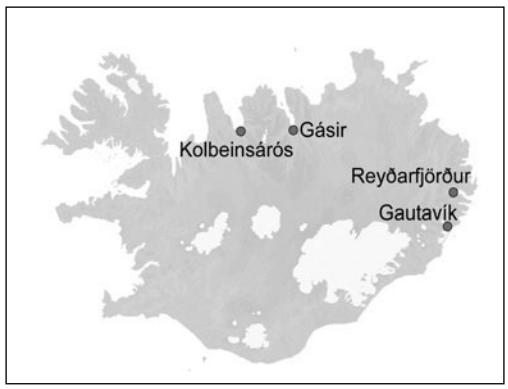
The Danes came to power in Iceland in the early fifteenth century. To start with, the Danes were not quite successful in keeping other European nations away from commerce with Iceland, especially because some of them had already started to fish in Icelandic waters, and trade with Icelanders was therefore easy. This was quite profitable for the Icelanders because of the good prices they often got for their goods. These new guests were mainly Englishmen and the fifteenth century is therefore known as the English century.

The Danes tried to reach an agreement with the English. It was, however, hard to get them to keep to the rules, which led to considerable tension in Iceland. The English became so bold that in 1425 they arrested the two *hirdstjórar* (governors) Hannes and Baltasar in the Westman Islands. For three decades, the English were very powerful in Iceland and their supporters occupied the seats of both bishoprics.

Icelandic owners of the largest farms were, in general, supporters of the Danish king so that when the king appointed Björn Thorleifsson from Skard as *hirdstjóri* (governor), the monarchy gained a powerful spokesman.

Even if the owners of the large farms had to sacrifice some of their privileges in terms of commerce, they opted for an unchanged social structure and the only way to maintain it was to shun the English. An influential factor was that the activity of the English drew the workforce from the countryside to the shore, especially during the Black Death, a situation that was very impractical for the large farm owners because of their dependence on an ample work force. In 1466 the English were forbidden to sail to Iceland but they kept it up for quite some time.

At the end of the fifteenth century the Germans entered the fray and were commercially quite successful because people considered it practical to trade with them and also because they not only bought fish and fish



The demise of these harbours began after the export of fish began in the 14th century.

These fishing harbours started to grow as the export of fish increased.

The English mainly held to the SE part of Iceland.

liver oil but also other products. Iceland therefore gradually moved out of the English sphere and into the West German Hanseatic sphere, with Hamburg at its centre, a trade relationship that lasted into the mid-seventeenth century.

After the conversion to Protestantism the Danish king started to re-organize the commercial activity in Iceland. The properties of the men from Hamburg were confiscated and the king took over their fishing industry. This was the first step toward establishing the Danish monopoly.

During the German period, there were about 35 commercial spots. Merchants from Lubeck operated mostly in the West Fjords, Thorlákshöfn, and Eyrarbakki. Merchants from Bremen were stationed on the Snaefellsnes Peninsula, in the West Fjords and the southern part of the East Fjords, whilst the Hamburgers' main centre was Hafnarfjördur. Furthermore, the old Danish Royal Trading Company and a few Danish merchants were in charge of commerce in Iceland. It is noteworthy how many commercial companies had a base in the south-western part of the country, in some places even two in the same harbour. Merchants from Lubeck had bases mostly in the West fjords, Thorlákshöfn, and Eyrarbakki. Merchants from Bremen were stationed on Snaefellsnes, in the West Fjords and in the southern part of the East Fjords, whereas the Hamburgers' main centre was Hafnarfjördur.

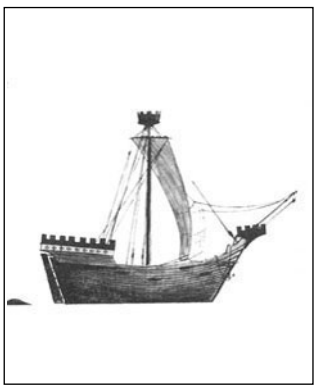
The monopoly of Danish merchants was established by the king in 1602, and in 1620 a new company was established which controlled all commerce in Iceland. There were 36 members of this company – but all but three lived in Copenhagen. This meant an end to trade with the men from Hamburg. The company realized good profits until it was abolished in 1662. At that time the king decided to divide Iceland into four *commercial regions,* each of which was to have a roughly equal number of slaughtering harbours and fishing harbours. In addition, the harbour at Húsavík was used for exporting sulphur, and Reykjafjördur was a harbour for shark liver oil.

The consequences of the *commercial regions system* started to appear in 1684 as the Danish king issued new regulations which divided the country into trade areas. These trade areas were increased in number and defined more clearly. Then the king auctioned off the trade rights to these 24 commercial districts.

These new commercial districts followed, to a considerable degree, the division of the country into counties as we know them today, except in Snaefellsnes, where there were four commercial districts, three on the Reykjanes Peninsula, and in the south there were only two because there, due to the sandy coast, it was very hard to build harbours. One of the commercial districts in the south was the Westman Islands and the other was the commercial centre for the whole southern lowland with Eyrarbakki as a single harbour. This commercial district had by far the most inhabitants, about 10,000 people. Most of the other commercial districts had about 3000 inhabitants but in areas where there were many districts and fishing harbours in a small region, there were few inhabitants in each of these districts or about 1000 people.

During the period of the monopoly it was of course the intention of the authorities to keep merchants from other countries away. The Danes did not succeed very well in enforcing this because Icelanders understandably maintained connections with other nations as foreigners were fishing quite close to shore. These fishing grounds continued to be frequented by the English, Dutch and French.

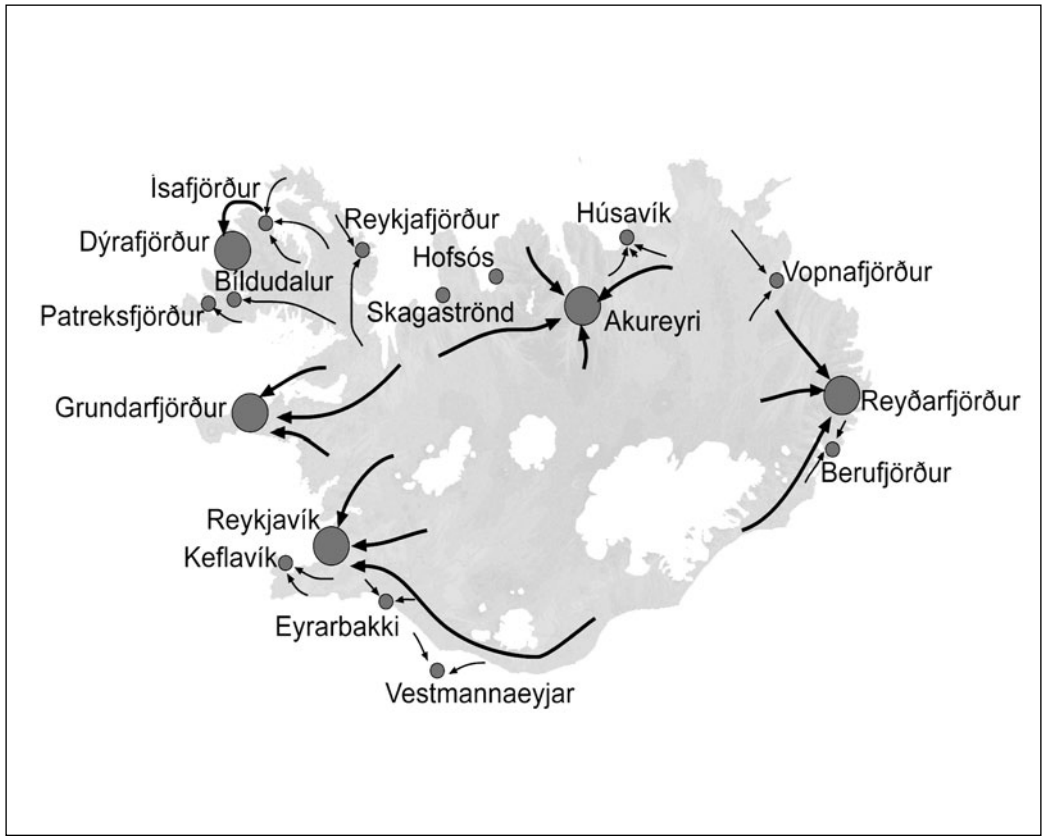
The Danes were able to maintain a rather tight control in the south and the west – closest to their centre of power – but in the West Fjords,



The kind of vessel the Germans arrived in.

Commercial trade towns in the 15–16th centuries, when Germans traded in most ports.

The Danes' share in the trade increased after 1580. Their ports are marked with dots.



After the Hör merchants had to give up, Skúli Magnússon made a proposal on main and minor trading centres. This was the first step in determining legal trading spots in Iceland.

in the north and the east free commerce thrived. Obviously, in the remote fjords where people had great difficulty to get to the designated commercial centres the temptation to do business with the fishermen who were there was great.

At the beginning of the eighteenth century Iceland experienced great difficulties to such a degree that the Hörmangarar merchants, who held the licence to trade, had to give it up. What followed was that the bailiff, *Skúli Magnússon,* introduced proposals for a different commercial plan. According to his proposal the number of merchant harbours should be reduced from 24 to five or six main harbours. Other harbours should be auxiliary or should be abandoned altogether. Magnússon proposed the following five main harbours: Reykjavík, Grundarfjördur, Dýrafjördur, Akureyri and Reydarfjördur. These are almost the same places as the *Land Commission* proposed somewhat later as the lawful principal commercial centres. The changes they made were that Ísafjördur replaced Dýrafjördur, Eskifjördur replaced Reydar-fjördur, and the Westman Islands was added to the list.

By studying the map above one can realize how sensible these proposals of Magnússon and the Land Commission were. In a spatial sense, the main commercial harbours are logically selected. It can be argued, however, that the reional centres that were later developed in these areas, like Stykkishólmur instead of Grundarfjördur and Seydisfjördur instead of Reydarfjördur, have been a mistake because they are not as well suited for becoming regional centres, given their location and the problems of transportation.

In addition to the main harbours, there were the auxiliary centres, also shown on the map, that were also intelligently selected even though some of them have not developed as much since, like Reykjafjördur in the West Fjords and Berufjördur in the south-east corner.

The boldness of these proposals becomes apparent in light of the fact that Reykjavík was suggested as the main harbour for the whole southern lowland in spite of the fact that there were no bridges over the large rivers at that time. Furthermore, it was a surprising – though sensible – proposal to suggest only one central harbour for the whole of the northern part of the country, namely, in Akureyri.

Saemundur Hólm's drawing of Reykjavík in 1783.

3 The Establishing of Trading Stations in 1786

As described in the previous section, Skúli Magnússon had proposed necessary changes in the system of commerce in the country that, among other things, advocated a decrease in the number of commercial harbours.

The possibility of presenting such bold plans partly originated in the fact that the country was going through desperate times, so desperate that cheaper ways to conduct commerce had to be found. It was also important that the idea of establishing a few but strong trading stations would, at the same time, open up opportunities for strengthening the development of other types of trade. The many little places in existence meant such a dispersion of energy that strong urban centres could not evolve.

The king welcomed these proposals because by 1759 it had become clear that he had to take over the commerce and have it conducted at his own expense. On the other hand, he was not as impressed by the idea of establishing legalized trading stations because they would entail considerable expense for the treasury.

Nevertheless, Magnússon's proposal was implemented, but again abolished after the first commercial season. The reason was widespread dissatisfaction among the public because fewer harbours meant that the people had to travel long distances to the trading spots. At that time, travel was very difficult because the land transportation system was still very poor.

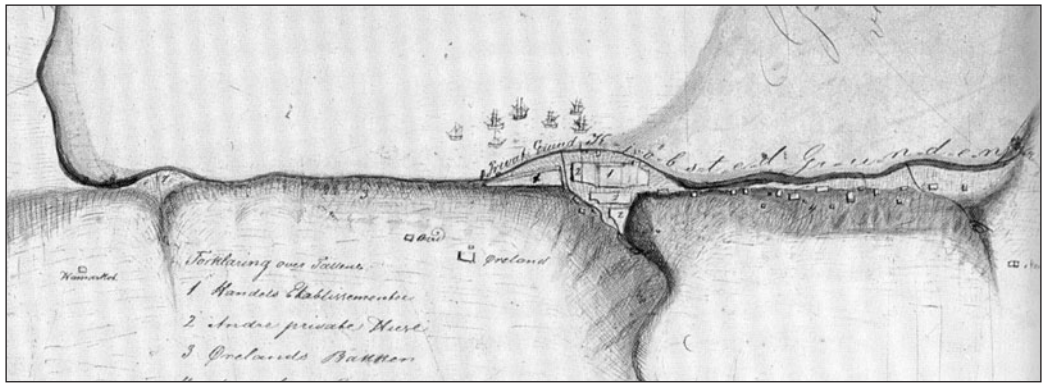
In spite of this, the *First Land Commission* put forth a proposal suggesting that there should only be six main commercial stations in the country. As a result, the first legalized Icelandic trading stations were established with a directive in 1786 and 1787. These trading stations were: Reykjavík, Grundarfjördur, Ísafjördur, Akureyri, Eskifjördur and the Westman Islands. The law that established these trading stations included many measures for the strengthening of the stations. As an example, any who would move to these stations would acquire special citizen's rights that gave them certain privileges.

It was perfectly clear to the authorities that they had to try to attract trained tradesmen and merchants to Iceland. Offers were made to attract such people, which included a free permit to operate and free building lots together with building grants. The land for these trading centres was bought with government funds. The civilians were also exempted from taxation for 20 years, though they had to pay some monies to the trade centre and to the trading station itself. Citizens who operated shops in a legalized trading centre were also given the right to shop in other harbours in the same commercial territory.

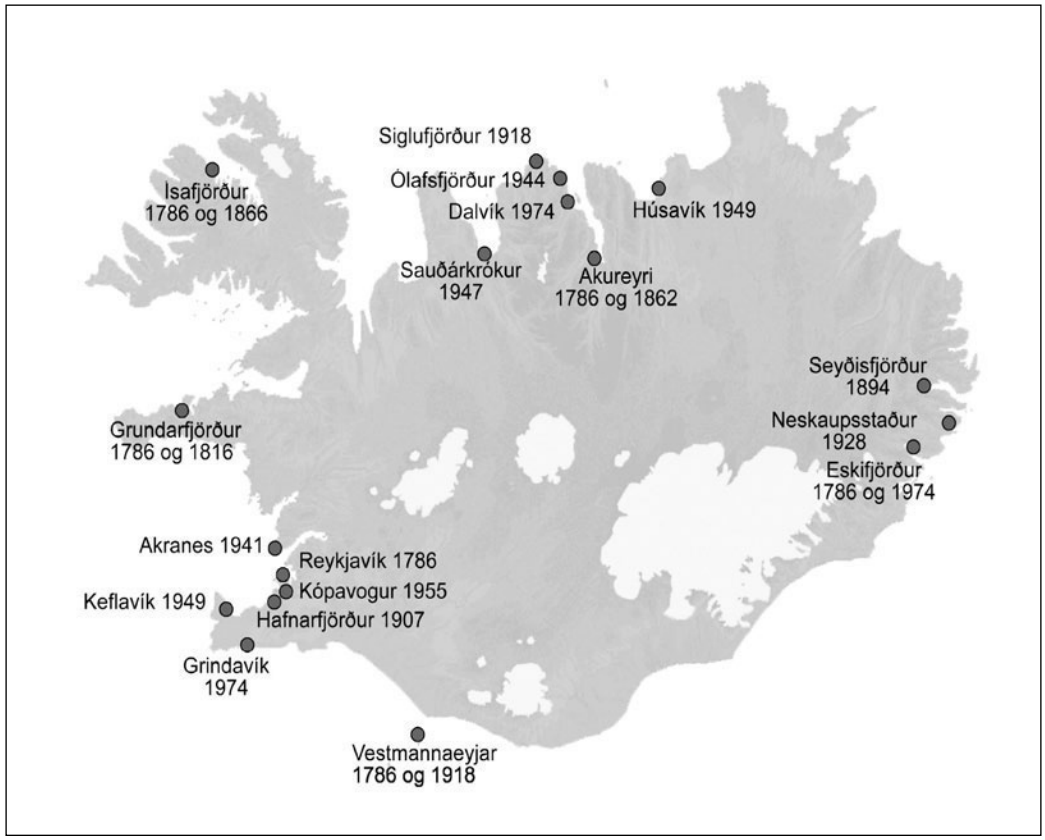
Subjects of countries other than the Danish empire could acquire the right by living in the trading station in question, but they had to possess at least 300 ríkisdalir.

This experiment in strengthening urban development produced little result, not least because the country was undergoing a deep depression. In spite of this, some people from Norway and Holsetaland came to Iceland and tried to start operating in Grundarfjördur, Ísafjördur, Eskifjördur and Reykjavík, but quickly gave up. Those who had inherited the remains of the monopoly trading companies were therefore in charge of most things in the trading stations. The villages Grundarfjördur and the Westman Islands soon dropped out of this community of trading stat-ions, as did Ísafjördur later. In 1836, all the commercial stations were officially abolished with the exception of Reykjavík. What followed was the strong growth of independent merchants.

Eskifjördur was one of the six original trading stations.



One of the first sketches of Akureyri, from around 1850. The Akureyri flatland itself is almost fully settled, whereas Oddeyri (on the left) is not inhabited at all.



All the trading stations that got their licence in 1786 lost it again, except for Reykjavík. The year of licensing (up until 1974 on this map) shows when these towns had became established.

In 1855 free trade was instituted and a ministerial letter from that same year states that the government had abandoned the plans it previously had to make the most important trading spots in Iceland legal trading stations. In spite of these developments certain rights were gained by the legalization of the trading stations. Therefore three places soon sought and got this legalization: Akureyri in 1862, Ísafjördur in 1866 and Seydisfjördur in 1894.

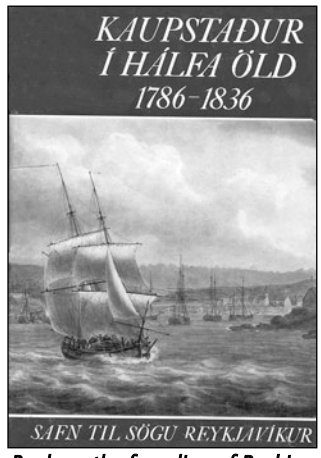
What followed legalization was that the inhabitants of these market towns got the right to establish a town council and they were, at the same time, made into specific legal jurisdictions. This meant that these towns were divided from the county they had been a part of and were put under the jurisdiction of a sheriff (county magistrate); this office is now termed town manager, except for Reykjavík where the term mayor was adopted in 1907. After the turn of the century in 1900, more places acquired legalization as market towns, e.g., Hafnarfjördur in 1907, Westman Islands, Siglufjördur in 1918 and Neskaupsstadur in 1928. Since 1974 more towns have obtained legal recognition as market towns.

As the map above is compared to the map made by Magnússon on page105 – keeping the changes to his proposals by the First Land Commission in mind – it is obvious that the main places today are almost the same as those proposed then, i.e., Reykjavík, Ísafjördur, Akureyri and later Eskifjördur, which is a village in the same area as Reydarfjördur in the East.

The prospering of Seydisfjördur in later times – because of the sea cable and a passenger ferry – and Neskaupsstadur because of fishing, however, meant that the proposed centres of Eskifjördur and Reydarfjördur did not develop into being "the capital" of the East Fjords, as had been proposed earlier. The most recent development, the building of an aluminium smelter in Reydarfjördur, could make that town into the strongest urban area in the east.

On the Snaefellsnes Peninsula, Grundarfjördur did not become the main centre but rather Stykkishólmur, and the Westman Islands became the largest town in the south, even though Eyrarbakki was for most of the time the stronger place.

Many of the secondary harbours shown on Magnússon's map, like Keflavík, Patreksfjördur, Bíldudalur and Skagaströnd, have grown into towns of considerable size.



Book on the founding of Reykjavík as a trading station.

III Development Towards a Capital City

1 Moving Institutions into the Reykjavík Area

The interest of the Danish government in improving services and local government in Iceland around the mid-eighteenth century manifested itself among other things in stone buildings for the new institutions. An Icelandic official, however, had an important hand in this. The Bessastadir estate was built in 1761-1766 and somewhat later the governor moved his residence there from Copenhagen.

The Danish king in this period started to make Icelanders his officials, importantly Skúli Magnússon as bailiff in 1749. A stately domicile for the bailiff was built on the island of Videy in 1752-54. It was largely thanks to Magnússon that Reykjavík was selected as a place for the New Industries. At the Nes farm on the Seltjarnarnes Peninsula, a stately building was built in 1761-65 as a home and workplace for newly appointed doctor for the nation, Bjarni Pálsson, a position now termed Surgeon General.

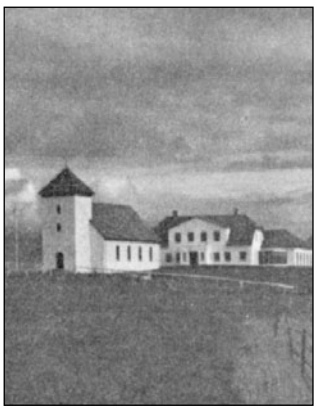
But in spite of all this, the most important decision that resulted in making the south-west and the surrounding area a future region of governance and a place for the capital city was that of the *Second Land Commission,* namely, to move the bishop's seat at Skálholt to Reykjavík, together with the school.

What followed was that the cathedral, the seat of the bishop, was built in Reykjavík and the Skálholt School was re-established at Hólavellir, close to Reykjavík. Furthermore, a decision was made to move the Althing parliament to Reykjavík, though it was only in session there for two years before it was abolished in 1800. All these decisions were based on the idea of creating a stronger and more modern type of government in Iceland and also of establishing headquarters for various social institutions, such as a prison, medical centre and school, together with the Althing and the cathedral.

This type of decision would today be seen as forceful at the level of county planning. Today the nationwide planning level in Iceland is very weak. Decisions on the location of institutions, for example, have been mostly guided by the need of political parties to meet the vocal demands of the countryside that it should get its share of public institutions. Most people realize that this policy has meant that the places where the institutions have been moved to have not been much helped by this and in some cases moving the institutions out of Reykjavík has meant weakening them, or at the least, delays in fulfilling their objectives. These examples demonstrate how bad the lack of strong, central and overarching power really is. This conclusion becomes very graphic in contrast to the positive aspects of the very remarkable proposals of Magnússon and of the Land Commissions some 200 years ago.

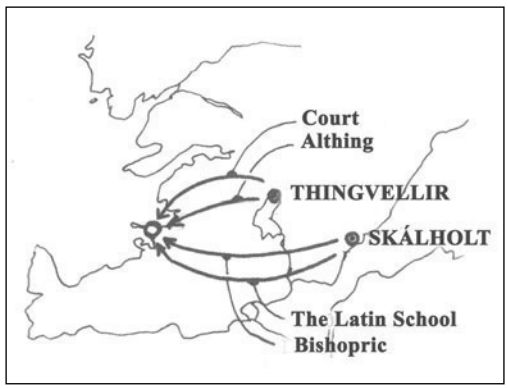
What we now have in Iceland is a weak government that has little interest in forming a sensible settlement policy, a government that commonly is characterized by drifting in response to the pressures of special interest groups rather than applying sensible measures with the view of serving the interests of the country as a whole.

It is a point of interest that the migration of institutions in Reykjavík in the eighteenth and nineteenth centuries occurred most often in two steps. First they were moved into the neighbouring regions and then somewhat later into the village or the town itself. The main reasons for this were that, given the great financial difficulties of the time, the Danish monarchy saw it as a sensible measure to provide the institutions with good farms because farm income helped the official to run the institution in a more economical way. The

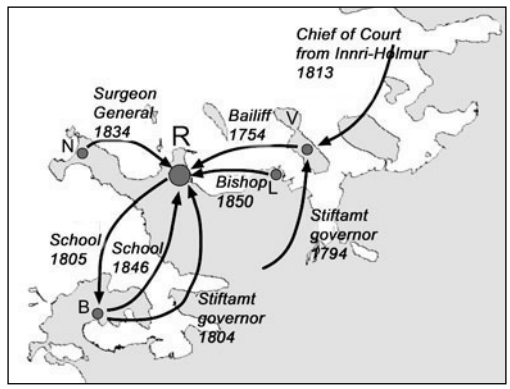


Buildings rose at Bessastadir in the 18th century.

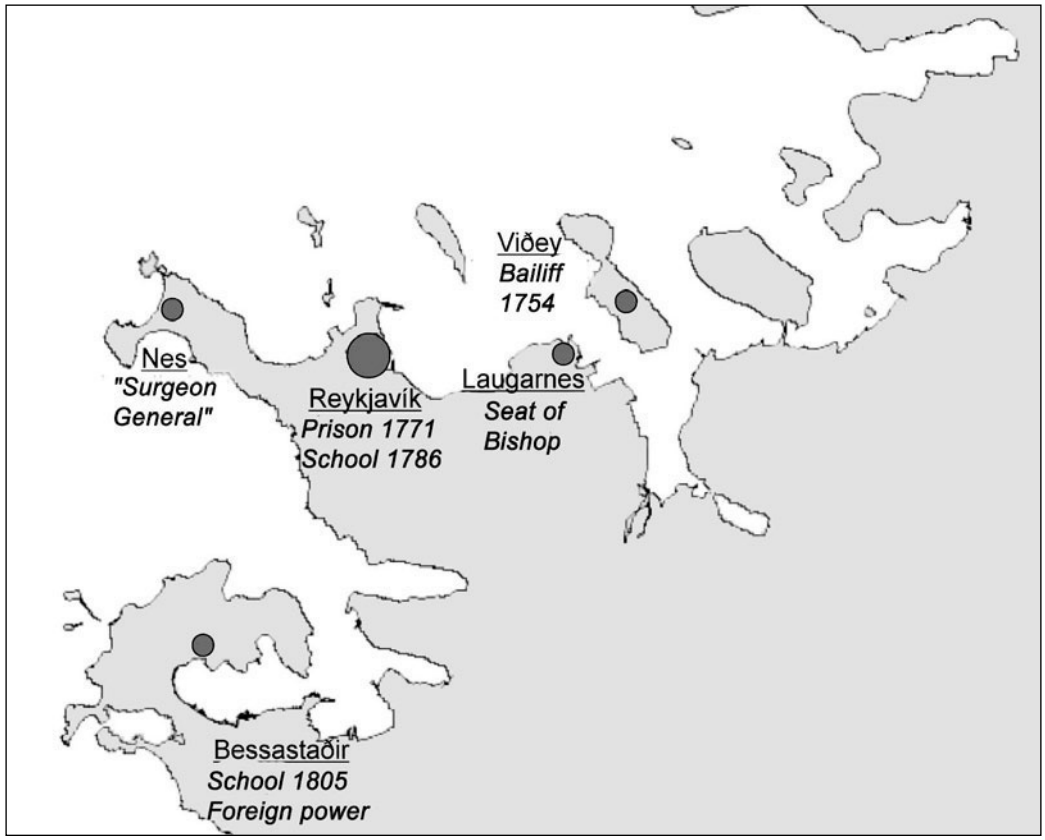
Nesstofa was built for the "Surgeon General".



The map shows the movement of institutions from the country to the peninsulas at Reykjavík.



Some institutions first located in the vicinity Reykjavík, but later moved into the town itself.



This map shows where the new political offices were created in Reykjavík and its vicinity. Officials were given good land to facilitate the maintainance of their offices.

decision may also have been influenced by the fact that the elite at the time, in most cases, were country squires who owned large herds of livestock and employed a large number of people. Many of the officials were brought up on such large farms and wanted to maintain the lifestyle they had grown used to, thus actually becoming gentlemen farmers. Also, in some cases it was a common view that it was advisable to maintain some distance from the centre of power that Reykjavík had already started to become. As Reykjavík became more like a full-fledged town, the number of officials and official duties also had grown in volume and the interactions among the institutions had increased. Therefore it then became a logical step to move these institutions into Reykjavík itself.

It is of interest to observe how this same pattern of *two-step migration* also has occurred in modern times. This happened as people from the countryside moved, as a first step, into little fishing villages close by. The early migration to Dalvík is an example, the second step being that people migrated from there to Akureyri.

Today the third step is the migration from towns to Reykjavík. Most commonly it is not the adults that migrate bur their children. To sum this up: a place like Akureyri maintains its number of inhabitants partly by a steady stream of people from the neighbouring communities. One can compare this model to a barrel where water both flows in as well as out. As the flow into these places started to be reduced in the last decade of the twentieth century many of these places started to have a "level surface" or even a declining one. Today, to a certain extent, we can observe a fourth step of this migration process, as those who have obtained the most education and want to be a part of the international community migrate from Reykjavík to other countries.

Recently there have been attempts to counteract this tendency, for instance by building up knowledge industries in Reykjavík, but it is still too early to tell if these attempts will succeed. If Icelanders are not able to reduce the flow of knowledge and able people out of the Capital Area to other countries then the country, in due time, will suffer ever more from this brain drain.

Videy Island was Skúli Magnússon's residence.

The Prime Minister's Office was originally a jail.

2 First Steps in Planning the Development of Reykjavík

It is a pleasant legend that the first settler of the country, *Ingólfur Arnarson,* was the one who laid down the first line in the future plan of the capital city to be. This he did by laying out a path from his farm to the landing place along the shore at Grófin. This path later became the main street of Reykjavík. Whether the story that Arnarson was the first settler is true or not we do not know, but it remains a fact that in this place the farm of Vík stood, together with a church, from very early times.

As historians try to trace the historical development from the presumed settlement of Arnarson and his kinsmen, they soon enter a 500 year void of data on settlements in the area. We therefore know nothing about what was taking place there till around 1400, with the appearance of the register of church properties and various other documents.

As Skúli Magnússon and his collaborators selected this farm of Reykjavík – which at the time had become the property of the king – as a place for the factory village for his New Industries, it seems that this was not in any way decided because of the story that the first settler had lived there. Nevertheless, it is a pleasant coincidence that the ancient sea path would 850 years later be the first street to be built in the industrial hamlet of Reykjavík. A review of old documents gives no sign that the founders of the hamlet were aware that its foundation might lead to an industrial village which might develop into the future capital of the country.

As the selection process for the hamlet took place, Reykjavík was in no way an automatic choice. There was another, even better option: the commercial village of Hafnarfjördur. The farm Vík primarily had, as a positive feature, being close to the Hólmur harbour in Örfirisey. It is likely that what turned the scales for Reykjavík as a future place of power was its location directly between the two main centres of power, Bessastadir and Videy Island, where Magnússon settled.

Most buildings of the New Industries stood in Adalstraeti, which at the time had a Danish name meaning Main Street (as does the Icelandic). For a long time that name was apt. The old church and cemetery was on the south-east side where the statue of Magnússon now stands.

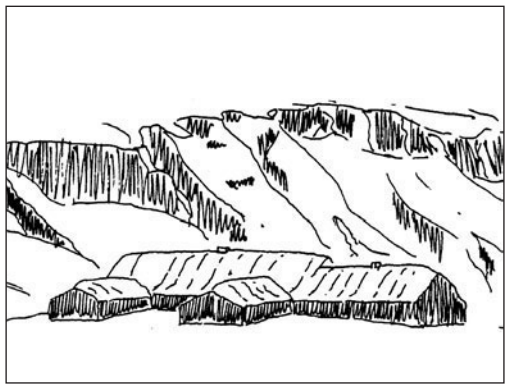
The next important thing in the development of the village of Reykjavík was that official institutions were moved there. The first was a prison, built in 1760, east of the creek that at that time flowed out of the Lake. This building today is the Office of the Prime Minister. The next step in the development was that the warehouses of the king's trading company on Hólmur were first moved to the trading centre on Örfirisey and then into the village. Following the decision of the First Land Commission the building of the cathedral, made of stone, started in 1790; this construction now forms the lower part of the present cathedral. The stone for the church was brought on sledges in the winter from Grjóti Hill over Austurvöllur square. This was quite an occurrence in this quiet little village.

Shortly before 1800, the offices of the bailiff and the high court, the precursor of the Supreme Court, were moved to Reykjavík even though no special buildings had been constructed for them. A school building, on the other hand, was erected at Hólavellir, where the Althing parliament conducted its last two assemblies in 1799 and 1800, before being disbanded.

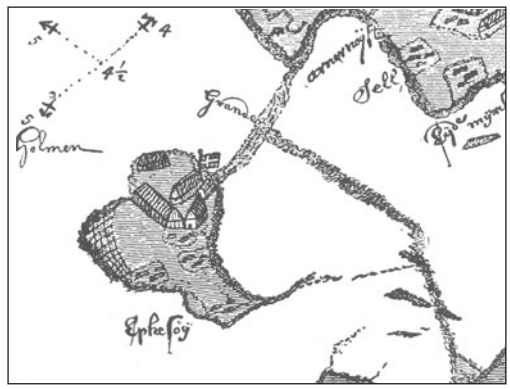
Soon after the village had received legalization

Ingólfur Arnarson was the first settler.

Skúli Magnússon is called the Father of Reykjavík.



It is probable that Arnarson's farm was similar to this saga age farm in Thjórsárdalur.



This map from 1715 shows the islets and Örfirisey, where trading took place.

As Reykjavík grew as a commercial town, trading houses rose in a smooth curve above the coast, with landing piers by the shore. That curve is now Hafnarstraeti Street.

as a market town in 1786, a considerable number of merchant ships started to come to Iceland. To start with, the merchants carried on their business out on the ships, but later some of them built storage houses just above the tide line. After about a decade, or around 1800, an unbroken line of commercial houses had been built in a soft curve along the beach. This is the southern side of today´s Hafnarstraeti Street.

Along the shore the merchants laid out fish to dry in the sun and the wealthiest of them built long wooden jetties out over the shallow beach in front of the commercial houses. Behind their houses the merchants maintained vegetable gardens. Where these gardens ended a path soon started to develop and on the other side of the path the next row of buildings started to be built. This later became the southern side of the street, today called Austurstraeti (East Street). The first house to be built in Austurstraeti is now number 22 and was built in 1802; a number of shops and restaurants have been operated in this building for over 200 years.

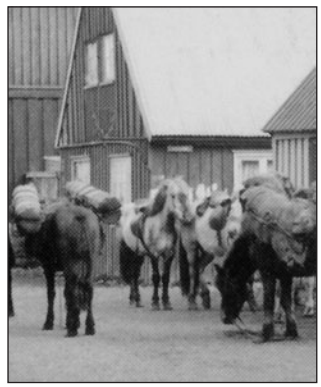
Following the increase of traffic in and round the little town, Reykjavík started to develop along the two main routes into the village. One of them since olden times approached Reykjavík from the south, crossing over the Fossvogur brook when coming from the direction of Hafnarfjördur. The other entered the Reykjavík peninsula at the River Ellidaá and followed the Bústadaháls crest to Reykjavík. On Öskjuhlíd Hill (close to the modern airport) these two routes joined and proceeded westwards towards Skólavörduholt, then over Arnarhóll Hill and down to the stream's estuary. Before bridges had been built over the stream it was easy to pass it as it spread out on the shore. From here the country people rode up on the shoreline in front of the trading houses.

The main route from Reykjavík to the settlements further west, i.e., to the settlements that ran along today's Vesturgata, was the West Road. Another road led south to Skildinganes, where people could take a ferry to Bessastadir. This road is still called the South Road. From this road, two roads went to the west, the one the Landakot Path, now called Túngata, the other, further south, passing the Hólavellir School. One path went to the south-east, passing the Lake.

The number of buildings increased slowly. Around 1830 two buildings were built in what is now Thorvaldsen Street. One of these was the pharmacy, which stood there for quite some time. This gave a form to the green rectangle called Austurvöllur Square. This park soon became "holy" among the townspeople, who registered their protest against building there with a petition in the mid-nineteenth century. Their protest was successful.

In 1838 the first timber houses were built east of the brook along a new path leading into town, today's Bankastraeti (Bank Street). This is the Bernhöft group. A fight for its survival took place around 1970 because of awakening interest in the preservation of heritage landmarks. Higher up on the hill more houses were built somewhat later, most of them in what became Thingholt Street.

To the east and west of Reykjavík, outside the grounds of the trading station, huts for day labourers and fishermen and other small cottages started to be built. Originally, most of them were built west of Grófin and to the west of the New Industries buildings. Later, the number of these small farms increased to the point where they were grouped as an "area" or "village", taking their name from the original sea-going farms: Sels-hverfi, Hlídarhúsa-torfan, Skugga-hverfi and Grjóta-thorp.



Horses with loads outside a shop in Hafnarstraeti.

Grjótathorp was once regarded as a suburb.

3 Development of Reykjavík as an Urban Centre

Earlier sections have described how the various systems of the country were formed during a 1000 years of history. These first systems or infrastructures were the basic elements in the forming of society. The minimal and gradual development of the systems that did take place – for example, commerce and transportation – was dispersed over numerous sites and thus did not serve as one interactive system.

This developing of infrastructures took such a long time that we are barely able to discern any progress – not more than we can see, when looking at a watch, that the hands are moving. In the course of time, however, certain foundations for the formation of a modern society had evolved.

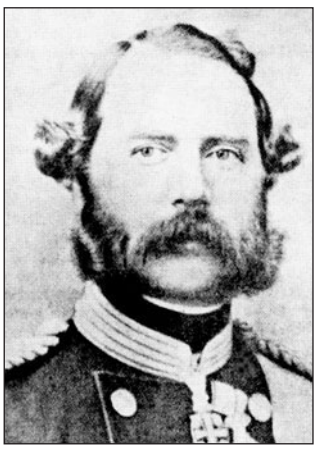
Because of the conviction that the Danish government harboured in the nineteenth century, i.e., that the advancement of society was dependent on specialization and stratification, including the formation of villages, the Danes were very supportive of the forming of urban centres in Iceland.

Moreover, around 1800 the impetus to progress was supported by the fact that, due to the catastrophes that had hit the country, it was necessary to adjust and restructure. In many ways, the Danish rulers were open-minded, whereas the Icelanders were still in many ways fettered in bondage in the stagnant world of inactivity and rural living. In spite of this backwardness, it became a key feature in the search for progress that Icelanders were increasingly appointed as government officials.

The influence of the *Romantic Movement,* which encouraged nations to discover and respect their national characteristics, also sparked a national awakening among Icelanders and the desire for progress. Foreign revolutions, notably the French Revolution, encouraged people to take matters into their own hands to a greater extent.

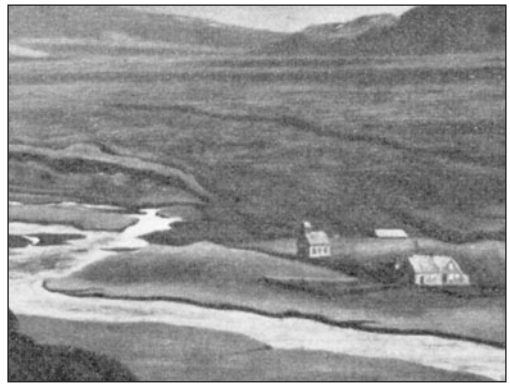
A group of Icelandic students and scholars who were living in Copenhagen were greatly encouraged by these ideologies and banded together as the Fjölnir Group. They expressed their fascination with the tenets of the Romantic Movement in poems and articles and made a strong point that Iceland had to demand independence from Denmark and that the nation needed to pull itself out of the misery and poverty that had prevailed in Iceland during the preceding centuries. The Golden Age – the Ancient Age, as recorded in the sagas, when the nation reached high levels of culture in various areas – was a great inspiration to these men and later a great encouragement to the nation as a whole in its struggle for independence.

The Fjölnir Group understood that if the functions of government were to be carried out in Iceland rather than in Denmark, a centre or capital town had to be built. Most of the Fjölnir men wanted this to be at Thingvellir, the site of the Althing in the old days of the Commonwealth. Others understood better that a centre for a modern society needed to have a connection to the coast backed by close connections with the sites of multifaceted activities and economic pursuits. To these people Reykjavík seemed a natural option but officials and academics debated whether Reykjavík was worthy of becoming the future centre of Iceland. Reykjavík, at the time, was weak and unsightly and hardly an emblem to induce a fighting spirit. What prevailed was,

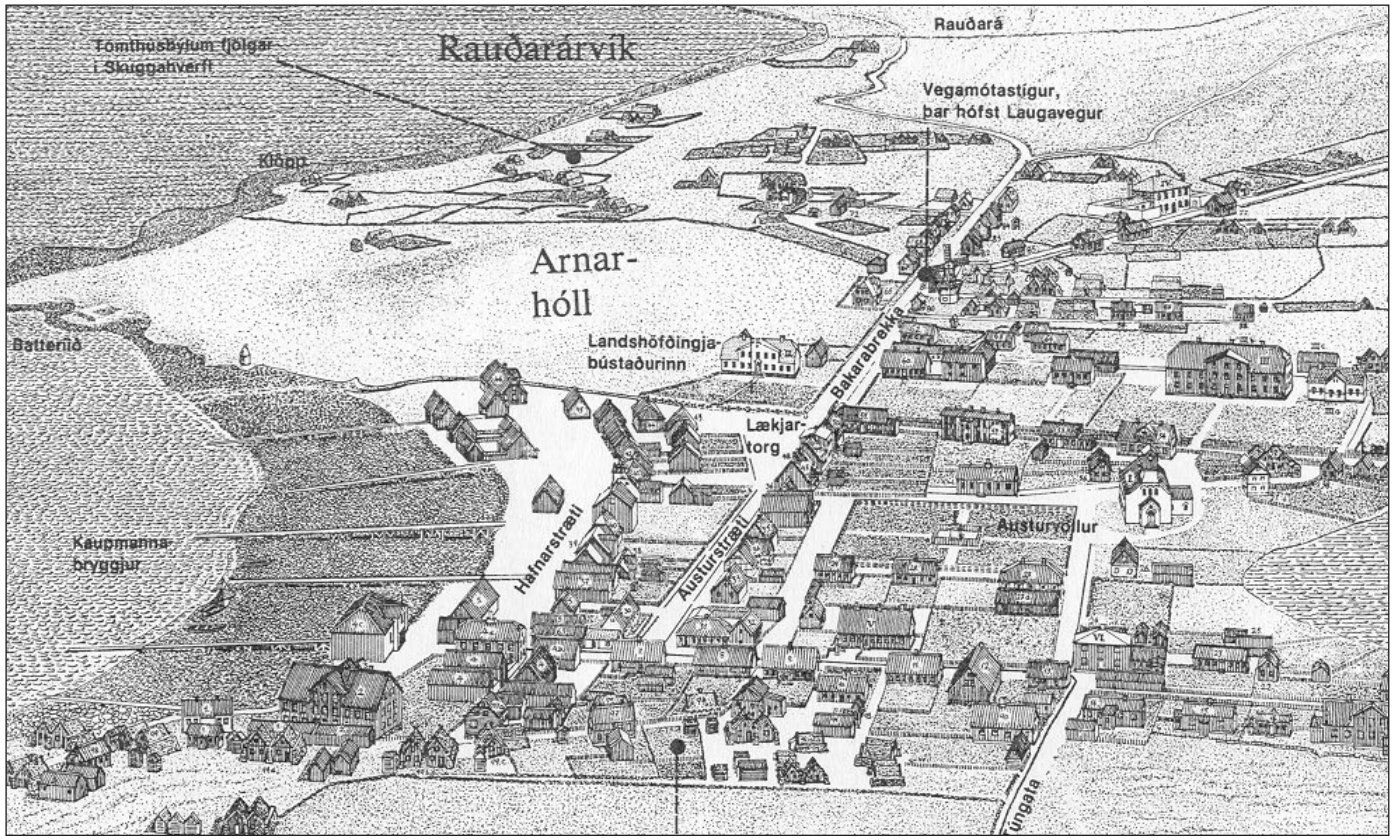


Christian IX gave Iceland its first constitution in 1874.

Thingvellir's romanticism. Gunnar's and Hallgerdur's meeting pictured above.



Part of a painting showing the old Thingvellir farm near the Öxará River.



Even though Reykjavík was growing, it was still not regarded as stately enough to become the nation's capital, and there was little enthusiasm about it. This picture can almost still be used today as a guide to walking downtown.

rather, the realism of people like Jón Sigurdsson who recognized the potential of Reykjavík as the best place to focus the energies of the nation.

Reykjavík, at the time, was mostly governed by the Danish elite of officials and merchants, and Danish was the primary language. The freedom fighters did not think it was very agreeable to move Icelandic institutions into this Danish environment, a town inhabited by people who did not want to part from Denmark. The realist Sigurdsson understood the necessity of coming to an agreement on Reykjavík and he wrote down his thoughts on this as follows: "People have for a long time hated Reykjavík because it is Danish wretchedness and against all the national characteristics of Iceland. But it seems to me that we will be able to make it Icelandic if we only want to."

This realistic view persisted and various additional activities and functions slowly continued to move into Reykjavík. The most important of these steps was the re-establishing of the Althing and the move of the Latin School from Bessastadir to Reykjavík – the two greatest steps towards making Reykjavík a national capital.

A stately building was built on the slope east of the stream for the Latin School, which still operates but is now named the Reykjavík Upper Secondary School. There, the first meeting of the re-established Althing parliament took place in 1845. At first, the Althing was held every other year as an advisory assembly. As a new constitution was given to Iceland in 1874 the Althing became a legislative body, and the assemblies started to take place every summer even though only a small number of the members of parliament lived in Reykjavík.

Several additional steps towards making Reykjavík a centre took place and even though they were not very big they were numerous and gradually added up. The officials, who earlier only wanted to live in the vicinity of Reykjavík in order to have the support of nearby large farms, moved one after the other into the town – the governor, the bailiff, the chief judges, and the national doctor and pharmacist.

Various activities moved with these officials to Reykjavík, for example, the Jardabókar Fund with the bailiff, a fund that was the predecessor of the State Treasury. All official taxes were paid into this fund from 1683 to 1871 and the various

Sigurdsson supported the idea of Reykjavík as capital.

expenses of the state were paid by the fund. An innovation took place: part of the interest earned on the monies in this fund was used for loans to farmers against a lien on their property.

Some other officials were also in charge of funds and therefore could loan money, primarily the bishop and secretary of the Supreme Court. Formal banking procedures were not introduced until much later. A problem that stood in the way was that in order to be able to grant loans and to run a bank it was necessary to be able to provide a property lien as collateral for the loan. Banks in Denmark did not accept Icelandic liens if the buildings were not insured and the people of Reykjavík had to fight a hard battle, for a long time, to be allowed to join The Fire Insurance Association of Danish Trade Centres.

Quite understandably, the insurance companies demanded that certain fire regulations be introduced and complied with. The need to establish such regulations became the incentive for the establishment of The *Building Commission of Reykjavík* in 1838. This commission got the task of assuring that all areas and buildings were planned in the right way, for example, with enough distance between them, and also that certain fire prevention measures had been taken.

Finally in 1874, the board of the Danish Insurance Association agreed to accept Reykjavík into the association with certain preconditions. The buildings in town, with the exception of the turf huts, were now required to be insured and could be accepted as collateral against a loan.

As real estate-backed loans became possible, building activity in town increased significantly and this gave Reykjavík an advantage over other trading centres in the country. One of the demands of the insurance association was that Reykjavík should be surveyed and a map made. This map became the basis for the work of the building commission and made its tasks easier. As for social concerns, there is no doubt that the political struggles and revolutions of the working class in Europe had much influence in loosening the grip of the Danish king on the power system and therefore the grip of the Danes on Icelanders in general. One of the greatest advancements on the road to freedom was that the Danish king gave up certain monarchical rights in 1848, which led to the establishment of a national assembly in Denmark. This development helped the Icelanders to get their own constitution and a legislative parliament in 1874. Increased freedom of the press that same year led among other things to the establishing of two Reykjavík newspapers: *Thjódólfur* and *Lanzbladid*. These newspapers provided a forum for matters concerning Reykjavík. Later, other newspapers were established, like *Ísafold*, published by Björn Jónsson, and *Dagskrá* issued by Einar Benediktsson. Both of these men were enthusiastic about planning the development of Reykjavík and wrote a good deal about it at the turn of the century in 1900.

Many steps were also taken concerning commerce and occupational activity in Reykjavík in the nineteenth century. Ocean fishing and the catch increased steadily, especially in Reykjavík, but also in other villages on the south-west corner of Iceland.

By 1870 two thirds of exported maritime products from Iceland came from the fisheries in Faxaflói Bay, primarily from Gullbringa County and from Reykjavík. At the end of the century, Reykjavík handled one fifth of imports and one sixth of exports. One of the greatest advancements towards making Reykjavík a stronger import and export centre occurred in 1876 as regular coastal shipping started with a grant from the *Landssjódur* fund. To save expenses, the coastal ship and the main postal ship were scheduled to meet in Seydisfjördur, but in 1880 a public meeting in Reykjavík issued a declaration that the town should be the centre for shipping directly to foreign countries.

People were suspicious that the Danish merchants would use their influence to protect the old system so that they could do business with the small commercial centres in the countryside instead of taking part in strengthening Reykjavík. It was therefore a part of the fight for independence to be relieved of the stranglehold of the commercial system that was dispersed widely in rather isolated spots, where the powerful Danish merchants tried to maintain this system and therefore fought against free trade in Reykjavík. There the merchants had less opportunity to arrange prices to their own advantage.

In 1888 an important change came about, namely that coastal and foreign shipping was directed to Reykjavík. This meant that Reykjavik's share of the exports and imports further increased. In 1905, one third of the imports and a little less than one fourth of the exports went through the harbour of Reykjavík. The other most important commercial harbours in the country were Ísafjördur, Akureyri and Seydisfjördur.

At the same time as people fought to make Reykjavík a centre of sea transportation another struggle took place to improve land


PJÓÐÓLFUR.

Reykjavík, 5 febr. 1880.

Jón Sigurðsson,

forseti Íslendinga, er andaður.

Ingibjörg Einarsdóttir.

JÓN SIGURÐSSON

fæddur 17. júní 1811

kvongaður 5. september 1845

dó 7. desember 1879.

The publishing of most papers was moved to Reykjavík.

For banks to grant loans for building houses, they must have an assessed value for fire insurance. Insurance companies insist on houses being built according to regulations, e.g., distance between houses, and that is what this map of 1876 was for.

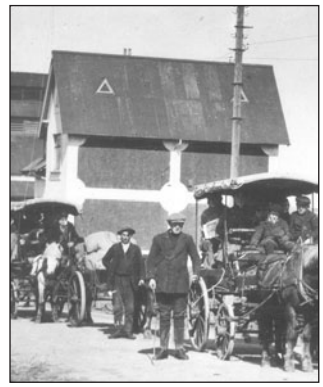
transportation in the country. Here it was of primary importance to improve the transportation routes connecting Reykjavík and the neighbouring regions in order to make it possible for the farmers to bring their goods to the free market operating there. With the better roads the inhabitants of Reykjavík gradually acquired more possibility to enjoy fresh agricultural produce.

The building up of planned transportation facilities took many decades and the years of bridge building in Reykjavík and its vicinity are good measuring stones to delineate the achievements reached in the improvement of transportation. The first bridge over the brook in Reykjavík was built in 1887 and the stone bridge at the end of Bankastraeti in 1866. Bridges for heavy loads were built over the Fossvogur and Kópavogur streams in 1895.

At this point the Age of Wagons began with some force, which meant pressure on the authorities to build roads for these wagons for some distances into the countryside. The roads up to the Hellisheidi heath and into Hvalfjördur Fjord and to the south to the Reykjanes Peninsula were therefore extended year by year.

The greatest barriers to travel were the large rivers and therefore construction of bridges over them was an enormous event in the life of the nation. Because these bridges opened the large agricultural areas in the south they also opened up the possibility of increased co-operation among these farming regions and Reykjavík. The biggest achievements were the building of the Ölfusá Bridge in 1891 and the Thjórsá Bridge in 1895.

A very important achievement in the transport of the inner part of Faxaflói Bay was the introduction of small steamboats that served the area and connected the settlements. These boats were primarily directed into Hvalfjördur and the Akranes Peninsula because the road connections to these areas and farther to the west and north were limited. It was not until 1932 a road was opened round Hvalfördur. The first steamship, *Faxi*, in 1891. The next boat, *Elín*, started operating in 1893 and made 26 trips to Borgarnes, 65 to Akranes, 40 to Keflavík and 25 to Vogar, as well as 15 trips to Gardur, 13 to Staumsfjördur and 12 to Hafnarfjördur. The *Elín* carried a total of 2716 passengers as well as a considerable amount of cargo.



The first scheduled routes were postal routes.

The Reykjavík, *the largest steamboat sailing in the Faxaflói bay around 1900.*

The harbour in Reykjavík was not built till 1915 so passengers had to go by boats to shore.

The next steamship to operate in the bay was called *Reykjavík*, beginning in 1897. This was a rather large boat, 80 tons, taking 200 passengers in three classes. The *Reykjavík* sailed in Faxaflói Bay each summer until 1907. The fact that the town of Reykjavík by now had become such a commercial centre provided a foundation for introducing several specialized services and special types of commerce.

An obstacle in this movement towards freedom was that the merchants only bartered with the poor for an exchange of goods as only officials were in possession of money and therefore had the freedom to choose where to do business. This situation did not change until around 1900.

The establishing of wholesale companies in Reykjavík at the beginning of the twentieth century meant that the final step towards a modern commercial system had been reached. Now it was mostly Icelandic wholesalers that bought goods for resale.

The same also happened in the field of exportation with the establishment of a union of producers that soon saw to the largest part of the export trade. This meant the creation of many new jobs in Reykjavík and it also meant that Reykjavík developed further as an export, commercial and financial centre.

A very big step for Icelanders to get commerce into their own hands was the establishment of *The Icelandic Steamship Company* in 1912. A little later the start of World War I, and later in 1940 of World War II, it turned out to be an advantage to the country in some respects. The wartime situation meant that the Danes did not have as much chance to influence matters in Iceland as before.

With the advent of World War I Icelanders started – as they continued to do during World War II – to direct their commerce to countries other than Denmark, for example, to the Mediterranean and later to North America, mainly selling salt fish.

This development of commerce also meant that the exportation of unprocessed agricultural goods decreased. Earlier live sheep and horses were sold out of the country, but as processing plants were established – like the slaughterhouse in the south in 1907 – farmers received much more money by selling their animals directly to the plants. Exportation of wet fish also dropped as fish processing in Iceland increased.

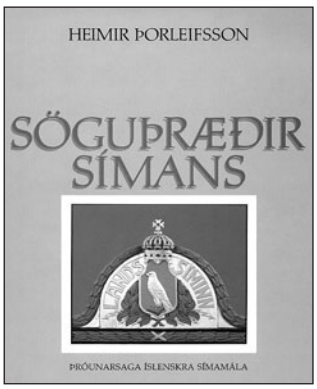
One feature that was lacking was a very limiting factor in this development and that was the poor, unprotected harbour in Reykjavík. During World War I the construction of a large harbour was started and completed in 1917. The new harbour meant a revolution because large cargo ships could now be docked at a pier, making it easy to load and unload them.

Two other important steps in the advancement of the country were the establishing of *The Iceland Bank* in 1904 and the *telegraphic sea cable link* to Europe in 1906. The telegraph and the bank were also of use to other towns in the country like Akureyri and Seydisfjördur, but the prime advantage for Reykjavík was the new harbour.

World War I made Reykjavík a much greater centre in terms of commerce and transportation than before and Reykjavík's share in commercial shipping from abroad rose to 70%, which meant that the number of agencies and wholesale companies in Reykjavík had grown to 34 by the end of the war.

The new activity and the specialized services that were built up in Reykjavík in this period led also to the development of still other branches of service. These service industries also served the neighbouring communities of Reykjavík and some of them the whole country as well.

The harbour strengthened Reykjavík's central position.



Overseas telecommunications strengthened trade.

4 Reykjavík: The Development of Urban Features

In the nineteenth century, the various buildings in the Reykjavík area were very dispersed and could almost be seen as an assembly of small farms rather than a town. This was caused by the fact that many of the inhabitants had sheds for their livestock, patches of grass for grazing by their houses, and those who did not have farm stock had patches for sun-drying fish and fishnets, whilst almost all the townspeople had large potato gardens.

The inhabitants of Reykjavík increasingly grew their own food because transportation from the neighbouring areas, which could have provided the food needed, was not sufficiently developed at this time. The growth of the town at the end of the nineteenth century – because of the fishing – meant an increasing demand for land for grazing and vegetable gardens. What followed was that Reykjavík became one of the largest agricultural areas in the country, and because of this urgent need for an adequate food supply, great leaps in its development were achieved. Many ideologists were at work in this field, like Einar Helgason, who established, at the turn of the century in 1900, *The Centennial Gardens,* and the Surgeon General Söebeck, who introduced vegetables of various types to the inhabitants of Reykjavík. He also supplied them with seeds and introduced the cultivation of flowers.

All this agricultural production demanded fertilizer that gradually became scarce so people searched for it wherever they could. A need for new farms to produce food for the town was met by allocating leaseholds on behalf of the town. This need for agricultural land also meant that the town council bought most of the farmland in the neighbourhood in order to secure enough land for cultivation and grazing.

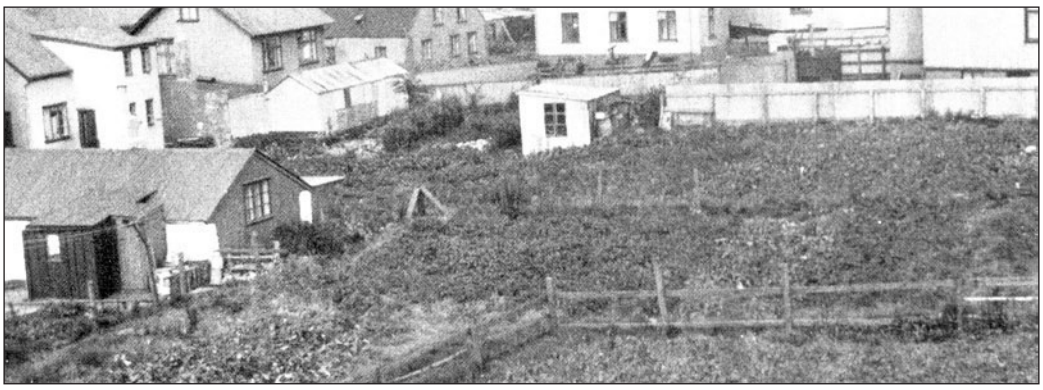
In later times this buying of land turned out to be quite advantageous for Reykjavík. This public ownership of land is one of the underlying reasons why there has not been much residential segregation in Reykjavík based on how expensive the lots were, simply because the town supplied everybody with rented lots at a similar price.

At the turn of the century in 1900 chemical fertilizers had not yet been introduced, so people had to make use of organic fertilizer. This practice would be seen as very positive within the ideology of sustainability that is dominant today. What followed from the use of organic fertilizers was that a stark smell engulfed the town, primarily from the manure that was dispersed over fields and gardens.

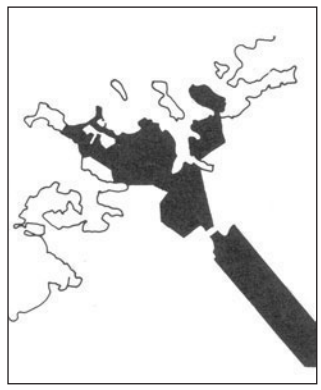
The police regulations of 1890, modelled on a Danish regulation, made cleanliness a priority, as had become a necessity in European cities. The regulations, however, did not recognize the need of the people of Reykjavík to use all obtainable organic waste as fertilizer. The town council was given the task of cleaning the privies but the regulation was not enforced because the field owners protested. They responded by forming *The Fertilizer Association of Cultivators* in 1904 and took over the task of emptying the privies in Reykjavík. The human waste thus recovered was collected in a manure hut on the south side of Skólavörduholt Hill and dispersed over fields all over town during the spring, even in the city centre.

Another example of how dirty Reykjavík was in the early twentieth century was that slaughtering mostly took place outdoors at the shops and also at most homes in town. In some cases there were great problems of getting rid of the wastes from the slaughtering, which grew in

The refuse truck gone off the Hringbraut road.



For a long time Reykjavík was a mix of town and country. The gardens were large and were used for food production. They gradually were changed to flower gardens.



In1923 Reykjavík territory increased following land trade.

volume, as can be seen from the fact that there were about 26,000 sheep slaughtered in Reykjavík in 1907.

The veterinarian Matthías Einarsson describes the situation in *Thjódólfur* in 1903: "…most often the killing field is selected at the back of the houses where privies and other filth are to be found. In these narrow back spaces, often dozens or hundreds of sheep were killed and in the process an ample and unbelievable amount of dung and blood collected there. As the soil absorbs the waste, some of it goes into the ground while other remains just lie there. In this way, often quite big pools form and people and animals have to wade through it day after day." Another difficulty was that the sewage drains that ran along the streets were open and in fact it was not until 1902 that the first closed drain was laid in Aegisgata Street.

In the era of free spirit and prosperity that was starting after the turn of the century in 1900, it was natural that the desire to improve the town's standards of cleanliness should grow, as well as to improve the town's atmosphere. The town therefore initiated several steps toward establishing necessary public utilities such as the water supply system in 1909 and the gas distribution system in 1910.

The operation of the gas station at Hlemmur resulted in the production of tar as a by-product. By mixing the tar with gravel the inhabitants of Reykjavík suddenly had asphalt that could be used to pave the streets in the downtown area. A steamroller to flatten the asphalt was bought in 1912. This made the town much cleaner. In this same period the building of concrete houses started, the first being the Baron cow byre in 1898. Telephone lines were strung from telephone poles. Clubs and organizations for trades, sports and leisure activities of various types were also established.

In the gas station near Hlemmur asphalt was a by-product.

Paving roads created a town atmosphere.

This whole modernization process called for new ideas as to how these new aspects of town life could be arranged in a most sensible way. The need for foresight was stressed. Many people, for example, pointed out that the streets had been built too narrow for the new means of transportation, which included people on horseback, wagons and, from 1913 on, automobile traffic.

Páll Briem commented on this in an article in 1904: "The streets of Reykjavík are so narrow that men riding horseback often cannot proceed without hesitation. One cannot see how the inhabitants of Reykjavík plan to install trams in the town. In Copenhagen, people go on bicycles everywhere, but this would be difficult in Reykjavík." The problem of too narrow streets is one of the most important of the classical problems in planning, and it has often been necessary to make the town council understand that it is better to have some foresight in the arrangement of the settlement.

The Building Committee of Reykjavík often had to struggle to be able to put more foresight into practice, for example, in deciding the width of streets. The lack of money was a part of the problem, too, because in many cases the town had to buy the land from private owners in order to broaden the streets.

The necessary width of streets is of course based on the transportation technology at any given time. In the latter part of the nineteenth century horses, wagons and pedestrians defined the width; space was required, for instance, for two packhorses or a packhorse and a rider to pass one another. In 1902, the town hired the first city engineer, *Knud Zimsen*. Zimsen had a good understanding of traffic and other technical aspects of planning and determined most of the layout of the streets and other planning concerns. He conceived the idea of a *Ring Road* with a tramline running along it.

Let us now look round this young and growing town. The number of inhabitants had increased rapidly and the building of residential space was therefore in great demand. From 1900 – 1915 the number of inhabitants more than doubled, i.e., from about 5,800 to 14,200.

After 1915 the increase in population remained rather stable or about 1000 per year. It is a pleasant coincidence that the number of inhabitants, in thousands, followed approximately the last two numbers of the year all the way up to 1945 as the annual increase sped up and became more than 1000 per year.

Most of the workers that had migrated to Reykjavík built their own houses, as remained the custom for the most of the twentieth century. The potential building areas of the western part of the Thingholt as well as the Skuggi districts gradually filled up. Because of old buildings that sometimes stood in the path where a new street should continue, it often took quite a long time until the street could be completed. Hverfisgata Street, for example, was not connected to downtown until 1910. The large fields of Arnarhóll and Landakot, to the east and west of the downtown area, caused new settlement areas to be some distance from downtown and these new neighbourhoods to be shaped in the form of a U around these fields. These fields are one of the reasons why newer buildings sometimes later arose close to

Fields for drying fish stretched out from Kvosin. This plot was located between Bjarnaborg and the viti (the English word for a lighthouse). Vitastígur street is named after that lighthouse.

downtown, whereas older neighbourhoods are located further away, for instance west of the Landakot Hill at Braedraborgarstígur, Brekkustígur and Framnesvegur streets. Downtown and around the Lake the more prosperous built many fine wooden houses. There the Age of Wooden Houses reached its peak. Some of these buildings still stand, as for example Hótel Vík and the Idnó Theatre.

New complete streets that were added in this period included Tjarnargata and Midstræti. A new time was dawning and now a few concrete buildings, like that of Thórshamar and The Women's School started to be constructed.

But it is more than just buildings and streets that form the shape of a town. A community is known for its quality of human life. At this time most jobs were performed outdoors and even if the lack of shelter was bad the outdoor activity gave the town a pleasant aura. It also meant that people could keep up with what was going on, an opportunity that improves the understanding of society. In contrast, nowadays people frequently try to close and fence off all work locations, an approach that results in making city life less transparent and vibrant than before.

This drill was bought for drilling for cold water but later struck gold by getting geothermal water.

The stone fields used to sun-dry flatfish gave the environment a distinct character. This activity required a great deal of space and these stone fields extended from the downtown area both to the west and east. The fishing companies constructed their buildings in these fields and some of them had piers along the coast in front of their main buildings.

The increase in fishing and the improved economy meant that the town treasury also prospered. Reykjavik could therefore venture into projects of various kinds. The most famous of these were the building of a harbour and also construction of various facilities that contributed to health and cleanliness. Regular street sweeping was started in 1909 and in the same year a water wagon, pulled by a horse, was bought. It was used to sprinkle the dirt mud streets to lessen the dust.

Many projects were constantly underway in these years and there were open ditches everywhere because of the laying of sewage, water or gas mains. The use of the telephone became widespread, but as telephone lines were not yet buried, rows of telephone poles were erected along the streets, some of them carrying up to 100 wires For a short time, this was also the period of horSE drawn vehicles: two-wheeled carriages, carts, and stagecoaches to carry the mail, as seen so often in cowboy films.

In the winter there was some sleigh traffic in the streets, especially when ice cut from the Lake was put into the three icehouses for keeping cool. Sleds could be seen running rapidly down to the harbour to the Nordal icehouse. Their drivers stood up and spurred the horses on with cries and calls.

Collecting ice from the Lake, where the icehouses stood.

IV Reykjavík Prior to WW II

1 Revolution in Planning During World War I

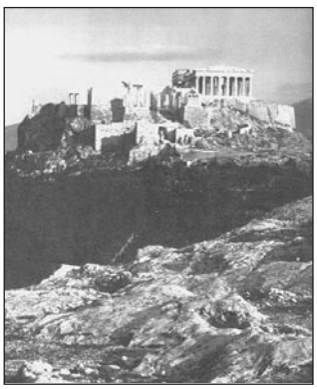
The year 1915 certainly can be said to have marked the beginning a focused discussion on planning in Reykjavík. In the spring there was a large fire in the town centre. Twelve wooden houses, adjacent or close to each other, burned down, resulting in heated conversations that placed the blame on faulty planning.

The Danish architect *Alfred Raavad,* a half-brother of Thor Jensen, wrote articles on planning that were also published in Danish newspapers a year later. In the same year *Gudmundur Hannesson,* a physician, wrote the first Icelandic book on building and planning concerns, a book that was published the following year. This book, or treatise, was the foundation for a bill on planning which came before the parliament in 1917 and which, with some alterations, was enacted by the Althing in 1921. Raavad was, among other things, a planner in the USA. He had come to Iceland before and had then put down on paper his first ideas for a regional plan for the Capital Area.

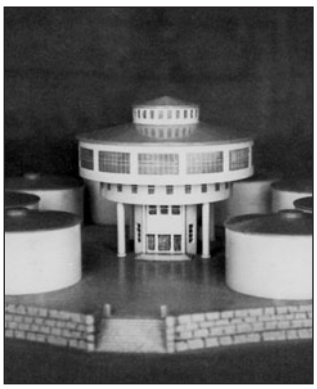
The central aspect in Raavad's ideas was that the city should be built up, in the area between the two settlement Reykjavík and Hafnarfjördur. Most people will agree that this would have been a sensible policy. As can be seen in the sketch on this page, Raavad proposed a centre for the Capital Area extending from downtown Reykjavík to Skerjafjördur. He also proposed that a govern-mental centre and a cathedral should be built on Öskjuhlíd, which then would have become a kind of Acropolis.

The elaborations of Gudmundur Hannesson in his book were more practical and belong, for the most part, to the subject of building concerns as well as environmental and health matters that all are issues closely connected to planning. For a long time it has been a habit in Iceland to talk about planning in "the narrow sense", i.e., primarily about what concerns the outer appearance of, for example, buildings and the placement of monuments. Hannesson's focusing on the narrower aspects of planning has undoubtedly been responsible for the fact that some of the main aspects of planning, like the development and organization of settlements, have been subject to very little formal discussion until recent decades.

Hannesson was concerned with a multitude of

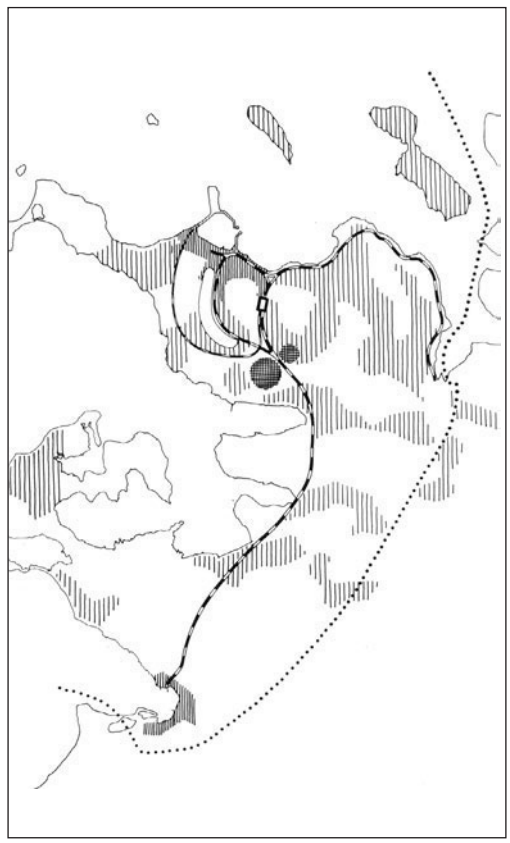


Acropolis is a symbol of advanced planning.



There were ideas of building a stately house on Öskjuhlíd.

The fire of 1915 led to an increase in the discussion of planning issues.



Raavads idea on a railway, a towncenter on Öskjuhlíd, and on settlements, mostly in valleys.

aspects connected to planning and local plans. For instance, he pointed out the need for regulations specifying the maximum height of buildings along the streets because the appearance of Reykjavík was, at that time, very chaotic, consisting of high and low houses in a random mixture. Another point Hannesson stressed was to decide whether a street line should be detached or continuous. Because of the lack of regulations fire walls were built in many places even if it was totally uncertain whether a building would ever be built next to the wall.

One of the most important features that Hannesson dealt with in his book was the need for zoning of activities. *Zoning* had, at this time, become a very important task in the planning of untidy industrial cities abroad and he was influenced by this discussion. To make his point, Hannesson, ever the physician, writes with deep understanding about how wrong was the joining of the Southland Slaughter House next to the French Hospital (now the Lindargata School). Another example he criticized was the placing of icehouses in the middle of a residential area, as by the Lake.

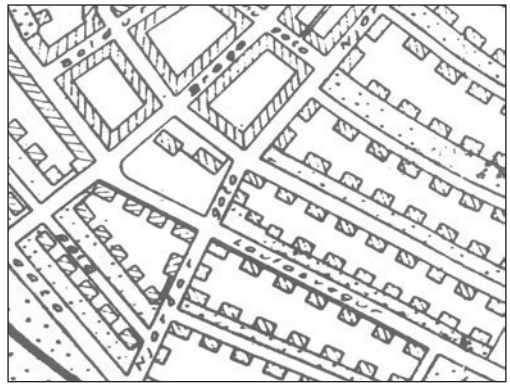
The plan of 1927 made some attempts at managing land use according to a zoning scheme but later the result was "sterilization" and bedroom neighbourhoods that lacked life. Hannesson also talked about squares, gardens and playgrounds, which were understandable because increasing open spaces, in dense urban areas abroad, were very important for improving the health situation.

There was little building activity in the World War I years, outside of the downtown area. The lack of food, an epidemic of Spanish Influenza, and a period of extremely cold weather drained the townspeople of energy.

The less availability of food meant that the people held on tighter to their vegetable gardens and grazing areas and as a matter of fact a number of new farms were established in the eastern part of the peninsula to order to increase the food supply.. The widespread areas of these new farms, together with allotments for agricultural use during the depression so that the people could survive – similar to colonial gardens in Europe, later meant that Reykjavik had widespread, large open areas.

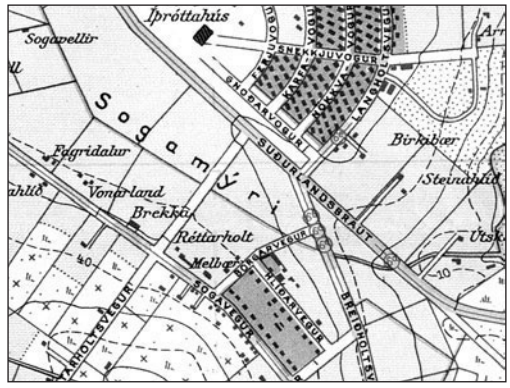
During World War I the transportation of milk and other agricultural produce from the southern lowland was the start of a new development, the rapid increase in importation of goods into the Reykjavík area, which had the effect of bringing about a gradual decrease in cultivation and farming within the town limits.

A photo Hannesson published to show how the tall and low houses were mixed.

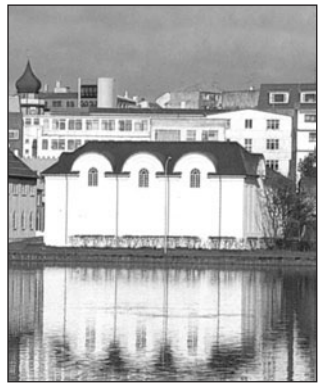


The 1927 plan devides into continious and detatched houses, It also decided on heights of buildings.

Continous lines of houses means that fire-safety walls are visible until the street lines have been completed.



Large parts of the town territory were devided into leasehold lots, which contributed to sprawling.



Three icehouses were at the Lake. This one is now an art museum.

2 The First Master Plan of 1927

Following the first planning law of 1921, a committee was established in 1924 to draw up a master plan for Reykjavík, a plan that was completed in 1927. This plan actually is both a master plan and a detail plan. It shows every single house, besides many other details.

The main characteristics of the plan are that little difference is made between main thoroughfares and residential streets and that a continuous row of buildings was proposed to line most streets. Because of this, there is much disturbance today from the traffic in the old part of town, especially in streets that are now used as main arteries. The *Ring Road*, embracing the town, is an exception.

As this plan was drawn up, already about half of this area had been formed and new planning details mainly appeared on the south side of Skólavörduholt Hill and Landakot Hill close to Sólvellir.

The plan, for the most part, followed the custom of letting the streets divide areas into spaces of a suitable length and breadth, with, in most cases, buildings lining the streets. This kind of plan is sometimes called a chessboard or a block plan and is widely known in older cities. In the newer areas ample space was given for residential areas with detached houses. The plan also prescribed the height of buildings.

Because of the lack of space downtown, the plan disperses some institutions, such as the various ministries, for example, in Lindargata Street on the northern part of Arnarhóll Hill, and Arnarhvolur and the Supreme Court. Today the construction of ministries in this area is still under way.

One proposal was to make the top of Skólavörduholt Hill a kind of Acropolis with a church, university, other schools, museums, etc. Today the sites of Hallgrím's Church, the Einar Jónsson Museum, the Vördu School, the East End School and the Technical School in Reykjavík bear some relation to this planning idea.

A sports area was proposed to the east where the swimming pool was later erected. The National Hospital was allotted a good deal of space south of the hill but the City Hall was to be centred at the end of the Lake. Today's City Hall is placed more to the west at the end of the Lake.

In only a few places are the buildings placed in such a way that a view is provided, except from the most important institutions. An exception is a neighbourhood of expensive detached houses in Laugarásvegur Road and the roads parallel to it. There the rise of the land provided good opportunity for a view. The origin of this idea can probably be traced to Hannesson's book, where he says that it is necessary to plan a neighbourhood for the more wealthy in this way because "they are more open to the beauty of the land and a good view, rather than that the lots are inexpensive…one has to demand that the houses be pretty and the lots spacious."

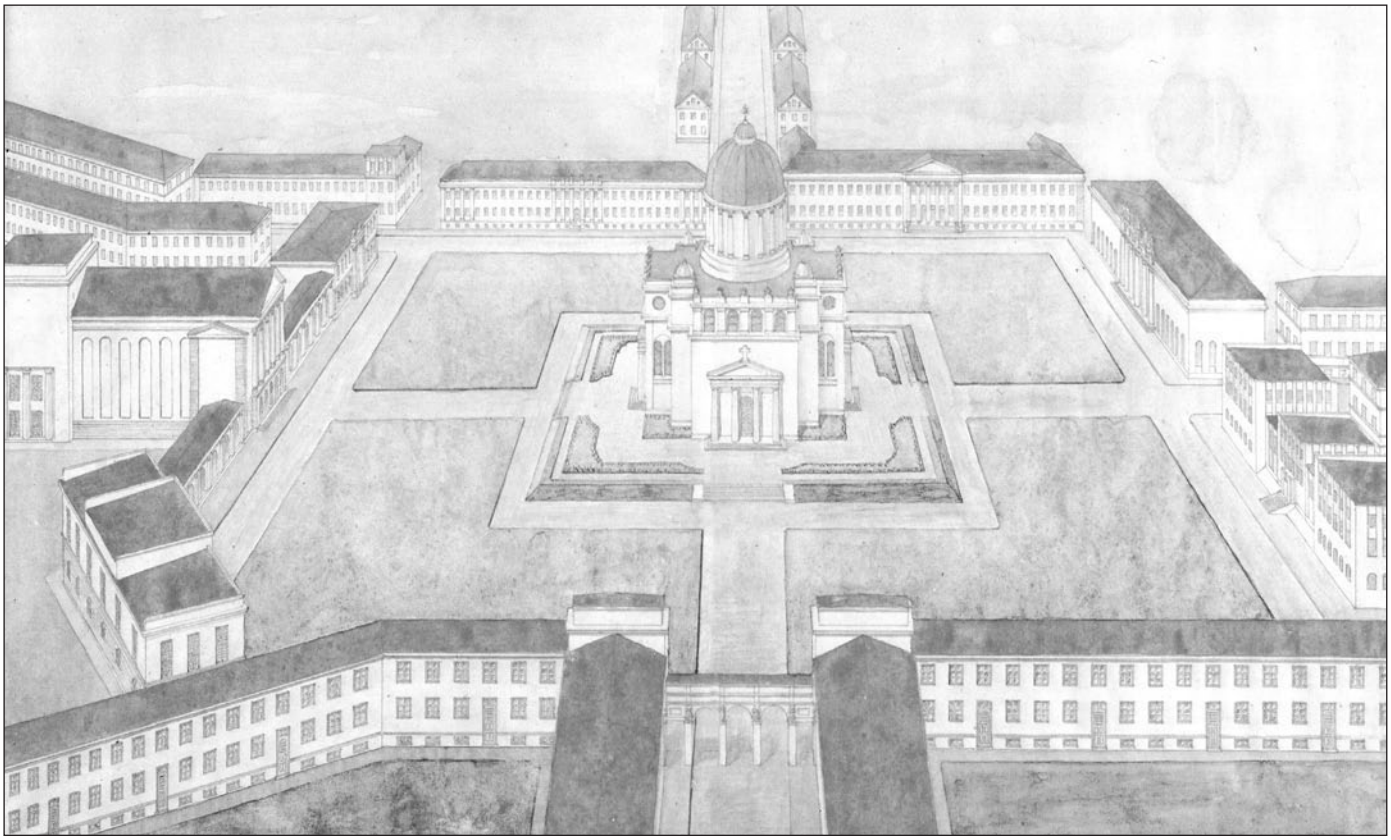
Let us now turn back to 1915 and the great events that happened that year in the development and construction of the downtown. Of most importance was that the harbour was starting to come into use, which meant that several fishing and commercial companies gravitated to the town centre. The price of real estate and rents therefore became so high that people who resided in the centre started to move out.

Another big occurrence, relevant to planning, was *The Great Fire*. The Fire Brigade was poorly equipped and could not cope with the fire spreading from one large building to another. Therefore 12 buildings in Austurstraeti, Hafnarstraeti and Pósthússtraeti streets burned. The reaction of the town council and the building commission was very determined because in this very same year the building of wooden houses in the downtown area was forbidden. This therefore led to the quick start of *The Concrete Age*.

Many lots of the houses that had burnt down were among the very best lots of the area. Before long not least because of the construction of the harbour – new buildings were built on these lots, such as the Apótek (pharmacy) and the building where Café Paris is now, as well as additions to the National Bank. In these same few years the concrete buildings of the Salvation Army and The Icelandic Steamship Company were built. Therefore, in a very short period, the downtown acquired the look and the atmosphere that still characterises it today.

The outer appearances of these buildings are very much characterised by foreign building styles, sometimes imitating foreign masonry construction in concrete or stucco This was fashionable in the more expensive buildings far into the 1920's but gradually the use of orna-

The 1927 plan proposed closed street lines.



Gudjón Samúelsson's idea for Háborg Reykjavíkur (meaning Acropolis) at the top of Skólavörduholt. It was meant to be an academic centre of the highly educated. The idea included a church, a university and various museums.

mentation started to decline under the influence of functionalism, as can be seen in the Austurbaer School and the Telephone Building at Austurvöllur.

During these years there was a great lack of residences in Reykjavík, both because of limited importation of building material in the last years of World War I but no less because of the extensive migration of people to the town. After the war, prices of goods were very high, which meant that in the post-war years people were only able to build small houses, most of them in the streets bearing names from Norse mythology like Thor, Nanna and Loki.

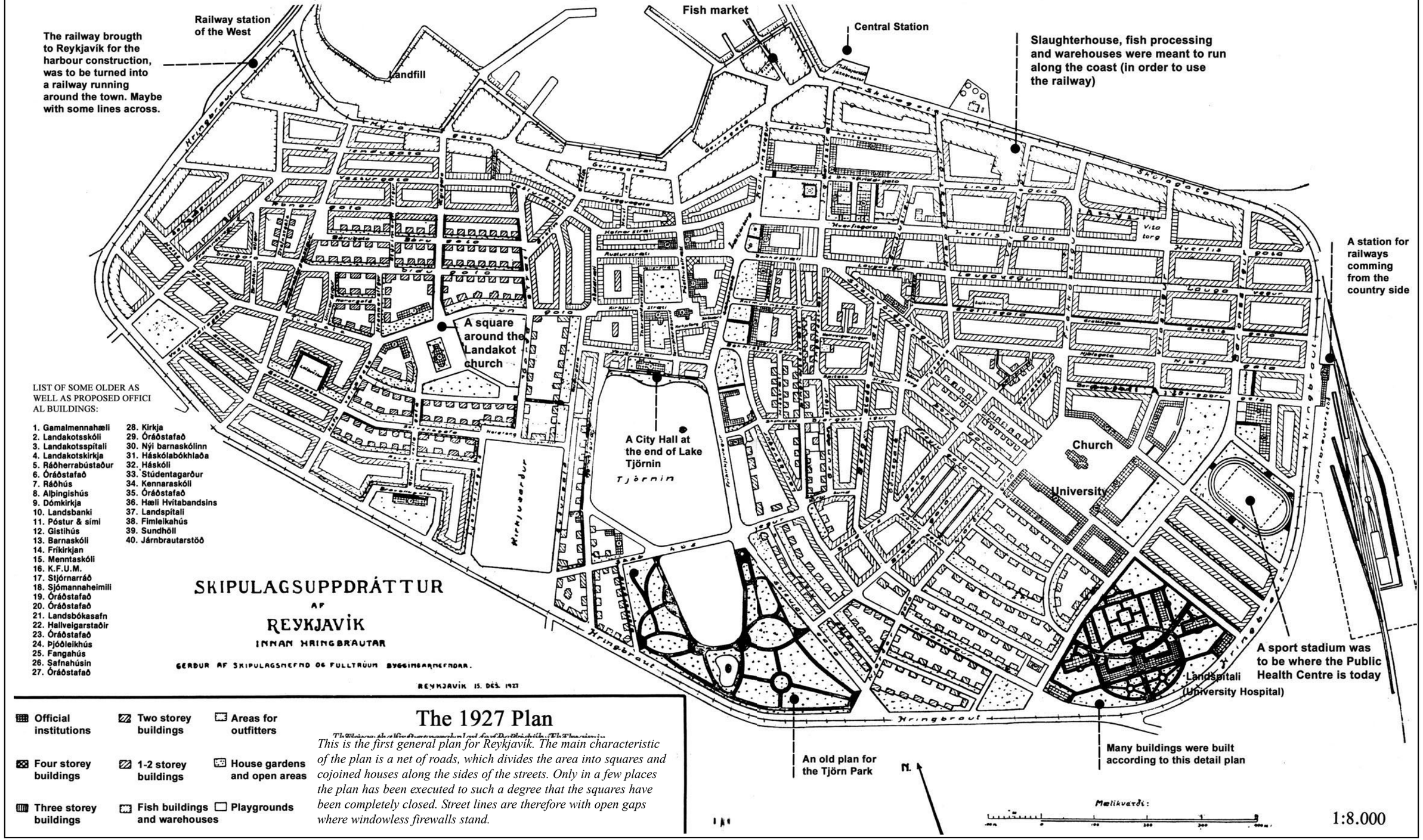
But soon prosperous times came again and new neighbourhoods with larger and statelier houses were built. In the west end the streets have the names of waves and others take their names from the old fields in that area.

The asphalting of the streets downtown was a great facelift for that area as until then the streets had been gravelled and were quite muddy when it rained. Austurstraeti Street became the first to be asphalted in 1912. Asphalting the downtown streets was finished around 1920. Asphalting of streets in the suburbs, on the other hand, was delayed for many decades.

At this time the people of Reykjavík were a proud and ceremonial lot. A number of monuments depicting the leaders were erected, for example, of Jón Sigurdsson in Austurvöllur, Kristján IX and Hannes Hafstein in front of the Prime Minister's Office, the poet Jónas Hallgrímsson in the Lake Park, and Ingólfur Arnarson, the first settler, on Arnarhóll Hill.

Town life had now reached some degree of urbanity. Cars with canvas tops went roaring down the streets so that men on horses needed to proceed carefully so the horses did not bolt. The rather rural looking residential areas, as well as the stone fields of the fishing stations, were located outside of the downtown area. And as the sun came out and dry winds blew the trumpets of the fishing plants sounded and women and children flocked to the stone fields to spread the white salt fish for drying.

Before asphalting, there was often mud downtown.



The 1927 Plan

This is the first general plan for Reykjavík. The main characteristic of the plan is a net of roads, which divides the area into squares and cojoined houses along the sides of the streets. Only in a few places the plan has been executed to such a degree that the squares have been completely closed. Street lines are therefore with open gaps where windowless firewalls stand.

3 Development of Infrastructures in Reykjavík

Few realize how much the various technical infrastructures of cities influence the way they are planned as well as what kind of living conditions are offered within cities. The history of such infrastructures can often be traced far back in time. The Romans, for example, had developed structures for delivering water and sewers, and a theory on the layout of streets was one of the first subjects that planning theory dealt with, even before the time of Christ.

The construction of the various public utilities is in fact a prerequisite for a healthy and well functioning city. Reykjavík unfortunately experienced some delay in acquiring efficient public utilities which, understandably, created very bad environmental and health conditions. A typhoid epidemic in 1906 was caused by pollution in some of the wells of Reykjavík.

The physician Gudmundur Björnsson had a hunch as to what might have caused the epidemic and mapped out where the typhoid cases had surfaced. In this way he produced evidence that made it likely that bacteria polluted certain wells.

After a fight with the town council Björnsson succeeded in having these wells shut off. Björnsson's battle ended with success because soon the construction of the water supply system was started and then completed in 1909.

Another big step towards a healthier town was to lay sewer pipes under the streets.

The first was laid along Aegisgata Street in 1902. It was, however, not enough to put in these sewer pipes; one also had to have "water closets" and a system of pipes from the toilets and sinks in all buildings that connected with the new sewer. The water supply system, of course, was a pre-condition that this toilet and sink "revol-ution" could come to be.

The night time traffic of people in the streets required lighting. The first steps were taken at the start of the nineteenth century with a few of oil lanterns. Following the construction of the gas station in 1910, gas lamps were intro-duced. Gas mains were put into most houses in town; the gas was mostly used for cooking and lighting, replacing oil lamps and the use of peat and coal for stoves.

The introduction of electricity started with small kerosene-driven motors at some companies. World War I meant that there was a delay in further development and also the decision, made earlier to opt for gas, caused a delay in the introduction of electricity. Electricity, however, was urgently needed because the industries needed electric motors. At this time factory machines were still driven by power transferred by belts running from steam engines located in a central room.

The first hydropower plant in Reykjavík was built by the River Ellidaá . Two dams were constructed, one as a water reservoir at Lake Ellidavatn, the other further down in the valley in today's Árbaer neighbourhood. From there a pressure pipe, which still remains, led into the power station. This station is still used to meet peak demand in the middle of winter.

The use of electricity grew very fast, leading Reykjavík to buy hydropower rights on the River Sog. The first power station to be built there was finished in 1937. As the supply of electricity increased, the use of gas for heat and light was reduced so that the gas station finally stopped operation in 1955.

Water mains replaced delivery and pumps.

This ditch for the water pipeline from Gvenndarbrunnur was dug manually.

Wooden pressure pipes leading water into the turbines. Lake Ellidavatn was the reservoir.

Historians think that the Icelanders used hot springs and warm pools for washing and cooking in the early ages of settlement. This use of the warm pools *(laugar)* in Laugadalur Valley, now in the middle of modern Reykjavík, had become rather common by about 1830. Because these warm pools were outside town at the time bringing clothes there was heavy work for the women who did the washing. The main shopping street in Reykjavík, Laugavegur, was the early path to these *laugar* and takes its name from them.

Around 1920 an engineer presented ideas on how to make better use of the geothermal hot water by installing district heating. In 1928 some experimental drilling was carried out in Laugardalur Valley, following which it was decided to start a district heating project. The project was finished in 1930 and 70 houses on Skólavörduholt Hill were connected to the system.

The good experience of this first district heating led engineers to start a programme aimed at putting district heating into all of Reykjavík. To ensure enough hot water the geothermal rights to Reykir in Mosfellssveit, north-east of Reykjavík, were bought in 1933. As people were just about to start to build the system World War II started, considerably delaying the project. But on December 1st, 1943, the first buildings were connected to the system.

Even though the geothermal rights to Reykir, and later Reykjahlíd, had been bought Reykjavík continued drilling for hot water within the town itself. Several rigs were bought for this, some of them capable of reaching great depths. The deepest drilling hole is about 2200 m deep. The geothermal heating meant that the peat, coal and oil heating of houses stopped and this in turn meant a huge environmental clean- up because all smoke disappeared from the town.

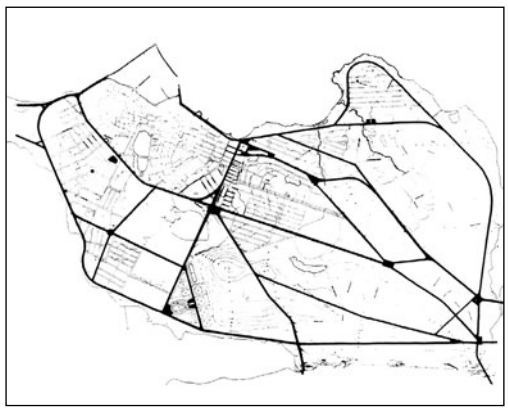
The Age of Cars started in Iceland in 1913 as two Canadian-Icelanders brought a new Ford to Reykjavík. Earlier, in 1904, one experimental car had been brought to Reykjavík. The two pioneers started to transport people commercially and the following year new cars were added. Car ownership in Reykjavík increased. In 1920 there were 130 cars and 800 ten years later.

Before the introduction of car transportation it was no longer the main characteristic of improvements in transport that new areas or neighbourhoods were connected to the town but rather that the increased speed of car travel made all neighbouring settlements considerably closer to town. The car therefore greatly increased interaction.

Increased car ownership of course put pressure on improving and extending the road system. To start with, most of the cars were passenger cars used commercially. But as time passed specialised types of vehicles started to appear, such as flatbed trucks and cars with many passenger seats. This extended the range of services provided.

This development meant that the phenomenon of increasing dependence on motor vehicles had been introduced in Iceland. This has ever since been one of the most difficult aspects of planning.

The first reaction to this development was to group the streets into two categories: thoroughfares and residential streets. This was done in order to pass through some areas faster



The road plan from 1937 was based on pre-existing roads and added some new ones.

The new building areas have often been loosely connected. The photo shows the Langholt area.

Women carrying laundry back from the Pools in Laugavegur.

and, on the other hand, to provide residential districts with some relief from the noise and danger of accidents inherent in thoroughfare traffic. Later this system of streets developed into three groups and later still into four: *primary roads, connecting roads, collecting roads* and *residential streets*.

Before the advent of the car in Reykjavík and the increase in the speed of traffic, wagons and pedestrians could mix in the same street space. This meant that almost all the street space belonged to town life, comparable to what we now can experience in pedestrian malls where only slow traffic is allowed.

The emerging of fast car traffic led to many changes in planning. Special sidewalks were constructed along all streets where people were expected to stay in order to get clear of the cars. Later some planning schemes tried to separate pedestrian traffic as much as possible from car traffic.

Since cars are noisy and polluting, planning theory has developed a policy to pull building construction back from the streets. Most often this has meant that green spaces line the roads. This approach has some advantages but means a waste of valuable space. The separation of pedestrians and cars has led to fewer accidents and less pollution but at the same time the main arteries become rather mechanical, and pedestrian spaces where no cars are allowed often are lacking in life.

One of the traffic systems that was introduced in cities was the bus system. The first scheduled trips within Reykjavík were simply provided by passenger cars, mostly to certain important places within town.

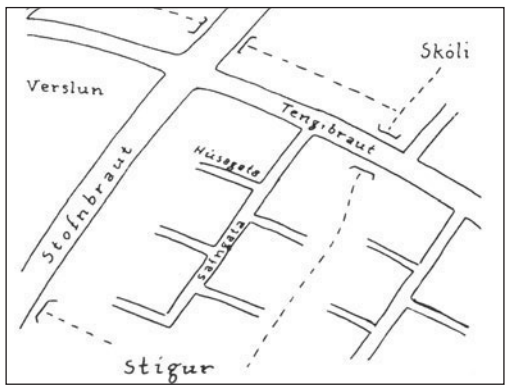
One of these places was the swimming pool in Laugadalur. Other routes went to places out of town, for example, to the Vífilsstadir Hospital and to Keflavík, routes that later developed into becoming licensed routes where certain bus companies obtained a monopoly.

Even though car ownership grew during the first few decades, only a small proportion of the citizens owned a private car. Required distances, however, were getting longer so that gradually people more and more encountered problems if they wanted to get to their destinations on foot.

Furthermore, some of the new building areas were some distance from town, such as the Kleppur Mental Hospital, the power station, and Grímstadaholt Hill. All of this meant a considerable need to introduce a bus service. In 1931 the *Reykjavík Bus Company* was established. The next year the company bought six buses that were put on several routes, according to a route plan. To start with, these buses drove around 1200 km per day. The City of Reykjavík bought the company and took over the running of the buses in 1944.

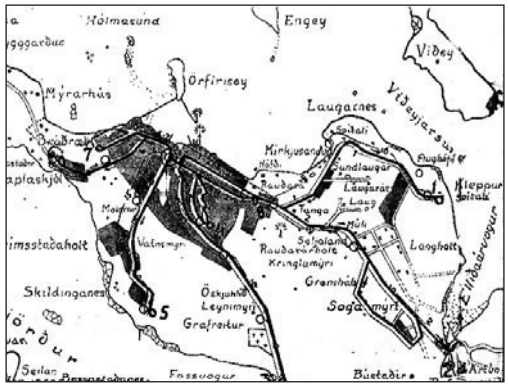
Various other infrastructure systems were gradually constructed, including social structures like those of playgrounds, day-care centres, schools and outdoor areas. The last one of these systems to be considered in planning was the system of open or green areas. The first draft of this green system of Reykjavík will be described later.

The advent of cars had a great effect on urban planning.



Streets get their name from the roles that they play. They come in four different types.

Buses helped connect the suburbs to downtown.



The first bus map from 1932. Most of the routes were to the suburbs.

4 The Consequences of the Depression and Military Occupation

The main consequence of the Great Depression that started in 1929 was that people had to be content with rather poor housing. Therefore the idea of the 1927 plan, that most of the wooden houses in Reykjavík should disappear, could not be implemented. The architectural conservationists of today are therefore in debt to the Depression for preserving what is now cherished.

The central idea of the plan – to build high continuous rows of buildings along narrow streets in quarters with few open spaces – also soon became obsolete because of the increased car traffic. The plan did not contain any broad thoroughfares through town and almost no parking space at large institutions or elsewhere.

In the 1930´s people therefore suddenly realised that on the top of Skólavörduholt Hill there was totally inadequate space for a university so soon people started to draft a plan for a university in the Melar area.

This meant that the plan of 1927 was abandoned and soon after 1930 people started to consider planning for the areas outside of the Ring Road. The first step was a report in 1933 on traffic within the town that became the foundation of the road system that appears in the planning of 1937.

In spite of the Depression many politicians were quite ambitious concerning cultural matters and wanted to build imposing buildings for education and science. The buildings built during the Depression were surprisingly large and were better built than is the norm today.

By now the town had about 40,000 inhabitants and the building areas and open spaces started to be filled in so that the streets became the main playground of the young. Colourless concrete buildings rose up from the barren rocky landscape and the lifeless form of functionalism was characteristic of the new neighbourhoods.

There was an attempt to make official buildings as large as possible and some of them were pretty gloomy, like the Telephone Offices at Austurvöllur, Arnarhvoll, the Austur-baer Children's School, and the Harbour House.

The atmosphere of the Depression years was characterized by opposites. Large dance halls had been opened where men dressed in tails and the women in long gowns. The State Radio started operation in 1930 and the talkies came to the cinema.

This splendour was in stark contrast to the wretchedness of the unemployed who lived from odd jobs or government-provided employment like work in quarries. Socialists and Nazis in uniform paraded through the streets.

All this came to a sudden halt one morning in May 1940 when the British army landed in Reykjavík and, without a shot, captured the country. In a very short while the British Tommies had erected tents widely over the town.

Unloading of the military supply ships continued day and night. Sandbag fortresses were built at every other corner in town. To provide defence against air raids, gun emplace-ments were built.

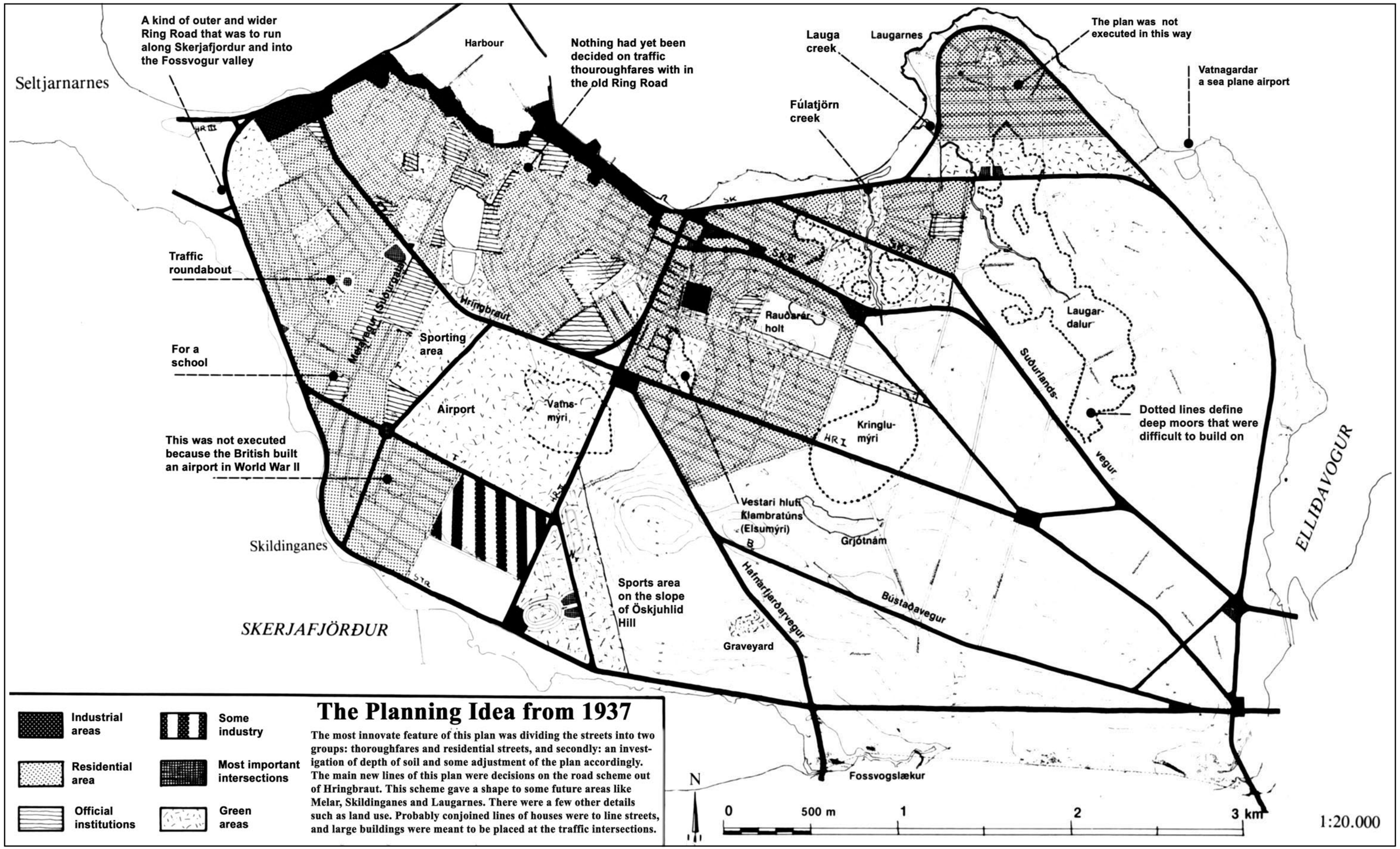
In 1941 American troops joined the British in Iceland. The citizens of Reykjavík were at first virtually spectators, but soon they were hired by the military to carry out needed services and to work on the construction of barracks and other buildings.

The British Army landed on May 10th, 1940.

Official buildings were placed on the top on inclinations to increase their grandeur.

Austurbaejar School is a good example of the grandiosity of the time, despite the Depression.

Children were excited about what was going on.



The Planning Idea from 1937

The most innovate feature of this plan was dividing the streets into two groups: thoroughfares and residential streets, and secondly: an investigation of depth of soil and some adjustment of the plan accordingly. The main new lines of this plan were decisions on the road scheme out of Hringbraut. This scheme gave a shape to some future areas like Melar, Skildinganes and Laugarnes. There were a few other details such as land use. Probably conjoined lines of houses were to line streets, and large buildings were meant to be placed at the traffic intersections.

The British military base endangered the city, but hastened domestic and overseas flights.

Army barracks were built in most empty areas, which later became new neighbourhoods.

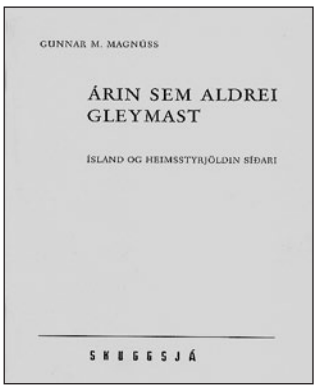
The military started a lot of other construction work like paving of some of the main roads in the Reykjavík area. It also built the Reykjavík Airport as well as setting up thousands of Nissen huts in open areas in town and outside of town. In some places these became large army villages.

At the end of the war, after the military left, many of the barracks were used as flats as the influx of British and American money had created a bonanza that drew a large number from the countryside into the city. Most of these barracks were so badly built that they were a health hazard and it took a lot of effort during the 1950's to tear them down.

The army barracks, since they occupied many of the open spaces, stood in the way of construction and therefore some of the buildings that are now in these locations are newer than those around them. Almost no signs of this tremulous time in the history of Reykjavík are visible today. Only a few barracks foundations and gun emplacements are to be found in nearby hills such as Öskjuhlíd Hill and also along the ocean at Skerjafjördur.

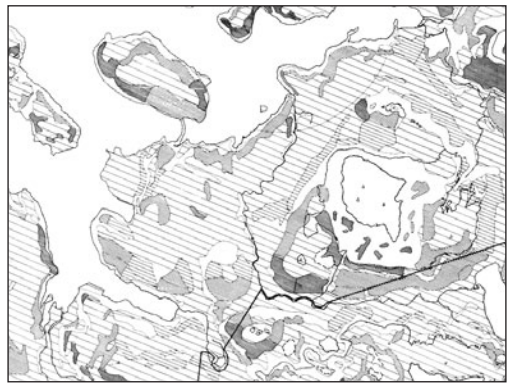
Tent camps were used before Nissen huts were built on Skólavörduholt.

After the war there was added interest in planning that provided people with a view.



A book on the colossal consequences of the war years.

The army brought with it new technology that revolutionized the building industry.



The darkest areas have the best view, considering also their exposure to sunlight.

V Reykjavík after World War II

1 The Notorious Plan of 1948

As in the rest of the world, many changes happened within Icelandic society, and in Reykjavík as a town, as the result of World War II. At the beginning of the war the Great Depression was still in full swing, unemployment was widespread and there was much poverty. The war, therefore, came as freedom from this misery, as it brought a huge influx of capital and jobs.

As the British fleet suddenly appeared in the harbour of Reykjavík in the early morning hours on May 10, 1940, no protests were mounted. Rather, the citizens stood close by and silently observed the enormous transportation of soldiers and equipment coming ashore. Already on this first day many of the unemployed got jobs and Reykjavík began to experience an economic upswing.

The occupying force numbered 6-8000 soldiers, equalling about 15% of the inhabitants of the town. This large number of young men needed a great deal of assistance in supplying food, doing the washing, and building the communities of Nissen huts in the many empty spaces within the town. Later, the building of roads, fortifications and finally the Reykjavík Airport was begun within the city.

The British, joined after 1941 by the Americans, brought with them an enormous amount of equipment and cars and other vehicles of the latest types. This equipment made physical work much easier and was like an adventure because of how easily they could handle construction work.

All the soldiers in uniform looked smart and the Icelandic males were faced with tough competition in impressing the ladies. Those Icelanders who moved from the backward countryside to Reykjavík for the big money paid for work for the army had no choice but to buy modern suits and put their thick woollen clothes aside and try to disguise their origin as farmers and seamen.

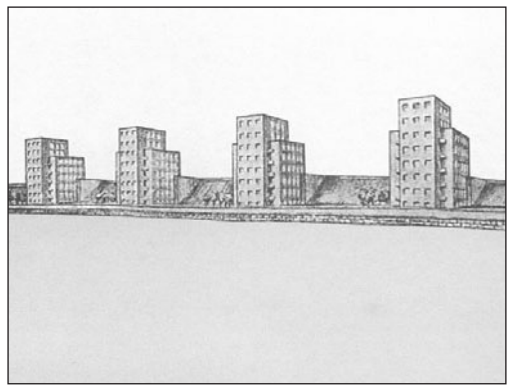
Those trades and aspects of town life that were connected to the original occupations in the country, fishing and agriculture, started to be less respected in Reykjavík, as well as almost everything else connected with country living. During the war years Icelanders accumulated riches that were used for a gigantic effort to introduce modern technology to the country after the war.

Manufacturing industries were greatly assisted by being supplied with new machinery and tools. Immediately after the war they had a great commercial advantage over the industries of the European nations that were still in ruins.

The huge advantages of modern ways created an atmosphere of blind admiration of technology, modern systems and current fashions. One of the results in town planning at the end of the war was that as people started to form ideas about future settlements on the rest of the peninsula, highly modernistic ideas were paramount.

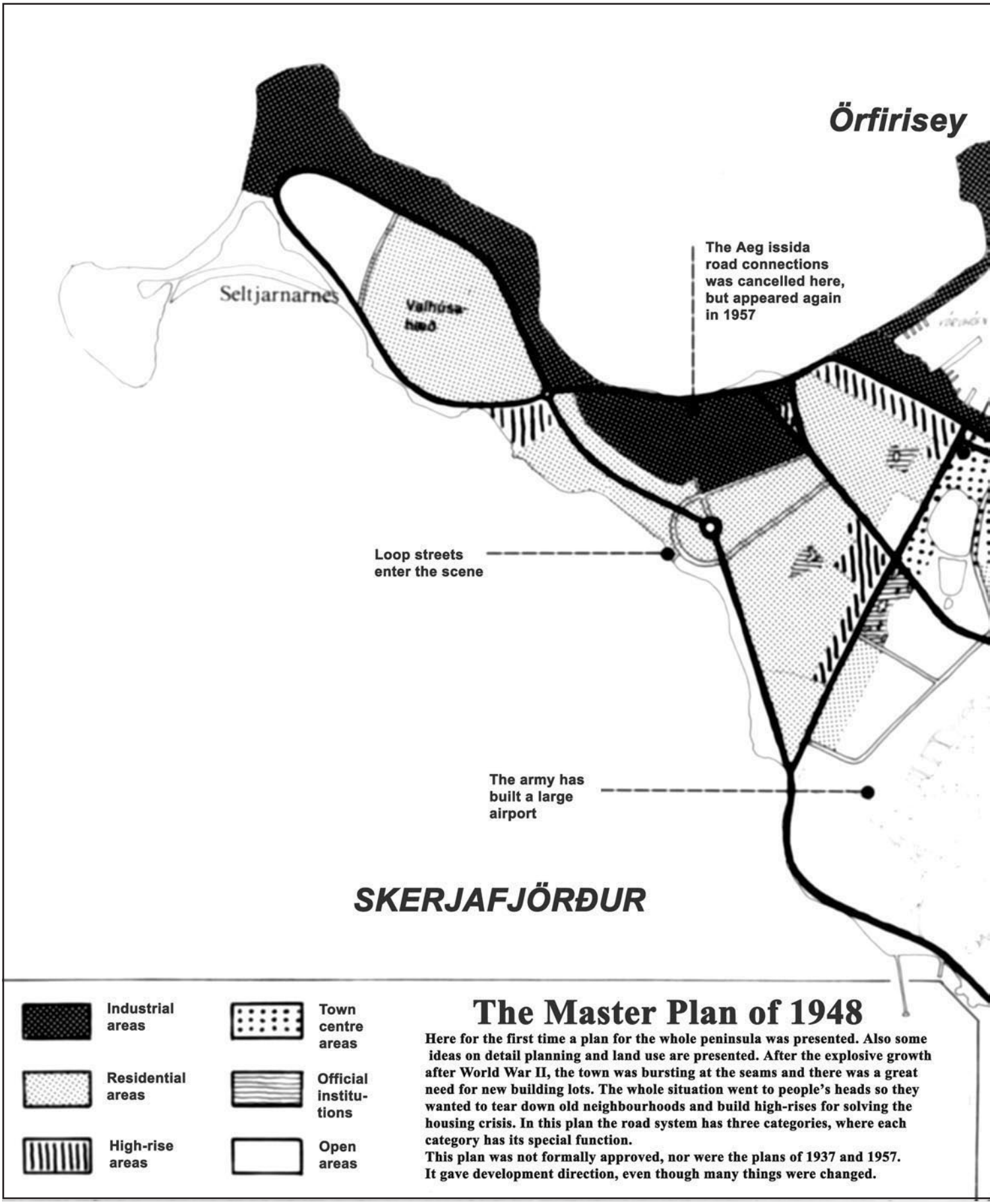
In 1948, a plan was made for this whole area. Even though it was very simple and was not formally accepted by the town council, it expressed all the main aspects of the new worldview that had taken over Reykjavík during the war. This plan embraced all the latest fashions trend in planning, both in Europe and America, fashion trends that later turned out to be very flawed and are now seen as having

Tjarnarbrekka is now regarded as one of the city's gems. That has not always been the case.



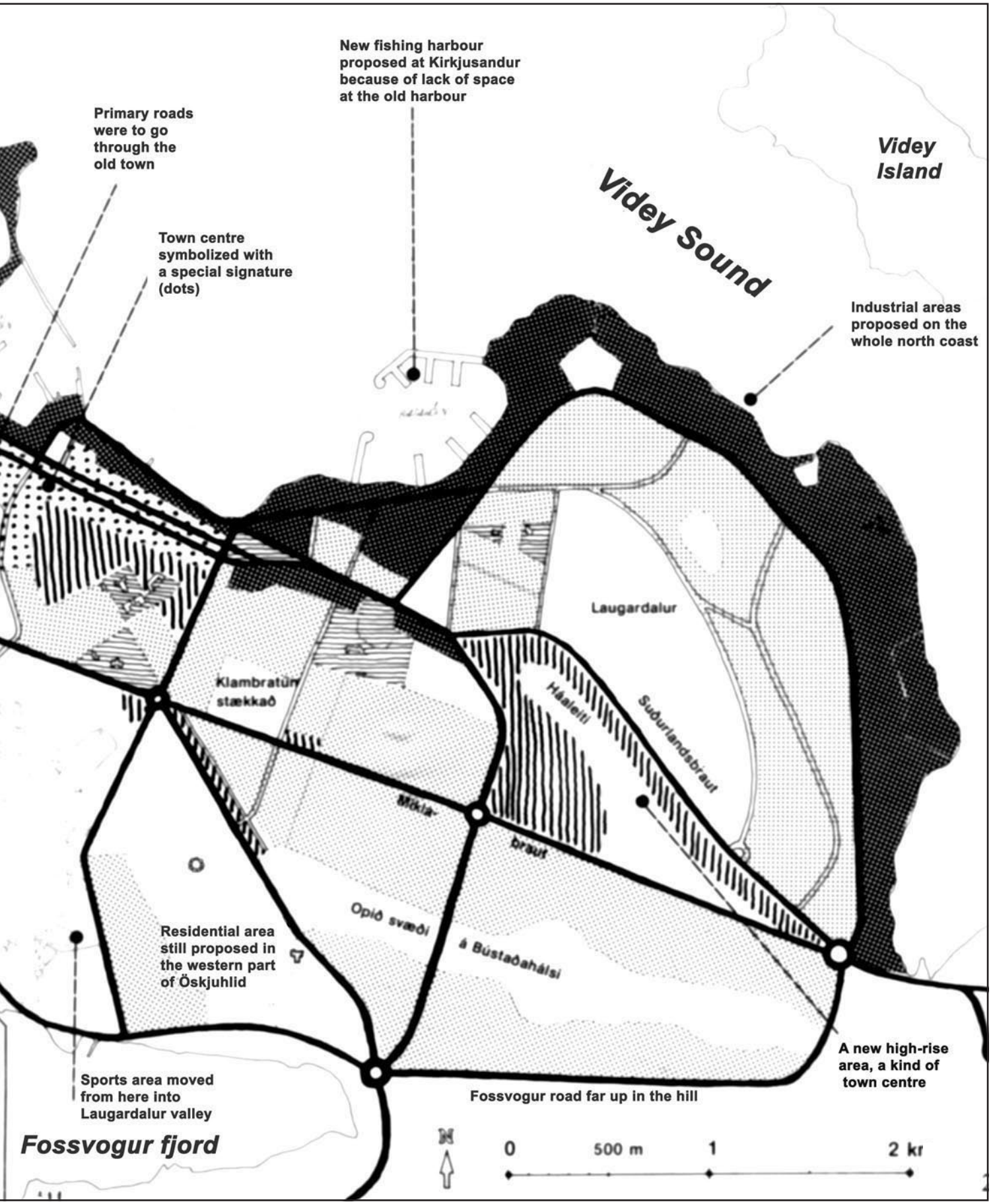
Demolition and rebuilding seemed necessary This is a prize-winning proposal from 1951.

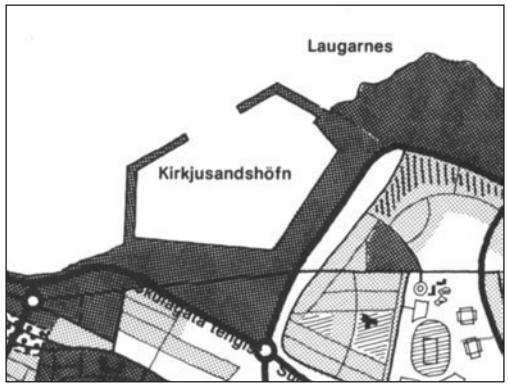
Links to the military led to looking down on things Icelandic.



The Master Plan of 1948

Here for the first time a plan for the whole peninsula was presented. Also some ideas on detail planning and land use are presented. After the explosive growth after World War II, the town was bursting at the seams and there was a great need for new building lots. The whole situation went to people's heads so they wanted to tear down old neighbourhoods and build high-rises for solving the housing crisis. In this plan the road system has three categories, where each category has its special function.
This plan was not formally approved, nor were the plans of 1937 and 1957. It gave development direction, even though many things were changed.


New fishing harbour proposed at Kirkjusandur because of lack of space at the old harbour
Primary roads were to go through the old town
Town centre symbolized with a special signature (dots)
Videy Island
Videy Sound
Industrial areas proposed on the whole north coast
Laugardalur
Klambratún stækkað
Háaleiti
Suðurlandsbraut
Miklabraut
Opið svæði á Bústaðahálsi
Residential area still proposed in the western part of Öskjuhlid
Sports area moved from here into Laugardalur valley
A new high-rise area, a kind of town centre
Fossvogur road far up in the hill
Fossvogur fjord
0
500 m
1
2 km



The idea of building a harbour in Kirkjusandur led a number of businesses to move there.

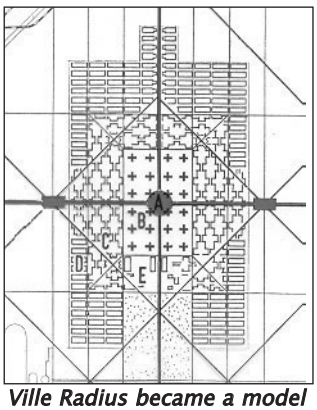
caused much damage in urban development. The most pronounced characteristic of the plan was that the whole coast of the peninsula from Grótta to the innermost part of Ellidaárvogur Bay was set aside for industry. Not a single spot on the north coast was shown as a recreational or residential area.

The little community at the tip of the peninsula, Seltjarnarnes, soon abandoned this policy but in Reykjavík – especially as concerns the area from the old harbour east to Keilisnes – various kinds of harbour functions were begun and a highway was planned along the whole coast line.

A second characteristic of the plan was that roads, for the first time, were divided into three groups according to the transportation they were meant to serve. Here we therefore have, for the first time, the idea of building roads all over the town area, including letting them split the old town centre with the extension of Hverfisgata Street to the west and by locating a through road where Sudurgata Street now is. Originally, this road was supposed to pass through the old Grjótathorp "village" all the way down to the harbour.

The plan also presented the earlier idea of demolishing most of the houses in the old town centre. Additionally, the upper part of the Thingholt area and the area above Grettisgata Road in the direction of the Ring Road (Hringbraut) were marked as a high-rise area.

The third main characteristic of the plan was a clear division of land uses: industry, residential, institutions and city centre. The idea of zoning has its origin in the polluted towns of the early industrial age but makes much less sense in a town that, at that time, was in the process of being converted to geothermal heat.



Ville Radius became a model for suburban planning.

The fourth main characteristic was the vast green spaces in the eastern part of town. For instance, the large open area of Miklatún Park were shown in Laugadalur Valley as well as large spaces on the Háaleiti and Bústadarháls hills, extending through a large open area on Öskjuhlíd Hill. This large open space on Öskjuhlíd Hill, the new cemetery in Fossvogur and the military airport – shown on the map on pages 134-5 – almost completely denied the town the possibility of developing all the way to the south coast at Fossvogur Bay and Skerjafjördur.

The 1948 plan was, of course, of the greatest importance in directing future development but in the first years after the end of the war people continued to build neighbourhoods almost as extensions of the scheme of the old town within the Ring Road.

The idea about detached satellite neighbourhoods had not yet been implemented. Therefore, rather nice neighbourhoods were planned and constructed following the old tradition on the Melar and Hagar roads in the west end and in the Hlídar and Holt areas in the east end. The separation of work and residential areas, had, however, started there to some degree, though less so in the Holt neighbourhood.

These fine neighbourhoods have road systems similar to those of the old town, the main difference being that the houses are drawn further back from the streets and most of them are detached, as are the blocks of flats. In these neighbourhoods we have neither unreasonably large main roads nor excessively large green spaces, something that came later because of the influence of the 1948 plan.

Many people became rather well off during the war years though there were definite differences in income. Those who were lucky to have a considerable amount of money and who obtained authorization after the war for construction of buildings housing two or three residences, the best of them located in the Hlídar and Melar neighbourhoods.

Because of a special agreement with the state, the construction of small one family homes and row houses on Bústadaháls was permitted. This was mainly conceived for those who did not have much money but wanted to build their houses themselves.

A third type of residential area built after the war was neighbourhoods that rose without a building permit in the Múli and Blesugróf areas. The City of Reykjavík did not stand in the way

of this because of the lack of housing. The houses were most commonly built of wood and leftovers from the military occupation. Many such houses were also built in Kópavogur because Reykjavík could not supply enough building lots.

The housing problem was one of the biggest challenges facing Reykjavík during the 1950's, both because of financial restrictions and also because the number of inhabitants had increased greatly. Even though construction sped up for quite some time a housing shortage prevailed.

At the same time the City of Reykjavík was trying to demolish poor housing, mostly the badly built barracks left by the army. Because of the financial restrictions and lack of building lots, people resorted to the poor solution of making flats in cellars and attics.

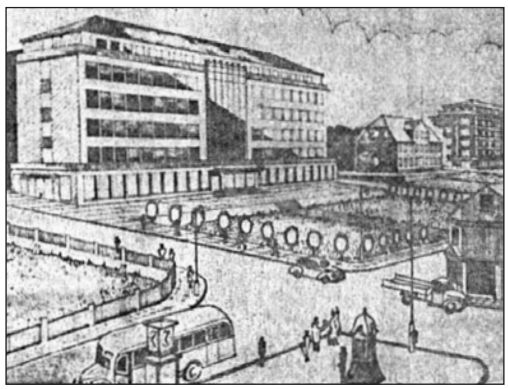
In this period of increased wealth everything that was reminiscent of poverty and difficulties, as for example the little wooden houses in the old town, were regarded as meagre and ugly. What followed was a trend towards building as solidly and permanently as possible. Therefore concrete, thought to be everlasting, was the building material of choice – and everything should be made as large as possible and the signs of past times of poverty and problems should be eradicated.

It can be taken as a sign of the times and of the general atmosphere among the town's inhabitants that the new detailed plans for the downtown aimed at demolishing most of the old buildings, except for the Cathedral, the Althing (parliament) building and a handful of other stone buildings.

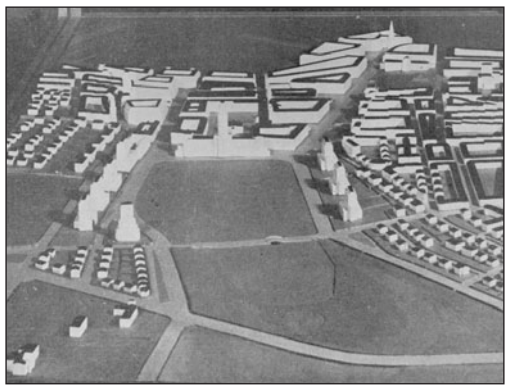
There were for example plans to tear down the Old Latin School and build a concrete box in functionalistic style in its place, and the whole downtown area was meant be an accumulation of concrete buildings designed with a ruler. Fortunately, Reykjavík was spared this misfortune. Only a few buildings were actually built according to this plan, the building that then housed the main newspaper being the clearest example of the planning ideas of the period.

Three types of houses on Hringbraut. 2 to 4 flats per building have been popular.

The Smáíbúda neighbourhood in Bústadaháls was one of the first distant suburbs.



This picture from 1949 was published to show that the school was too small.



A model of Kvosin that shows that most of the houses there were destined for demolition.

Einar Sveinsson, chief planner of Reykjavík 1934–49.

2 Planning–Development on the Eastern Half of the Peninsula

Development and planning of the eastern half of the peninsula, to the River Ellidaár, is both complicated and hard to understand. Already, before the war, dispersed settlements had started to develop there, for example, by the Kleppur Psychiatric Hospital. Since a road and a water main had already been laid, further construction was easy.

The same holds true for a small settlement around the hydropower station in the Ellidaár Valley. In addition, some settlement spots developed on Bústadaháls, in Sogamýri and Múlar, and on the leasehold plots where farming was already practiced.

These little semi-rural villages – far outside the main settlement – came to be because earlier in the century there had been a great need for agricultural produce in the Reykjavík area due to the lack of adequate road connections to the agricultural regions in the southwest of Iceland.

The arrival of the British army in 1940 prompted a renewed demand for agricultural produce, primarily chickens, eggs and pork. Since this new production required a lot of space, it needed to be somewhat out of town.

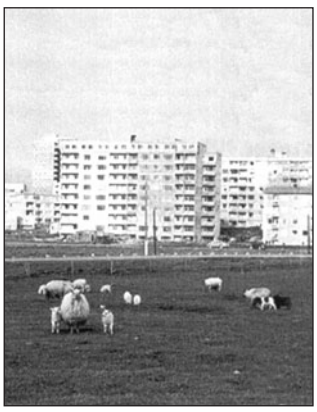
In addition, car ownership increased, especially after the war when Icelanders made good use of the bonanza of motor vehicles left behind when the Allied armies went home. But the increase in vehicular traffic contributed to further sprawling of the settlement, and adequate bus service to these outer regions also encouraged people to live away from the main centre of the town.

Social and psychological reasons also formed the basis of this urban sprawl because many of the people who moved from the countryside wanted an intermediate step to urbanity and therefore these little villages or suburbs, still surrounded by nature and at some distance from town, offered the ideal location. Many of these new settlers from the countryside could still keep livestock, primarily sheep, but also cows, chickens and horses. Gardening was also very popular on allotments that Reykjavík rented to the general citizen, for example, in the Kringlumýri area.

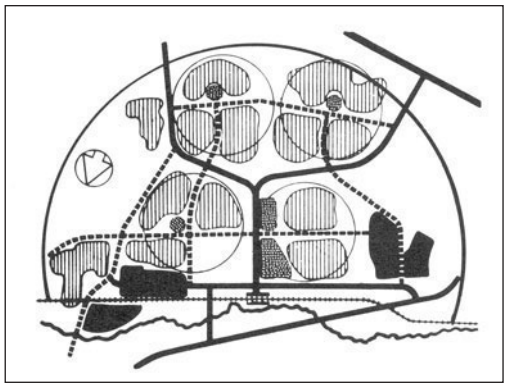
Popular planning theory of the time embraced the concept of neighbourhood planning, an approach that actually originated in the nineteenth century in The Garden City Movement. *The Garden City ideology* was revived a few times, notably by the architect Corbusier, who termed it *Satellite Planning*. In this case, the idea revolved around the planning of rather large new towns or suburbs some distance from the metropolitan cities in continental Europe.

Unfortunately, authors of planning theories most often base their ideas on the urban characteristics of large cities and as smaller towns try to implement these same planning schemes, the scale does not fit. In Europe it was common that these satellite cities had about 60,000 inhabitants, but near Reykjavík these satellites had about 20,000 inhabitants, too few to form an independent unit commensurate with this ideology.

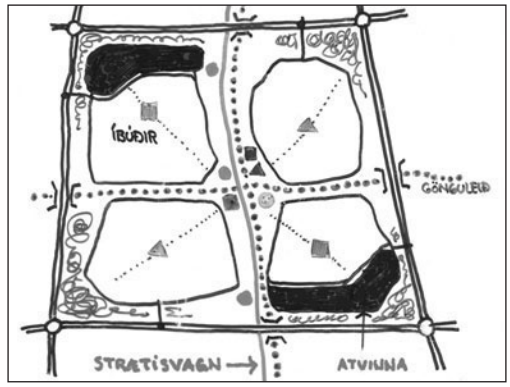
The theory was predicated on the self-sufficiency of each satellite, but the 1948 plan for the Reykjavík area, with its zoning of activities and the separation of industrial and residential areas, worked against the idea of selfsufficiency.



The leap from farms to the modern city was huge.



A typical suburban plan from the town of Harrow in England.



The independent suburb, or neighbourhood unit, became the dominant planning idea in Iceland.

Hördur Bjarnason, Planning Director of Iceland till 1954 and who later became the State Architect, describes the satellite ideology as follows: "All the units that have independent township needs will be located there, and the policy is that more such suburbs will be planned as the capital grows and the need arises….We are, in some respects, going back to older times, to the idea of a limited size for towns, quieter and more manageable, even though the whole picture is formed of an assemblage of these small towns beyond the city limits."

This new ideology appeared in a very clear form in the 1948 plan and also exists in many variations in a plan from about 1957. This plan was also not formally accepted but it nevertheless provided the main guidelines as to how the new satellite neighbourhoods should be built, often rather isolated from each other.

The first new settlement of this type started to be built at the end of the 1940's in the Vogar area; actual construction took almost a decade. This neighbourhood is often called the Hálogaland area.

In 1951, the building of small flats as well as the nearby Bústadahverfi neighbourhood further up on Bústadaháls, started a little later. Development of the Hagar and Melar neighbourhoods continued and was finished at the beginning of the 1960's.

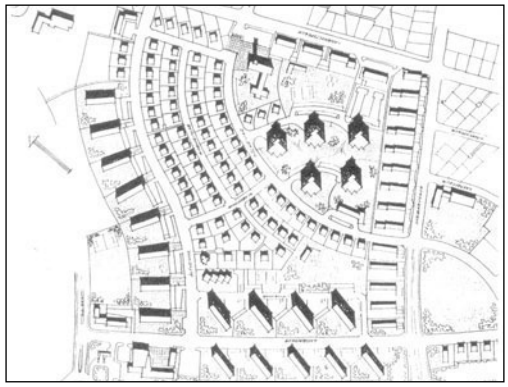
Also, shortly after 1950, new neighbourhoods started to be built along the north coast – neighbourhoods that have the suffixes *-laekur* and *-teigur* in their names and today belong to the Laugarnes neighbourhood.

Later some settlements arose on Laugarás Hill itself. Somewhat later a new neighbourhood was built to the west of Vogar, called the Heima area.

In the twenty years that had passed after World War II, or until about 1965, there had risen quite a number of new neighbourhoods scattered around the whole eastern peninsula.

In these twenty years, Reykjavík had swelled to seven times the size of the area within the Hringbraut (Ring Road), which was fully built at the end of the war, i.e., there was a 700% increase in area whereas at the same time the population only increased 70% or from 47,000 to 78,000 inhabitants.

The area per capita therefore increased tenfold. There is hardly a clearer scale available for the immense sprawling of the settlement in this very short perod of time. This called for a huge increase in the building of roads and finally the building of main arteries within Reykjavík.



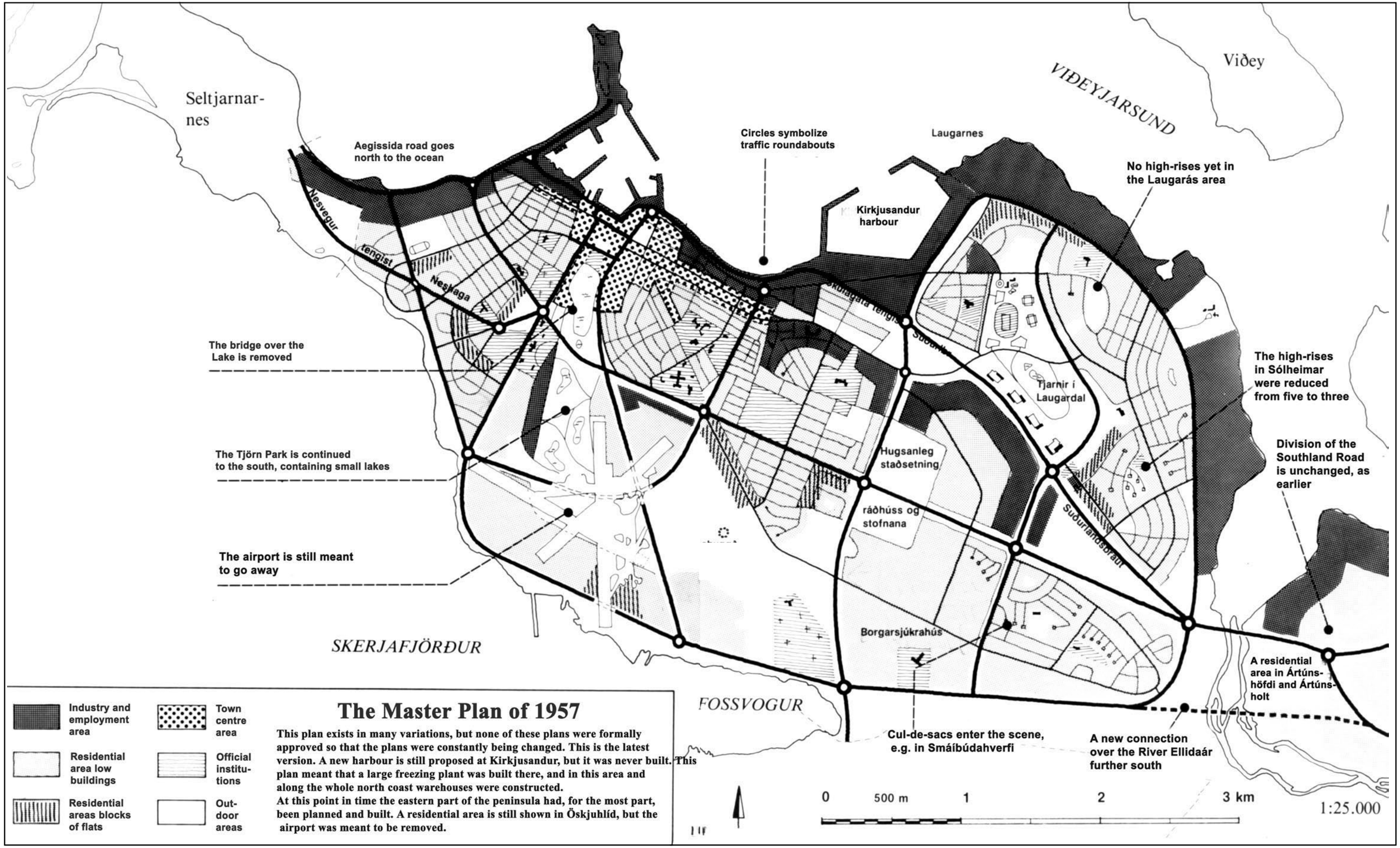
The plan for Hálogaland. Gnodarvogur Street is nearest, with five tall buildings in Sólheimar.

On Háaleitisbraut the blocks of flats were placed diagonally so a view was provided.

Even though these years were very prosperous, this rapid expansion eventually cost the city huge amounts of money because all utilities like sewage, water, electricity and geothermal district heating became so expensive that the city could only just keep up with some of the most primary needs. Paving the streets and extension of the district heating system lagged behind. Later, special programmes were worked out to catch up, called the *Black* and the *Hot Revolutions*, which finally caught up with needs in the mid-1960´s. The *Green Revolution* of 1974 became a later effort in catching up with the need for open spaces.

The 1957 plan adopted the policy of the 1948 plan of building an industrial area all along the north coast. The idea of building a new harbour at Kirkjusandur was therefore developed still further so that various activities that could benefit from the proximity to a harbour were located there. These included a company that imported steel, a processing plant for agricultural goods, a building where now The Iceland Academy of the Arts is located, and the fish freezing plant of Jupiter and Mars, which is now the headquarters of Íslandsbanki (bank).

Hördur Bjarnasson, State Planning Director 1944–54.

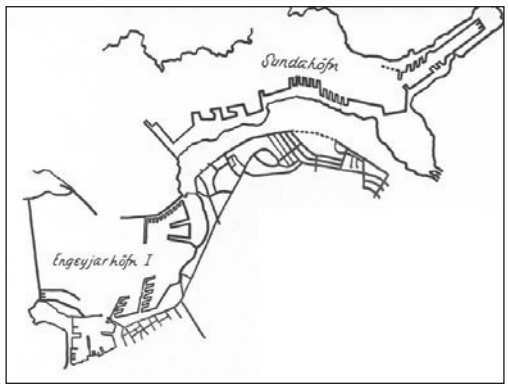


The Master Plan of 1957

This plan exists in many variations, but none of these plans were formally approved so that the plans were constantly being changed. This is the latest version. A new harbour is still proposed at Kirkjusandur, but it was never built. This plan meant that a large freezing plant was built there, and in this area and along the whole north coast warehouses were constructed.

At this point in time the eastern part of the peninsula had, for the most part, been planned and built. A residential area is still shown in Öskjuhlíd, but the airport was meant to be removed.

A freezing plant was built in Kirkjusandur for the proposed harbour. Now it is a bank.



Earlier lack of vision turned to fantasizing in the 1960's: A harbour filling the Sounds.

Anders Nyvig was the main planner of the road system.

Peter Bredsdorff, the main author of the Danish plan.

In only one place on the north coast was there a green area that reach to the coast – the area around the Kleppur Psychiatric Hospital.

The 1957 plan reaches beyond the peninsula to areas east of the River Ellidár. The same policy was followed when the Ártún headland and the north side of Grafarvogur Bay were designated as industrial areas, and residential areas were proposed for Ártún and in Ártúnsholt in higher areas south of Grafavogur.

The layout of the new neighbourhoods in the 1950's was very different from that of old Reykjavík. Here, for the first time, were the building types that have since become almost standard in planning the Capital Area: units of low row houses, detached one family houses, duplexes and blocks of flats, with some residential towers built on the top of the hills.

The great increase in car ownership demanded wide streets and a huge amount of parking space. Because of these large roads the buildings were pulled back, leaving unused green spaces bordering all the larger thoroughfares; recently trees have been planted and earth walls erected for noise protection. This is a huge waste of valuable city footage and a critical contributing factor to urban sprawl.

The arrival of the car, in spite of the many negative aspects, brought many pleasant features for the lives of the citizens. With a private car they could drive to very pleasant areas in the neighbourhood of the city, many of which were fitted very well for outdoor sports and general outdoor activities and enjoy the amenities of skiing on the Hellisheidi, the trees in Heidmörk, and the chance to swim and sail in Nauthólsvík.

Because of the irregular development of the eastern part of the Reykjavík Peninsula (once termed: Seltjarnarnes Peninsula), the buildings in these neighbourhoods have a very varied look. People complained bitterly over the random architecture as development took place during a period that demanded uniformity of appearance.

A newspaper article criticized the situation: "The method of piecemeal planning, and the resulting disharmony between different units of the city and its neighbourhoods, was created because each neighbourhood, or a fraction of it, was planned individually without enough regard for the whole." Today, in post-modernist times, this is seen as a huge advantage.

It can be said of almost all of Reykjavík that it is an assemblage of almost every type of planning and building style. Another contributing factor is that architects and planners have been educated in very different countries because until now there has been no design school in Iceland and on their return they put into practice the various stylistic ideas they had been exposed to.

The result is that, even though the development of Reykjavík, for the most part, is modernistic and fairly uniform, the differing foreign influences and periods mean that the various neighbourhoods in Reykjavík are much livelier than in the suburbs of Scandinavia and Britain, for example, of the same period.

3 The Danish Plan of 1965

At the end of the 1950s it became increasingly clear that the frame of the plan was once more bursting at the seams. This meant that the City of Reykjavík had to grow out of the peninsula to develop new settlement areas. Understandably, this was to most people quite a leap and therefore it was decided to call for a Nordic competition on a future plan.

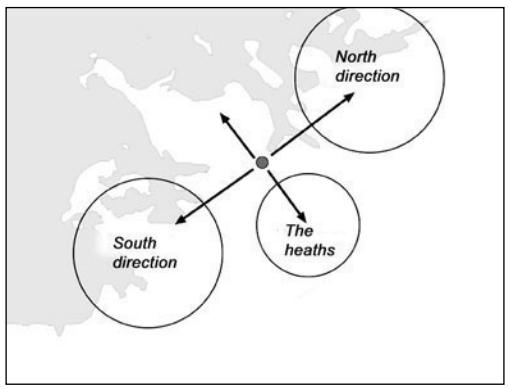
Danish planners were hired to set up the competition but in the end people decided to hire them for the planning. The main question in the beginning was in which direction the main thrust of development should be directed – primarily meaning residential areas and related activities. There were three alternatives: south, north (Úlfarsfell area) and the heaths.

For a long time planners had agreed that the most sensible policy would be to build south, in other words, to condense the settlement areas between the largest original centres, Reykjavík and Hafnarfjördur. However, the fact that the area had been divided into different jurisdictions so that the City of Reykjavík did not have the right to the land was a stumbling block to development.

In spite of this, collaboration in studying planning ideas for the whole Capital Area were initiated, only to founder on the negative attitudes of the "little kings" involved, who were certainly not ready to take the steps necessary to work towards co-operative development of this area. What was needed was financial unification of these communities, which would still have left open the possibility for independent operation in many other fields.

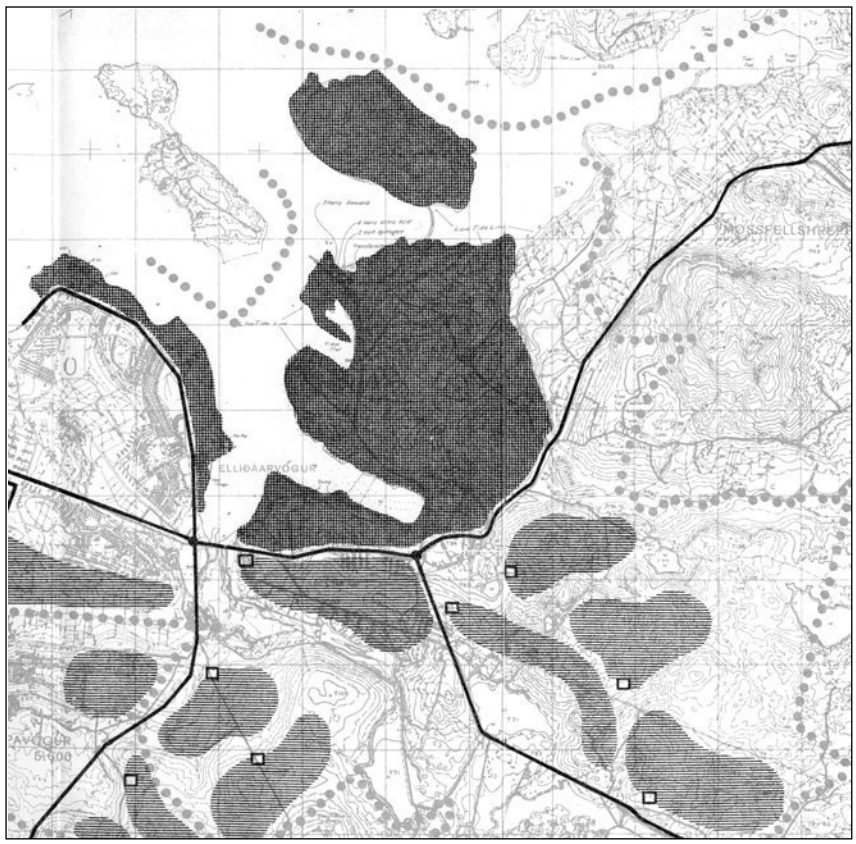
No agreement was reached on steps towards unification. When a similar situation arises in other countries, the state may intervene by passing a law requiring co-operation or unification, but this did not happen in Iceland.

If urban areas in large cities are governed by many independent communities this means endless governmental and planning problems. The most frequent scheme is that some independence is usually granted to these communities. Berlin, for example, has sixteen



When the cape where Reykjavík is built was full, there were three possible directions to go.

The road up to Rjúpnahaed above Breidholt before the neighbourhood was built.



The original sketch of the Danish planners, which led to settlements moving up on the heaths. The centres are away from the centre of the neighbourhoods.

The plan of 1965 proposed Geldinganes for industry. An oil refinery was even considered.

city districts, each with its own city council and mayor and topped by a supreme city council and a head mayor.

The second alternative for the direction of future development would have been to go north to the Úlfarsfell area. Factors that stood in the way of this alternative were the over-blown harbour ideas, which were incorporated in the Danish plan of 1965, as it was adopted by the City Council.

This plan presented a land-use map where almost all the area north of Grafarvogur Bay and on the Geldinganes Peninsula was to be a harbour and industrial area. Even an oil refinery was discussed for the Geldinganes Peninsula until as late as about 1972.

What was left, in terms of a future direction, was the third and worst alternative, i.e., to build residential areas up to the heaths. The Danes seem to have had a remarkable love for the flat highlands, as can be seen on a map on the previous page.

People did not seem to realize that there were certain weather problems at that altitude, nor did they seem to have a realization of the natural beauty of the low lying coastal areas by the Sounds. Today we Icelanders have finally started to appreciate them and now see that they are unique.

Another main aspect of the plan, the airport question, also went wrong. A report by an airport commission advised removal of the airport from its current location. No agreement was reached, however, because people had the bad luck of pointing out, as the main alternative, an airport site on the Álftanes Peninsula.

This alternative was in fact very unrealistic because Álftanes is a very valuable building area. Furthermore, this became a sensitive matter because the presidential abode of Bessastadir, with its historic significance, would then have to be moved elsewhere. It was not until 1974 that the minister in charge of planning finally disposed of this unfortunate proposal. This bad alternative had a damaging effect because a necessary and realistic take on the airport issue was not reached.

Two other options for an airport site were also researched, in the Kapelluhraun lava and the Gardahraun lava, and in 1974 an additional proposal was made for a site on the landfill on the very shallow waters in the middle of Skerjafjördur Fjord.

One of the most outstanding characteristics of the Danish planning proposals was how sharply they divided areas according to land use. One of the results was the establishing of bedroom areas on Breidholt Hill far away from most work places. The inescapable result of such a plan is the need for huge traffic arteries between home and work.

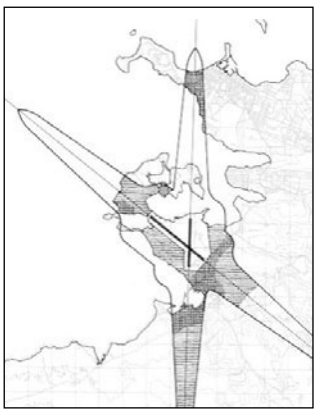
It made matters still worse that the private car was accorded special privilege and one of the few clear policy statements by the City Council was that "…as much recognition as possible should be given to the desire of the people to possess their own car and to be able to go themselves wherever they want." The City Council unanimously endorsed this policy.

The Danish plans show very wide city thoroughfares. The Miklabraut Avenue, for example, is shown with eight traffic lanes and at the nine traffic junctions, nine overpasses are shown.

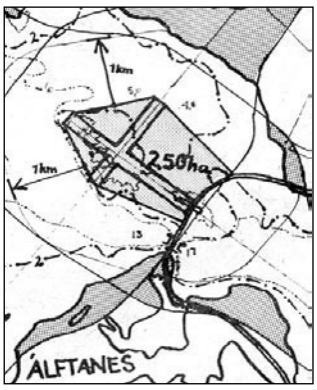
This plan is somewhat misleading because everywhere at these overpasses diamond junctions that take little space are drafted. This junction type reduces the capacity of the crossings so that today people, in most places, have resorted to cloverleaf intersections, with big loops for intersecting traffic. This type of crossing takes a great deal of space and therefore contributes to further urban sprawl.

It is hard to fully realize what kind of destruction would have occurred in the old city centre if the planning ideas of the master plan of 1965 had been followed through.

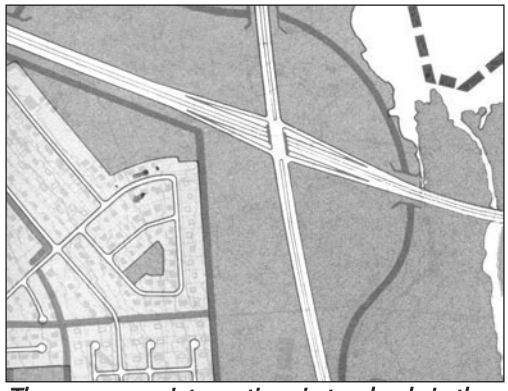
Here only one of the main arteries that were to be pushed through the downtown area will be described. This was to be a continuous wide road from Túngata Street in the west, passing over a section of Austurvöllur Square in front of the parliament building before continuing up the hill and into Grettisgata Street. There the



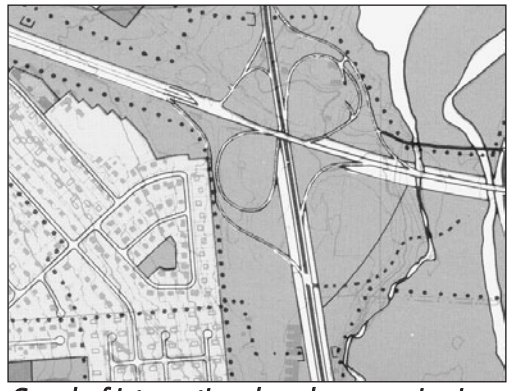
One of the airport options was placed in Gardahraun.



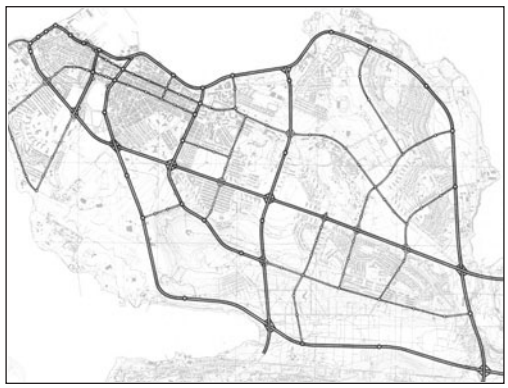
An idea for an airport in Löngusker from 1974.



There are many intersections in two levels in the 1965 plan. They are only shown as diamonds.



Coverleaf intersections have been growing in number and are very space-consuming.



The Danish Plan: A net of primary and secondary roads. Fossvogur road was heavily disputed.

The 1965 road system. A channel for a primary road was to run through downtown.

whole row of buildings on the north side of Grettisgata Street was to be torn down to allow the thoroughfare to pass all the way to Snorrabraut Street, where it was intended to end.

Commerce was a big issue in the planning. An estimation was made of how much commercial space was needed, which turned out to be an overestimation. The planners opposed tearing down a great number of older buildings in the downtown area as providing unneeded space, but also proposed a new city centre in Kringlumýri Moor where the Kringla shopping mall now stands. This idea of a new centre had some positive features; importantly, it reduced the need for the enlargement of traffic lanes into the old town centre.

The construction of the New City Centre was unfortunately delayed so that commercial activities that should have been constructed there started to spread all over town, chiefly to Sudurlandsbraut Road and the industrial housing that had been built in the Skeifan area with the help from a Nordic fund for industrial development. Because of this, the development of a strong commercial centre in Reykjavík did not materialize. This means that people now have to go all over the city, in their cars, to shop.

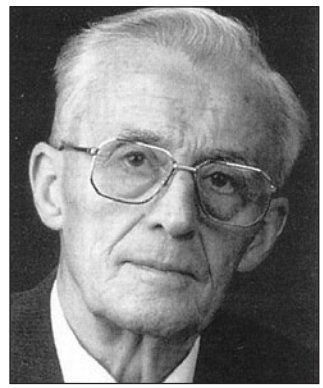
The Danish plan was in many ways a child of its time, but it should be noted that already in the late 1960's foreign countries had been burnt so badly by the car and the planning of bedroom neighbourhoods that such planning had already become an anachronism when it was adopted in Iceland. This is similar to what had happened earlier to the plans of 1927 and 1937.

These examples show us how important it is to keep up with the latest developments in planning in the world and, as a matter of fact, research on the future has become accepted as an important factor in all planning activity.

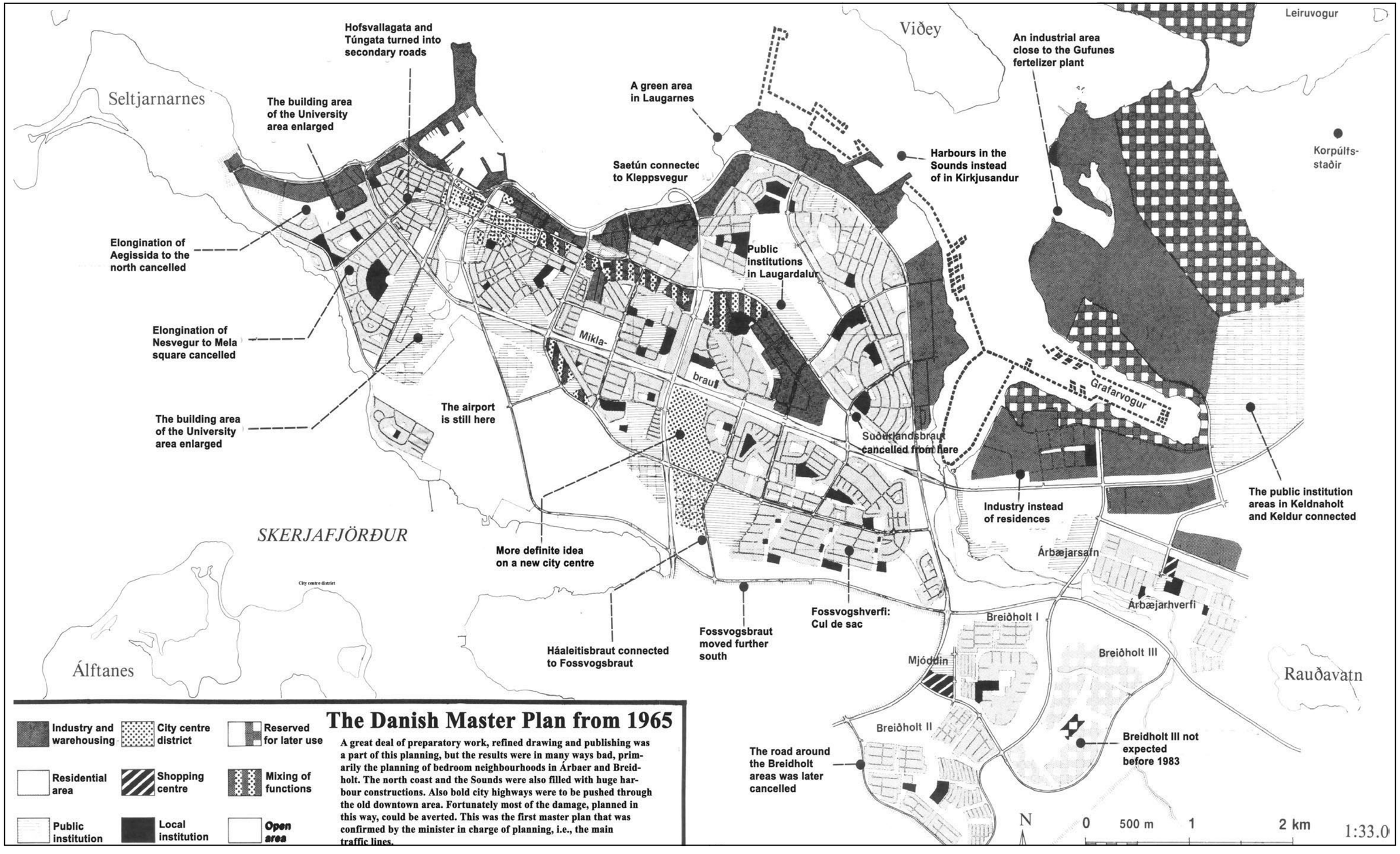
Fortunately, the worst damage to the environment and the housing in the old part of town was averted, not least because of the work of the ideologists Thorsteinn Gunnarsson and Hördur Ágústsson.

Suggestions, however, urging the conservation of old buildings can be traced even further back. One of the sharpest critics was headmaster Einar Magnússon, who objected to the

Gústaf E. Pálsson managed the planning work.



Einar B. Pálssson was the main link to the Danes.


Seltjarnarnes
Hofsvallagata and Túngata turned into secondary roads
The building area of the University area enlarged
Elongination of Aegissida to the north cancelled
Elongination of Nesvegur to Mela square cancelled
The building area of the University area enlarged
The airport is still here
A green area in Laugarnes
Saetún connected to Kleppsvegur
Public institutions in Laugardalur
Mikla-
braut
Viðey
Leiruvogur
An industrial area close to the Gufunes fertelizer plant
Harbours in the Sounds instead of in Kirkjusandur
Korpúlfs-staðir
Grafarvogur
Suðurlandsbraut cancelled from here
Industry instead of residences
The public institution areas in Keldnaholt and Keldur connected
Árbæjarsafn
Árbæjarhverfi
SKERJAFJÖRÐUR
More definite idea on a new city centre
City centre district
Háaleitisbraut connected to Fossvogsbraut
Fossvogsbraut moved further south
Fossvogshverfi: Cul de sac
Breiðholt I
Breiðholt III
Mjóddin
Breiðholt II
Rauðavatn
Álftanes
The road around the Breidholt areas was later cancelled
Breidholt III not expected before 1983
Industry and warehousing
City centre district
Reserved for later use
Residential area
Shopping centre
Mixing of functions
Public institution
Local institution
Open area
The Danish Master Plan from 1965
A great deal of preparatory work, refined drawing and publishing was a part of this planning, but the results were in many ways bad, primarily the planning of bedroom neighbourhoods in Árbaer and Breidholt. The north coast and the Sounds were also filled with huge harbour constructions. Also bold city highways were to be pushed through the old downtown area. Fortunately most of the damage, planned in this way, could be averted. This was the first master plan that was confirmed by the minister in charge of planning, i.e., the main traffic lines.
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The contrast between the "River Farm" Museum and blocks of flats is stark.

idea of building a City Hall by the Lake and moving away, or tearing down, the old Latin School in 1948, by then called the Upper Secondary School. In the end the school was not moved. The cultural and environmental salvaging influenced by these two men will probably never be fully appreciated.

The awakening of conservation and environmental concerns that started in 1965 can in some ways be traced to the Hippy Movement. This movement altered our vision towards many issues such as heavy industry, highways for private cars, and blocks of modernistic concrete constructions that people were quite fond of at the time.

The seven-year story of the 1965 Danish plan, as it was adopted by the City Council, till 1972 as the development of the Planning Office was established is a story of a breakdown of the value system that the entire plan was based on.

Let us now turn to the detail planning of the new residential areas and how they were built. The Danish master plan proposed building neighbourhoods in Árbaer and Breidholt, as described earlier.

The planning of these neighbourhoods was mechanistic in that they were cut off from their environment with traffic lanes, and there was a very typical shopping mall, Mjóddin, placed by the highway at the edge of Breidholt. If this shopping area had been placed in the middle of Breidholt it could have been reached on foot by most of the inhabitants in the whole neighbourhood. This placement could also have been made it livelier.

The authors of the detail plans realized too late the main mistakes of the master plan. It was not until 1975 that people tried to relieve some of the monotony in these neighbourhoods, for example by trying to add workplaces. This did not quite work out because it is hard to make changes in a plan after the fact.

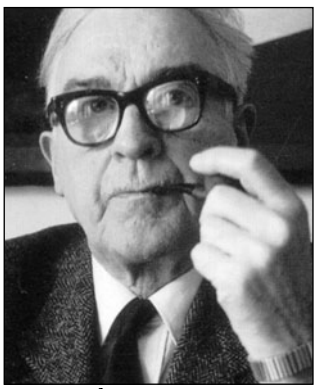
Monotony is one of many difficulties that architects and planners have had to deal with in the world of planning in recent decades. In many places the mechanized production processes in building have made it hard for architects to create variations within the narrow constraints the technique imposes.

As the Fossvogur neighbourhood was built in 1965 this monotony was actually totally turned around. At that time the building method still was simple carpenter work, applying no prefabrication methods, a method that allows total freedom. In spite of this, a plan for this neighbourhood was created that prescribed that the architects make all the blocks almost identical. That this can be traced to Scandinavian monotony is very apparent as a Nordic competition was held to plan this neighbourhood.

The first suburb east of the River Ellidaár was the Árbaer, built in 1965-70. The Bakkar and Stekkir neighbourhoods in Breidholt were then built in 1967-72. The building of the Hólar and Fell neighbourhoods in Breidholt III started in 1970 and in the Sel neighbourhood in Breidholt II in 1974.

The last two neighbourhoods mentioned were completed in 1982. Little improvement occurred in the way these residential areas were designed and built and the blocks of flats were still "drawn with a ruler". Worst are the eight storey blocks in Breidholt III. On the other hand, some positive experiments were made with dense, low settlements in the newer parts of Breidholt II and III.

The most positive feature about the planning in Breidholt was an increased emphasis on separating car traffic from pedestrian pavements, the best success being reached in the Bakkar neighbourhood.



Hördur Ágústsson was the pioneer in preservation.

Thorsteinn Gunnarsson worked with Ágústsson.

4 The Reykjavik Development Office

In the winter of 1971-72 the City Council decided to establish *The Development Office* to oversee planning; the office started operations in the autumn of 1972. The main reasons for the establishment of The Development Office were three: a foreseeable shortage in the building of residential areas after 1980, changed visions in planning, and the re-awakening of an older idea to establish an office that would be in charge of the implementation of plans.

Here, again, an older plan was bursting at its seams. This time it was not an excessive increase in population but rather the still growing demands of the citizens for more living space. This need for added space mostly appeared in the thinning of residential neighbourhoods.

A point in this case is that in the period that the Breidholt suburbs were built, with their 20,000 inhabitants, the population of Reykjavík only grew by about 5,000. This meant that the number of inhabitants in the older parts of Reykjavík had been reduced by 15,000, mainly because people could now afford to live in larger spaces.

The 1965 Danish plan predicted a great increase in the population of Reykjavík to 108,000 in 1983. In spite of this the plan suggested that one of the three Breidholt neighbourhoods would still not be built. This shows how the Danish planners had not realized – and had not included in their calculations – the thinning of older residential areas.

The result of this was an underestimation of how large residential areas were needed to be at the end of the planning period in 1983. Again Reykjavík was in the situation where a decision on planning new residential areas was needed many years before the planning period was over.

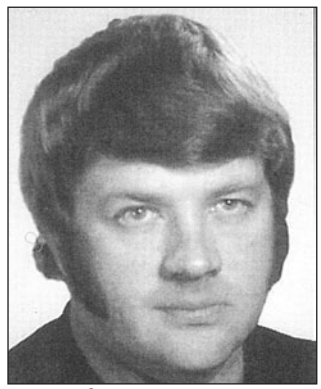
The Danish plan offered no advice on where to go after 1983. People probably assumed that in due time the communities in the Capital Area would co-operate and development toward the south would become feasible in time to produce the needed residences.

The reality was a pressing need and no time to instrument a co-operative solution to the problem. The only alternative available was to plan for and build in the Úlfarsfell area. A second reason why the Development Office was established was the changes in views concerning such matters as conservation and traffic, as described in the previous section.

As the 1965 plan was finished most people thought that there would not be a need to work on a master plan for the next couple of decades. At this time the idea surfaced of creating a Development Office, though primarily meant for developing or implementing the "ambitious" plans of 1965 and thus giving rise to the name of the new office.

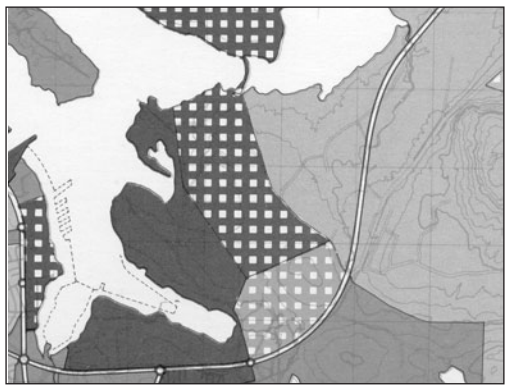
How much development and implementation plans are linked to the actual planning offices varies. In some foreign countries they are independent offices sometimes linked to the office of the mayor. This development aspect of planning is very important and reduces the probabilities that a plan is not implemented because of too unrealistic ambitions, as has often been the case in Iceland. Because of this legislation on planning should include the obligation to account for financial factors involved in implementing a plan.

That the Development Office did not start operation right after 1965 was both positive and



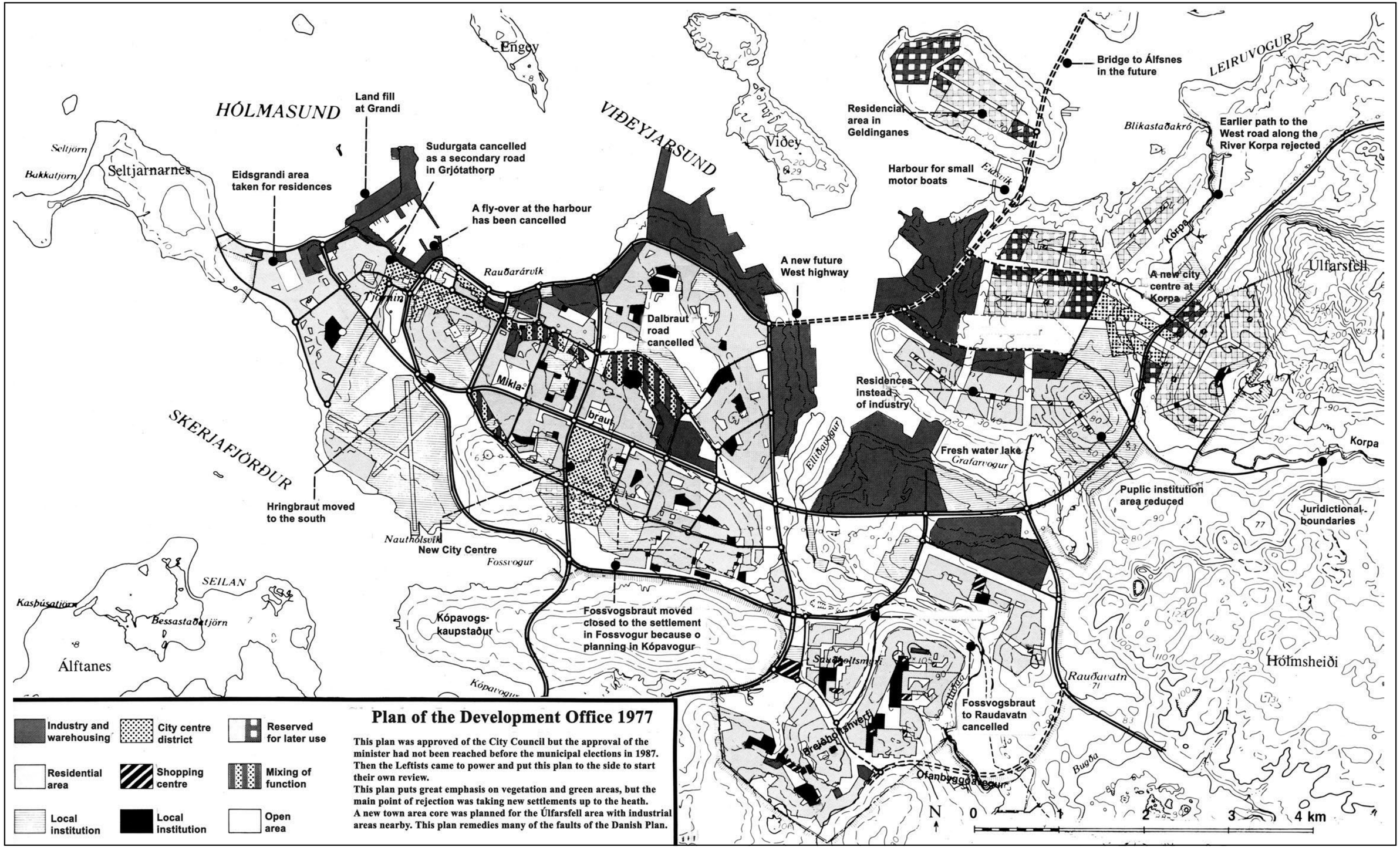
Hilmar Ólafsson, the head of the Development Office, 1972–78.

According to the Danish plan building in Breidholt III was not to have started in 1983.



At the start of the Development Office industrial areas were shown in the Úlfarsfell area.

Thórdur Th. Thorbjarnarson managed the technical side.



Industry and warehousing

City centre district

Reserved for later use

Residential area

Shopping centre

Mixing of function

Local institution

Local institution

Open area

Plan of the Development Office 1977

This plan was approved of the City Council but the approval of the minister had not been reached before the municipal elections in 1987. Then the Leftists came to power and put this plan to the side to start their own review.

This plan puts great emphasis on vegetation and green areas, but the main point of rejection was taking new settlements up to the heath.

A new town area core was planned for the Úlfarsfell area with industrial areas nearby. This plan remedies many of the faults of the Danish Plan.

negative – positive especially as concerns the downtown area in the sense that the proposed colossal traffic programme was not further implemented.

After the adoption of the 1965 plan, preparatory measures were under way in downtown Reykjavík. The City, for instance, bought dozens of buildings and had them torn down to comply with plans for main thoroughfares, some highly remarkable. Furthermore, some very expensive projects were started, like the part of the harbour fly-over that is now the roof of the Kolaport flea market, a fly-over that never will be used for anything.

This shows how much wrong conceptions in planning can cost, in addition to the destruction of cultural values. The direct financial loss to Reykjavík because of this misguided traffic plan was, at this time, the equivalent of 100 to 200 single family houses.

In another case, the delay in construction of the New City Centre in Kringlumýri Moor had bad consequences. The construction finally started in the mid-1980's when it was already too late to build a large commercial district there because by then commercial activity been scattered all round town.

One of the reasons why the New City Centre project was not started in the 1970's was that the detail plans were too ambitious and elaborate, and also because a flaw in the plan made it hard to get started in small steps.

The Leftists did not have much interest in this commercial centre and therefore they stopped further development of the project on the eve of its implementation, but the foundations of the streets and the sewage lines called for in the detail plan had already been laid.

Despite the abrupt beginning of the Development Office and the failure of previous attempts at establishing a co-operative effort involving the communities around Reykjavík, a few steps in this direction were taken when, for example, *The Union of Communities in the Capital Area* was established in 1976 and also in 1978 when an agreement was reached on the establishing a common planning office.

Because of the lack of some kind of union among the communities the work on planning at the Development Office started without having the whole picture of the Capital Area in mind. As no common planning agency existed the Development Office carried out some research on the whole area on its own. The first of these was the making of transparencies presenting the natural features in the whole area. The office started rethinking the main transportation lines in the Capital Area.

The main problems, the office discovered, were the bad traffic connections between the south and the north areas at Úlfarsfell and in Mosfellssveit. This led to the idea of the Above-the-Settlement Highway.

Another failure that the office felt was intolerable was that the West Country Road, going through the northern part of the Capital Area, should cross the salmon river Korpa three times (see map on p. 174). In addition, future traffic on this highway was bound to mean a great deal of disturbance in the Mosfellssveit community.

This led the Development Office to offer the possibility that a New West Country Road could go over Ellidaár Bay at Kleppur, and from there to Gufunes and Geldinganes and with another bridge over to the Álfsnes Peninsula.

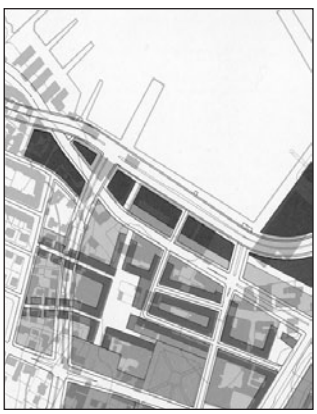
This road, that has not yet been built, is called the Bay Highway (Sundabraut). The office was also dissatisfied with the idea about a road that was intended to go through the Hamrahlídarlönd area and therefore moved it into the shadow of Grafarholt south of the River Korpa.

Soon, work on the planning of the Úlfarsfell area started. The first step was to analyse the natural features in the area on transparencies. This was, at the time, a novelty. This type of study should be a sine qua non in planning, i.e., to start by researching what are the conditions in a given area and shape the settlement accordingly. Among the features that need to be studied are: depth of soil, geological fault lines and rifts, areas of total shadow, and noise areas from highways.

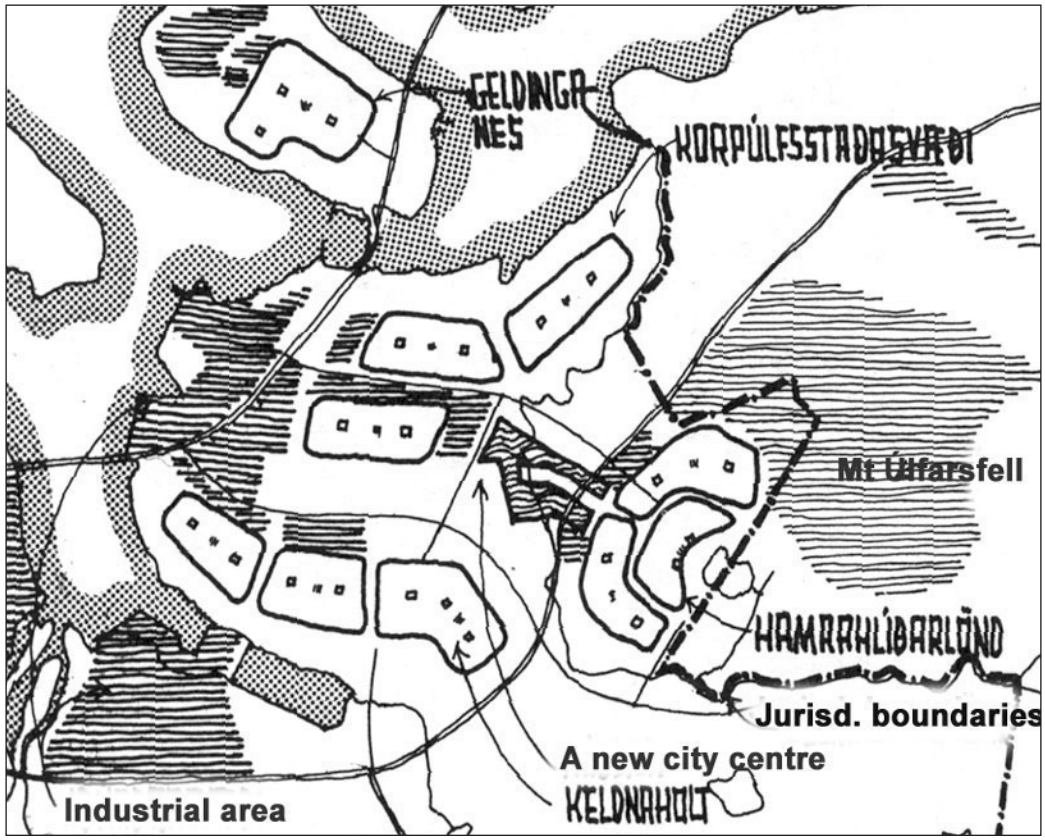
Because of little connection of this new building area to the older parts of town it was obvious that the addition of new bedroom neighbourhoods, as laid out in the old scheme, was not a good idea.

The office proposed that this area should rather be planned as an independent town. Therefore a city centre was proposed in the centre of an area that was suitable for connecting the residential areas together. It also was made a priority that work areas were connected directly to the residential areas that were planned for 40-45,000 inhabitants when they were finished.

Let us now turn to the detail plans of older neighbourhoods. There the office made many changes. In the traffic system grid some of the



A fly-over was to be built over the main harbour area.



Main charactheristics of the Úlfarsfell plan: A town centre functions as a "bridge" over the River Korpa and the Westland highway. The road to the east is south of the river and thus does not separate mountain and settlement.

highways were abolished, for example in the Grjótathorp area and at the harbour. In the eastern part of Reykjavík a part of the Fossvogur highway was abolished, i.e., along the River Ellidaár from Höfdabakki Road up to Lake Raudavatn.

The office changed designated land use in many places. Among other things, the industrial areas on Eidsgrandi were changed to a residential area, a move creating a policy towards moving industry out of the north coast area. In a revised detail plan for the Old Town Centre, connecting roads were abolished and more concern for conservation entered the picture.

Although the Development Office often agreed with the new value systems that were emerging in society, in some cases it became on the defensive and even had to back off or abandon some projects because of the complaints of conservationists.

Examples are the Central Bank building that was planned for the northwestern side of Arnarhóll and a detail plan for Grjótathorp that did not go far enough in terms of conservation. These projects were, as many others, in private hands.

One of the most important projects of the Development Office was an incentive improvement in environmental matters. A preliminary report was written in 1973 and the following year the ruling Independence Party made this the main issue of the city elections. In preparation a *Program on Environment and Outdoor Life,* later called the *Green Revolution*, was put together.

Important aspects included a system of paths for cycling and pony trekking in the city, although original ideas for such a system of paths had already appeared in the 1965 plan. The program introduced many original ideas, a design concept for the various open spaces in the City was agreed, and a landscape plan made for many of them.

The Green Revolution of '74 started environmental planning.

5 The Reykjavik Planning Office

The Conservatives had formed a rather clear planning policy in 1978 or shortly before the Leftist Party took over the City Council for the first time. Various large projects had reached the final stage of preparation and would, very likely, have been implemented if the Conservatives had remained in power. The largest of these projects were: 1. A rebuilding project for the Skúlagata area, 2. A commercial area in the New City Centre and 3. New residential areas in the Grafarvogur Bay area.

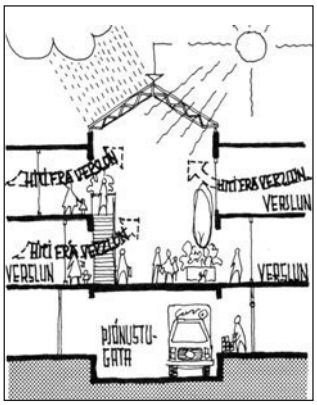
All these projects were stopped because of the new planning policy of the Leftists. Therefore, for example, the project of building a residential area in Skúlagata was stopped. Because these projects were stopped, the need for new residential areas north and east of Grafarvogur Bay was more urgent than before. As the Leftists wanted to start the project at Grafarvogur Bay they realized that a dispute caused by the nearness of the virus research centre at Keldur was still unresolved. Furthermore, an exchange of land in this area, among other things, the land of the Gufunes Radio Station owned by the state, was not yet completed. This meant that the Leftists started to look towards the Raudavatn area for the next residential area. Because of this new situation and a new planning policy, a new master plan was published before the election in 1982. The eastern part of this plan is published on the facing page.

Shortly before the elections the planning of the next residential area in the Raudavatn region was announced. Then came the big bomb: the Conservatives published a map showing rifts in the bedrock in that area. This map showed that the planning had not been carried out with enough consideration for the fault problem. This was quite a mistake, even though it actually would have been rather easy to make changes in the plan to make sure that buildings were not placed over the fault lines. This failure and disputes over planning in general were the major reason why the Leftists lost their majority vote in the election.

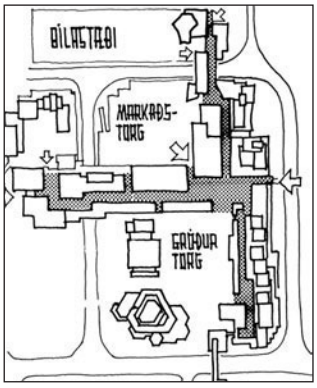
After the election the Conservatives revived the three large projects that the Leftists had put aside or started to change. The first issue that was revived was the detail plans of the Skúlagata area that had been published in 1975. There the floor/area ratio was proposed to be 1.5 and could be raised to 1 if the buildings were meant for residents. This clause was added because it was considered positive to increase the proportion of flats in that area. This proposal excited a wave of protest centred mostly on the rather high ratio.

Looking at this now it is clear that people were too concerned with dangers connected with the high floor/area ratio because of a misunderstanding of who would occupy the flats. Usually very few families with children live in such residential areas. Instead, most of the inhabitants are elderly people, couples with no children or single people, and therefore there is less demand for outdoor areas.

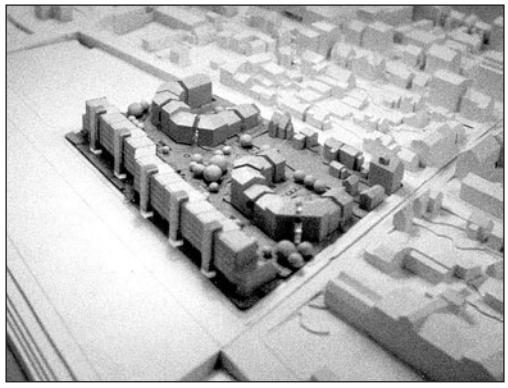
All over the world city flats have become popular, whereas the interest in suburban areas has been somewhat on the decline. It was therefore completely logical that the city should try to respond to the wishes of the citizens who wanted to occupy flats in the older parts of town. The concept of condensing the town, as a matter of fact, also had become a policy of the Leftists, but paradoxically the Conservatives,



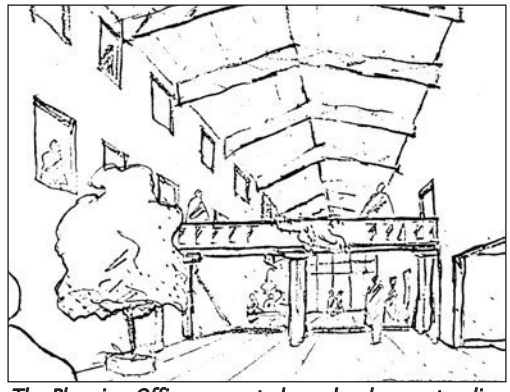
An old Kringla plan: a pedestrian street section.



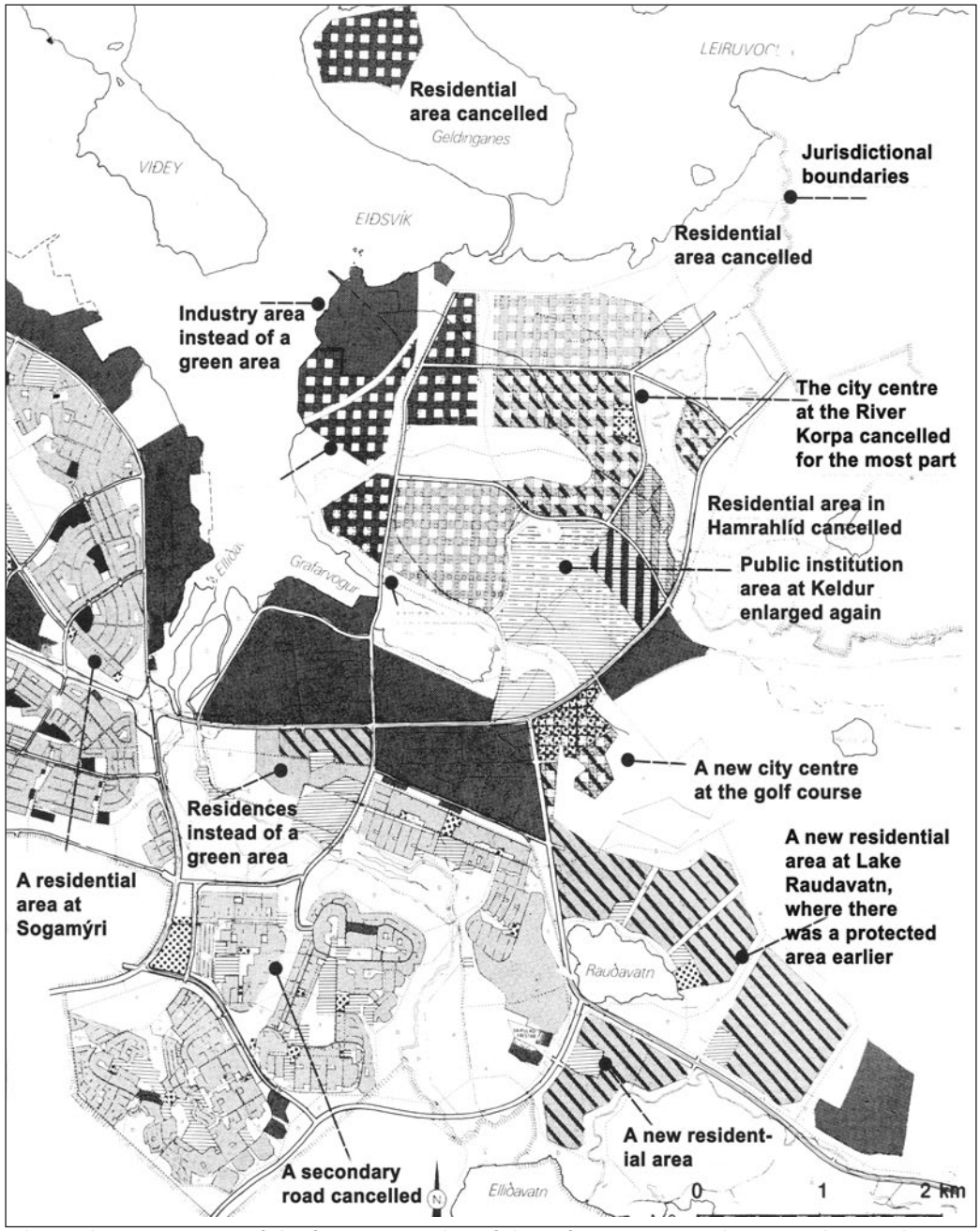
These grey pedestrian streets were to be covered.



One of the plan proposals of the Conservatives for a dense settlement at Skúlagata.



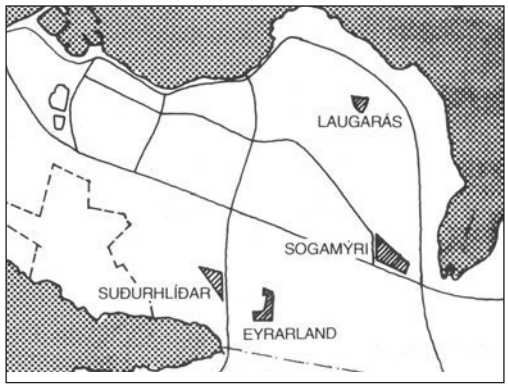
The Planning Office presented a redevelopment policy, e.g., turning a fish plant into a covered street.



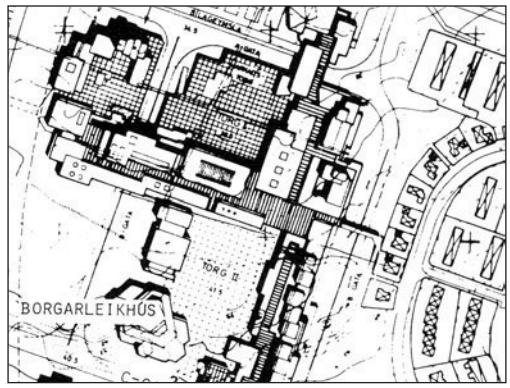
This is the eastern part of the first master plan of the Leftists in 1982. The text indicates changes made in this plan compared to the 1977 plan (pages 150–151).

In their 1982 plan the Leftists made many alterations – primarly by going away from the shores with the settlements to the Raudavatn Lake.
After the elections in the spring in 1982, the Conservatives changed the planning policy again to their earlier coastal policy.

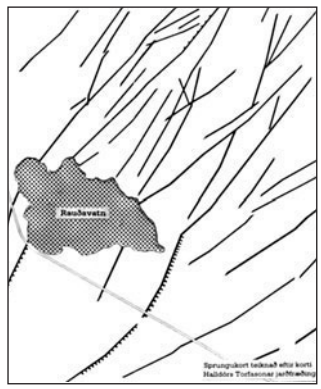
Gudrún Jónsdóttir, Director of Planning, 1979–84.



The Leftists started a policy of densifying settlements, but the Conservatives turned against it.



The Leftists continued with the Kringla plan, but the Conservatives later had a mall designed in its place.

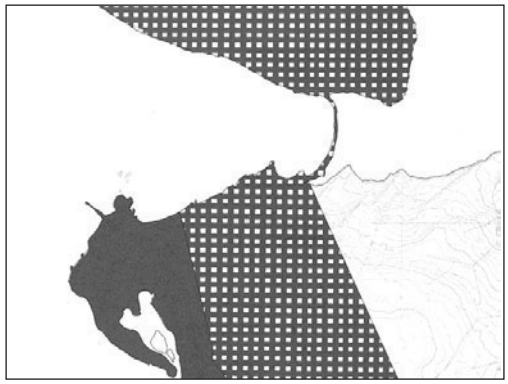


This fissure map influenced the elections in 1982.

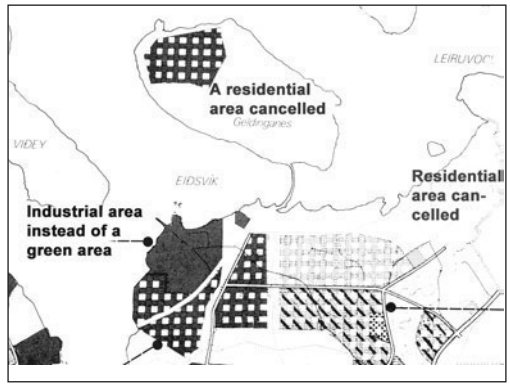
The masterplan of the Reykjavík Planning Office in 1988

As the Conservatives came back to power in 1982 they rejected most of the changes, the Leftists had planned for.
This new master plan is quite similar to the ir earlier plan of 1977 (p.150–151).
The resedential area of Keldnaholt is, however, left out because of an unresolved dispute to the Keldur research centre.
The Geldinganes penninsula is a mixture of residenses and industries and heavy industrie at Gufunes is reduced. The ideas of the Leftists; to create a centre at the Golf course, as well as a resedential area at Raudavatn Lake were abandoned.
The green areas at the coasts are reduced in size and the settlements moved closer to the coastline.

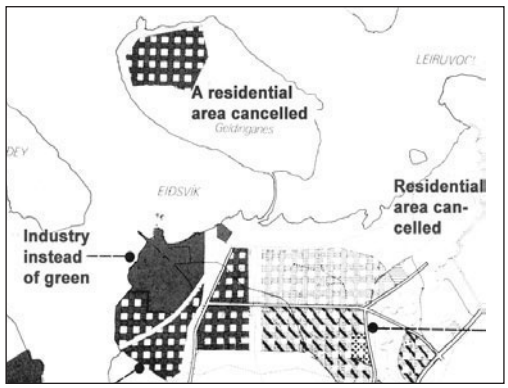
These four maps and the large map on the other page present the planning ideas dominant for Geldinganes and its vicinity from 1965–1992.
All these pictures are taken from the master plans of each period. A later chapter, on page 397, explains the newest ideas.
Dark grey represents industries, light grey residential areas. Solid colour signifies ideas to be realized in the planning period in question, and the chequered spaces ideas to be realized after the period. Stripes indicate mixed land uses.



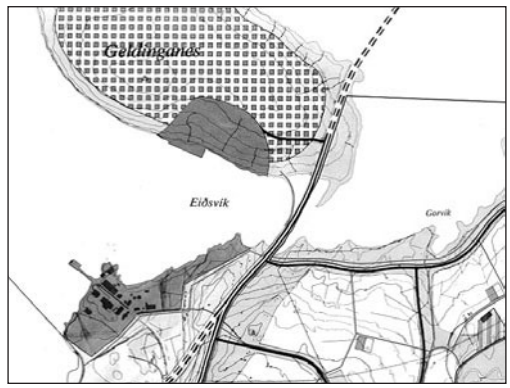
In the 1965 plan, only industry is proposed in this area.



The 1977 plan proposed a residential area in the middle of Geldinganes, but industry at its tip



The 1982 plan abandoned the idea of a residential area and delayed decisions until later.



Plan 1988 presents industries at the Eidsvik Inlet. The penninsula has mixed land use.

during their reign of power, turned against increased density.

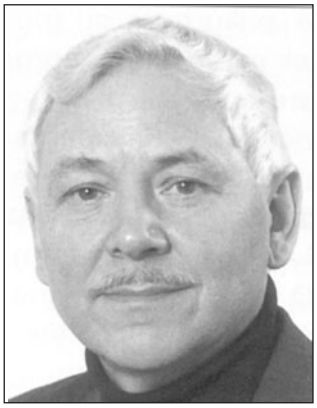
Another large project that caused disputes in the autumn of 1983 was the idea of building a shopping centre in the proposed New City Centre of the Kringla area. What mainly caused the dispute was the fear of the Leftists that there would be excessive investment in commercial space and also dissatisfaction with the development of shopping malls. The Conservatives argued that it would be impossible to stand up against their development because the shopping malls could offer lower prices. But certainly more planning problems go with this kind of commercial centre, such as increased traffic, the death of neighbourhood shopping and often also an uglier environment.

The Conservatives soon started to prepare a new master plan for 1984-2004. That plan was approved in 1988 and is shown in the previous broadsheet spread. In this plan the twenty-year planning period was divided into two halves and the main emphasis put on the first half, i.e., the period 1984-1994.

In addition to this it was decided that the plan should be reviewed every four years at the beginning of every new elected city government. In reality this has turned out somewhat differently because the publishing of the review has most often dragged to the end of the term of office so that today a recently approved master plan is most commonly introduced in the winter before the new city elections, and then of course as a planning policy for the majority for the next term of office and for the future.

The negative aspect about letting the announcement of the plan drag until shortly before elections is that then the politicians most commonly have become so wary of the views of the electorate so close to the elections that they hesitate to introduce necessary planning measures in case they turn out to be unpopular. Because of this it might be better to ban the announcement of master plans later than two years before the next election.

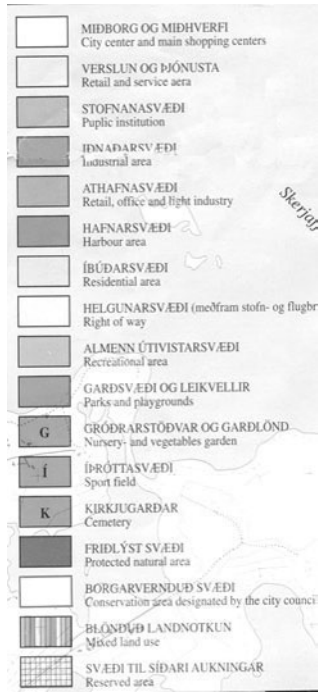
Let us now look at how ideas in the 1986 plan turned out in terms of residential areas. The plan abolished all ideas of building in the Raudavatn area and instead returned to the earlier policy of using the lower lying areas close to the coast – now in the vicinity of Korpúlfsstadir. In the new plan some industry is shown on the Geldinganes Peninsula; however, further decisions about Geldinganes were

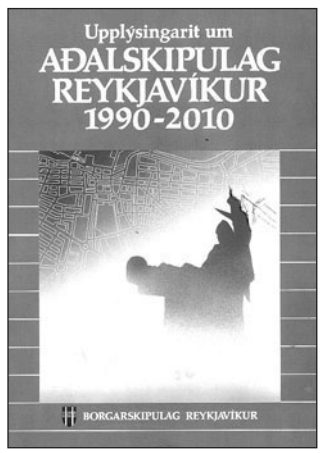


Thorvaldur Thorvaldsson, Director of planning, 1984–2002.

The eastern part of the last main plan proposal of the Independence Party before the left wing parties took charge of the city in 1992.

The 1992 plan shows, for the first time, a large harbour in the Eidsvík Inlet and backland large harbour areas connected to it, both in Geldinganes and in Gufunes. Most of Gufunes, however, has residential areas, but mixed commercial at the Sound Highway. The black dots signify grade separated intersections.





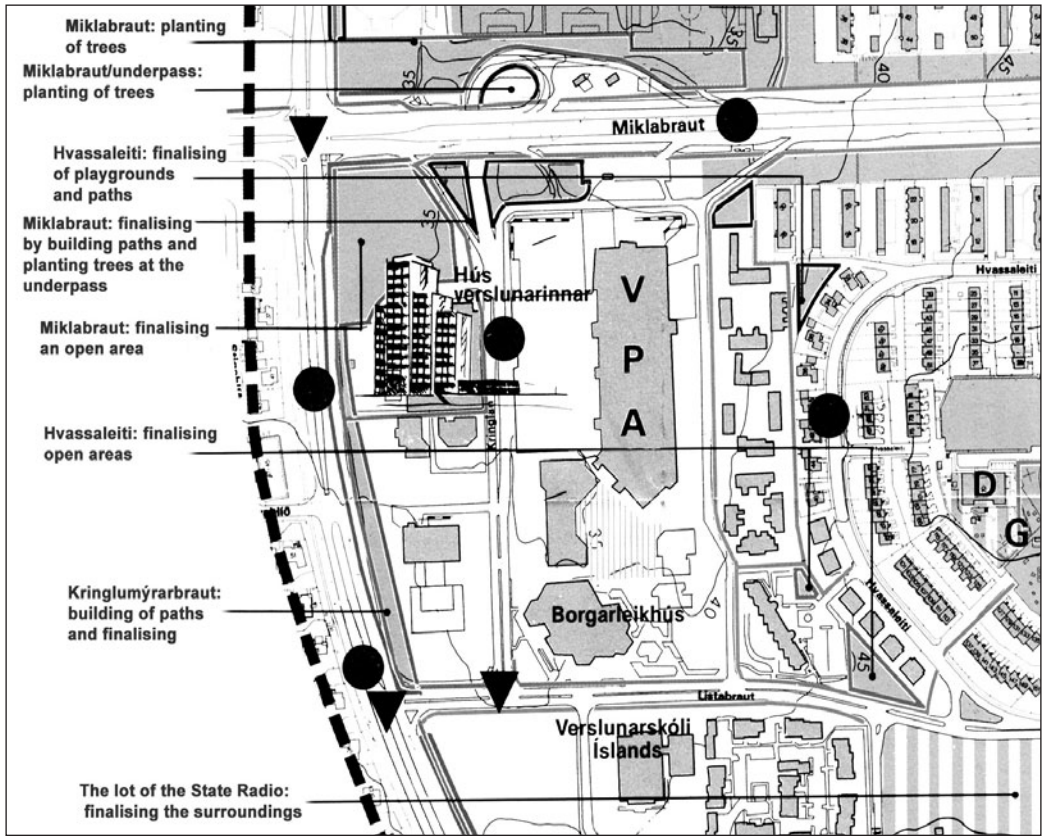
Information booklet on the master plan of 1992.

delayed, though indications were given that the area might be used only for industry.

After the city council elections in 1990 the plan was again reviewed because of the requirement for a review every four years and published as a new master plan valid for 1990-2010. This new plan was approved by the City Council in 1991 and approved the following year by the minister in charge of planning. One of the main novelties of that plan is that again the Geldinganes Peninsula is proposed as a largely residential area and the Conservatives had held a competition for a detail plan for the area.

As the Leftists came to power for the second time in 1994, they put a new large harbour in the plan for the Eidsvík inlet. They also increased the industrial areas on the south slope of Geldinganes and started a gravel quarry there. Somewhat later the Conservatives started to express their doubts as to whether it was right to use Eidsvík for a huge harbour because this would mean that the possibility for an outstanding residential area in the Geldinganes area would be irreparably damaged because the harbour and the industrial area would spoil the view.

This is a part of a neighbourhood plan from 1988. It shows the Kringla Mall and its vicinity. V represents shops, P a postal office and A a pharmacy.



Reykjavík started to work with neighbourhood plans in the 1980's. It bridges the gap between the rather schematic master plan and the technical detail plan, and fits well for presenting planning ideas.

The problem of Eidsvík and Geldinganes again became one of the main election issues in the spring of 2002, the arguments on both sides being similar. The debate on planning at this election will be described in the section that starts on page 390. There the main characteristics of the master plan of 1997 for these eastern areas will be reviewed, followed by a discussion of the plan proposal of 2002.

One of the biggest "technical" problems in the planning work in Reykjavík and other large communities is how wide a gap there often is between the very general frame provided by the master plan and the detail plans of the various neighbourhoods. Therefore a new intermediate planning level was introduced: the *neighbourhood plan*. The picture above shows a part of such a neighbourhood plan for region 5 in Reykjavík, the New City Centre. As can be seen from this map, the plan mostly announces projects that are especially important for the inhabitants, not least projects that commonly have been lagging behind schedule, such as the finishing work in the open spaces. In Reykjavík, as in many other communities, such work has often lagged behind, mostly because of the very fast pace of construction. To make the programmes of the City clearer in this area, it turned out to be convenient to present them as a neighbourhood plan. A necessary first step before such finishing measures are decided on is that the basic projects, like that of road building, should be completed. It is therefore often said that the greenery follows the asphalt.

The first environmental programme to be decided in Iceland was the Green Revolution of 1974 in Reykjavík, but later other communities in Iceland followed this example. After the *Rio World Conference* in 1992 most governments signed declarations attesting that they would have environmental programmes developed for their countries that were in accordance with the policies set forth in Agenda 21.

Following the Rio Conference the UN urged state governments to motivate the local governments to have their own local agendas agreed as a way to follow up on the environmental objectives at the lower levels of government as well. Such a *local agenda* for Reykjavík has now overtaken the earlier role of the neighbourhood plan.

The cover of a neighbourhood plan, distributed in its area.

VI Development of Neighbouring Communities

1 New Communities ca. 1950

The planning of an area is very much influenced by how it is divided into communities. That the Capital Area is divided into eight communities obviously has had a considerable effect on how the settlements in this area have developed.

In order to understand how these com-munal units originated from the division of the area into legally recognized municipalities it is best to review how the area was earlier divided into districts and then study why these old districts were later sudivided into smaller communities.

Earlier sections of this book have described how the country was organized into several levels of governance as well as levels of church jurisdiction. The basic unit, however, was the ancient communal or local district *(hreppur)* that later became, for the most part, today´s local communities. The ancient communal districts had clear geographical demarcations as early as 1100 years ago and therefore have been of prime importance, whereas other social systems have often been changing so they have not exercised as much of an effect.

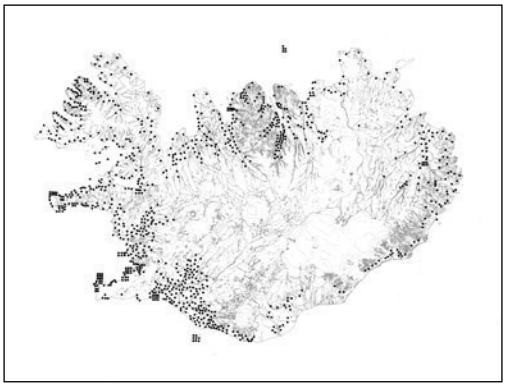
The governmental level of the communal district also has a unique position as each district was a union of the inhabitants themselves, rather than being a unit under the auspices of an over-riding authority, governmental or religious. The ancient communal district is thus a social unit of the people themselves.

It is not quite certain when the communal districts first started to be formed but scholars are certain that it was sometime early in the period of the Commonwealth. Their origin lies in the fact that they took over the function of family groups, mainly as concerns the obligation to care for people, as the prime importance of the family had been reduced, possibly not least in Iceland. Some theorists see the founding of the communal districts as a remarkable awakening of a social conscience, a sign of a collective responsibility that goes further than a kinship group, in which the sense of kinship is overtaken by the sense of social duty. Ólafur Lárusson suggests that the communal districts, in demonstrating social consciousness, are the most important accomplishment of Icelanders during the Commonwealth period.

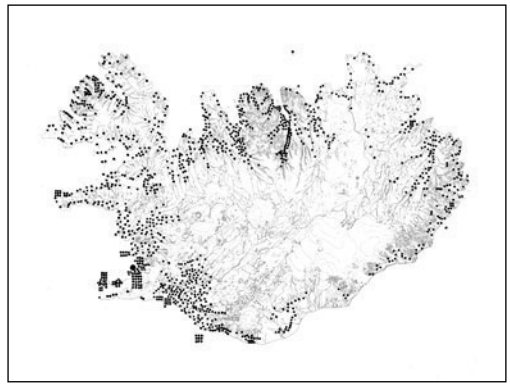
Another reason for the communal districts, besides supporting the poor, stemmed from the need of farmers to collectively round up and then separate their sheep, as the numbers of sheep had grown so that they had to be driven into the highlands for summer pasture. The Icelandic communal districts also had the duty of collecting and distributing the tithe among the needy, as specified in the tithe law of 1096.

The first census was conducted in 1703 and the 163 communal districts almost had the same boundaries they have today. In the nineteenth century the number of communal districts started to increase, especially because of the establishing of urban areas that needed to be given special local government.

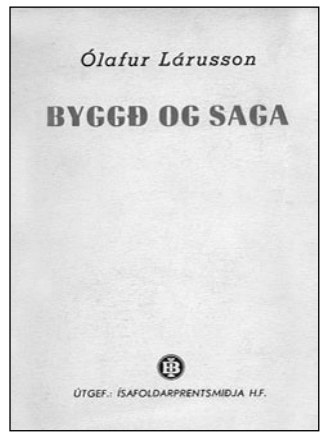
Various costs came with the development of these little early urban cores, as for example buying land and providing fresh water, services that the people in the rural part of the communal district were not quite willing to pay for. Therefore it was often rather easy to divide the large old communal districts in two, resulting in an urban and a rural part. As these small urban areas increased in population they were called market centres *(kauptún)* and the biggest of them trading centres *(kaupstadur)*.



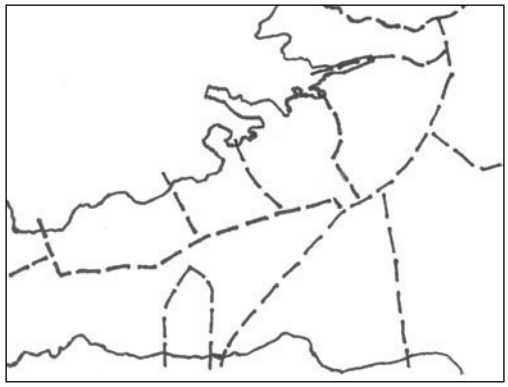
The first census in 1703 shows the distribution of the population.



By 1860 the population had increased, especially in the Innnes fjords. Each small dot is 50 people.



Dr Lárusson shed light on the origin of settlements.



The original, large communities in the Capital Area were slowly divided into more communities.

The rural communities that were formed by dividing the districts were often divided again, as other urban cores developed or because their area had been split because of the growth an urban area. The number of local communities in Iceland, i.e., rural communities and urban communities, reached about 250 around the mid-twentieth century. Since then there has been a considerable decrease in their number because some of the towns have grown together and also because the state government have increasingly set requirements, for example that they have more inhabitants. In 2001 the number of communal districts was therefore down to 120. It is to be expected that in the future there will be 40-60.

Let us now look at how the three ancient rural communal districts in the Capital Area have been divided into more communities. By studying this history many things become clearer as concerns the historical roots of today's communities, including how many there are.

Let us start by looking at the ancient Álftanes communal district, which reached from the Álftanes Peninsula to the Vatnsleysuströnd district in the south. As some urban core had developed within this district, in Hafnarfjördur, the inhabitants there asked for a division of the ancient communal district. This was agreed to in 1878. The urban part of this communal district, where Hafnarfjördur was located, was given the name of the Gardar communal district and the other part, farther out on the Álftanes Peninsula, the Bessastadir communal district. This division was guided by the division into church parishes.

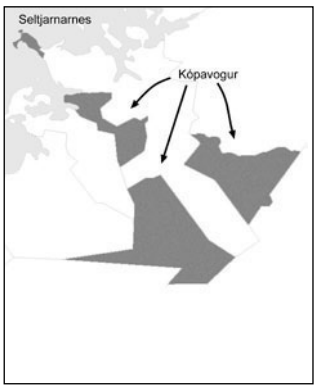
The people of Hafnarfjördur were interested in becoming a totally independent town, an interest that was held in check by the years of hardship that started around the turn of the century in 1900. A little later, following a sudden improvement in fishing, the people renewed their interest in obtaining trading station rights. The matter was again brought before the Althing, where it was reported, among other things, that the Garda communal district was unwilling to provided money for a supply of fresh water for the town. The case was introduced for the second time at the Althing and in 1908 Hafnarfjördur acquired trading station rights, a natural step as by then the number of inhabitants had reached 1500.

The ancient Seltjarnarnes communal district took in the whole peninsula where most of Reykjavík now is as well as most of the area of the town of Kópavogur. There is a long history of how Kópavogur was divided. This story started as Reykjavík was made a legislative unit in 1752. Gradually the area of Reykjavík increased so that in 1932 it had grown so much that it cut the peninsula in two. Therefore the old communal district had been divided into two parts. The tip of the peninsula, Skildinganes, as well as the area where Kópavogur now is formed one communal district. The western part, where the town of Seltjarnarnes is now, had a settlement of coastal fishing farms from ancient times, whereas there were only two legal farms in the area where Kópavogur is now, the farms of Kópavogur and Digranes. Neither of these was considered a particularly good landholding.

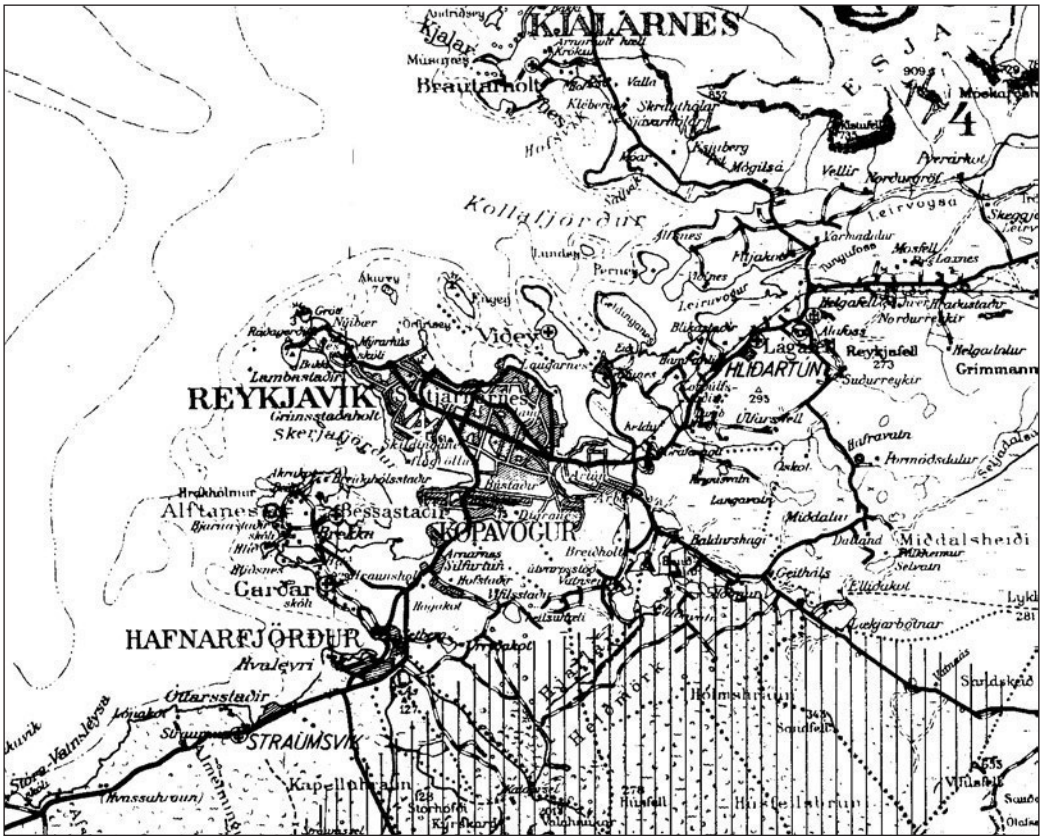
Even if the Kópavogur area was not very well suited for farming, people wanted to start small farms there to provide food for the increased population of Reykjavík and some small farms were started in the Fossvogur and Kópavogur Valleys. Somewhat later both valleys, along with the whole of the Digranes Peninsula, were for the most part divided up into leaseholds. By 1945 the population of Kópavogur numbered 500 and was increasing.

In 1946 the Progressive Society of Kópavogur put up a slate of candidates for the Seltjarnarnes communal election and won three seats of five on the Town Council, with the result that the seat of government was moved from the western tip to Kópavogur in the east. This, together with the geographic separation of the two, led to the forming of a new community in Kópavogur at the beginning of 1948. By then the population of Kópavogur had grown to 1200.

The last of the large ancient communal districts in the Capital Area was the Mosfell



Undesirable division of land often follows purchases.



This map from 1960 shows the main landmarks at that time. The dark lines show the main roads to the suburbs and alongside them, new settlements developed.

communal district that stretched from the River Ellidaár and up north to the River Leirvogsá . As Reykjavík continued to grow it needed ever more land from the Mosfell communal district until it had reached the Úlfarsá River (also called Korpa) in 1955.

Already at the beginning of the twentieth century farming had started to increase in the Mosfellssveit communal district and an urban core was formed close to the school at the River Varmá. Later a communal centre, Hlégardur, was founded there so that gradually this area had grown to become a town centre. The Mosfell community got trading station rights in 1986 and since then has been called Mosfell Town.

The next communal district to the north of the Capital Area, i.e., to the north of the Mosfell community district, was the ancient Kjalarnes district in Hvalfjördur fjord. It reached from Leiruvogur Bay to the demarcation of the Kjós district at the River Middalsá. An urban core started to develop in Kjalarnes in the Grundarhverfi neighbourhood around 1960 and in 1998 the Kjalarnes area became unified with Reykjavík.

The Kjós district is sometimes seen as a part of the Capital Area and some people from the capital carry on activities there. These are mostly summerhouses, for example at Lake Medalfell. The City of Reykjavík has started to build an outdoor centre at Hvammsvík and has started to plant trees that in the future will grow to become the Hvammsmörk Forest in the mountains above. In the Kjós community no urban core has developed yet – excepting the summerhouse area – and no master plan has been made.

The district that goes to the south from the Capital Area is the Vatnsleysuströnd communal district, going along the coast in the direction of Keflavík. This whole coast earlier belonged to the ancient Vatnsleysuströnd district that also included the Njardvík districts until they were made into two independent Njardvík communities in 1880-1890. The Vatnsleysuströnd district has only avery small urban core and there has been discussion about uniting it with Hafnarfjördur.

The coat of arms for Gullbringa and Kjós County.

2 The Development of Kópavogur and Gardabaer

The most important aspect of settlement development in the Capital Area after World War II has been development towards the south, in Kópavogur and also to a certain extent in the Garda local district.

This development came about in part because of the increase in population and the lack of building lots in Reykjavík proper. As the communities were not able to meet the demand for new lots people started to build houses without permits in open spaces. Within Reykjavík these houses were mostly in the Múli and Blesugróf neighbourhoods, but in Kópavogur these were mainly houses built on leaseholds.

Increased car ownership and improved roads out of Reykjavík to the south made this possible and the building areas in Kópavogur had some advantages for those who were wanted to farm or garden on a small scale. This development also had positive aspects for companies, as was the case with the Silfurtún factory in Gardahreppur.

The Silfurtún factory originally was a producer of concrete blocks but later expanded into tarpaper production. This activity – located where the Vífilsstadir road is connected to the Hafnarfjördur road – later became the beginning of an urban core that became the present town of Gardabaer.

The fact that Reykjavík was completely governed by the Conservatives may have influenced the rise of Kópavogur as the Socialists saw there a possibility to pull together, with the result that this community for decades had a Socialist government.

The main problem with the forming of a town in Kópavogur was that there were almost no job opportunities and the inhabitants generally had a low income so that there was very little money for anything but to build schools. Therefore the laying of roads and pavement lagged behind for a long time and hardly started before 1975.

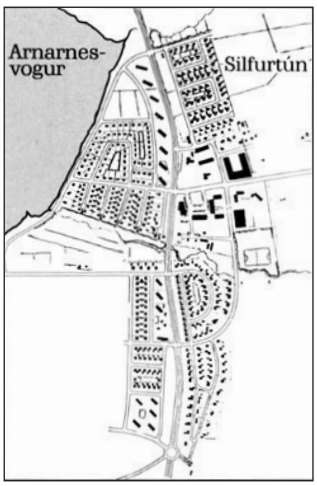
Of late the town has prospered, however, and because of its central location within the Capital Area has been successful in attracting a considerable number of businesses. In 1998 the population was over 20,000 and Kópavogur had grown to be the second largest town in Iceland within a few years.

Around 1960 Ólafur G. Einarsson became the municipal clerk for the Garda district. Together with others, he put forth ideas on how to start a residential area in the district. A master plan for an urban area in the district had already been published in 1955, but Einarsson was instrumental in starting new neighbourhoods.

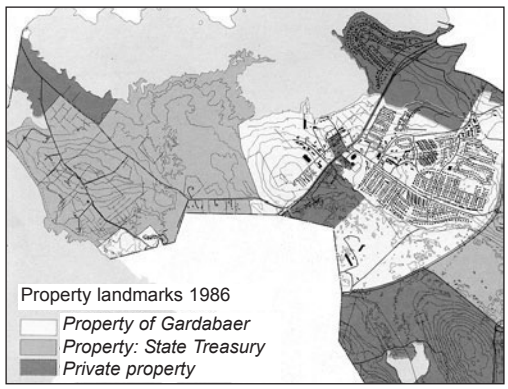
In 1960 the community got a new name as it was legalized as a market town, Gardakauptún. Einarsson and the town council started to have residential areas planned, one in Flatir south of Vífilstadir Road and another on the Arnarnes Peninsula. The community bought the land where Flatir is located, the first piece of land that the community owned.

The residential area on Arnarnes Peninsula was planned for private land according to a new type of agreement. An association of the inhabitants was formed, chaired by Steingrímur Hermannsson, later Prime Minister, and that association accepted the responsibility of paying for the road by charging fees for houses that had not yet been built on roads that the community had built.

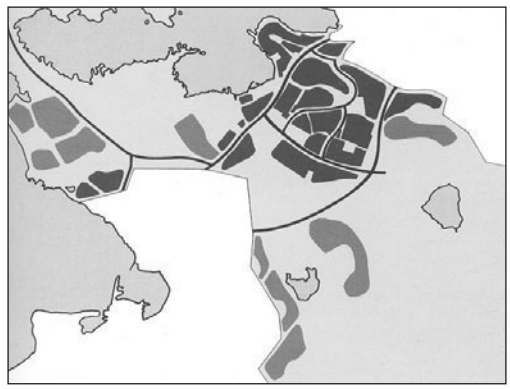
One of the primary reasons for the considerable interest in the building lots in



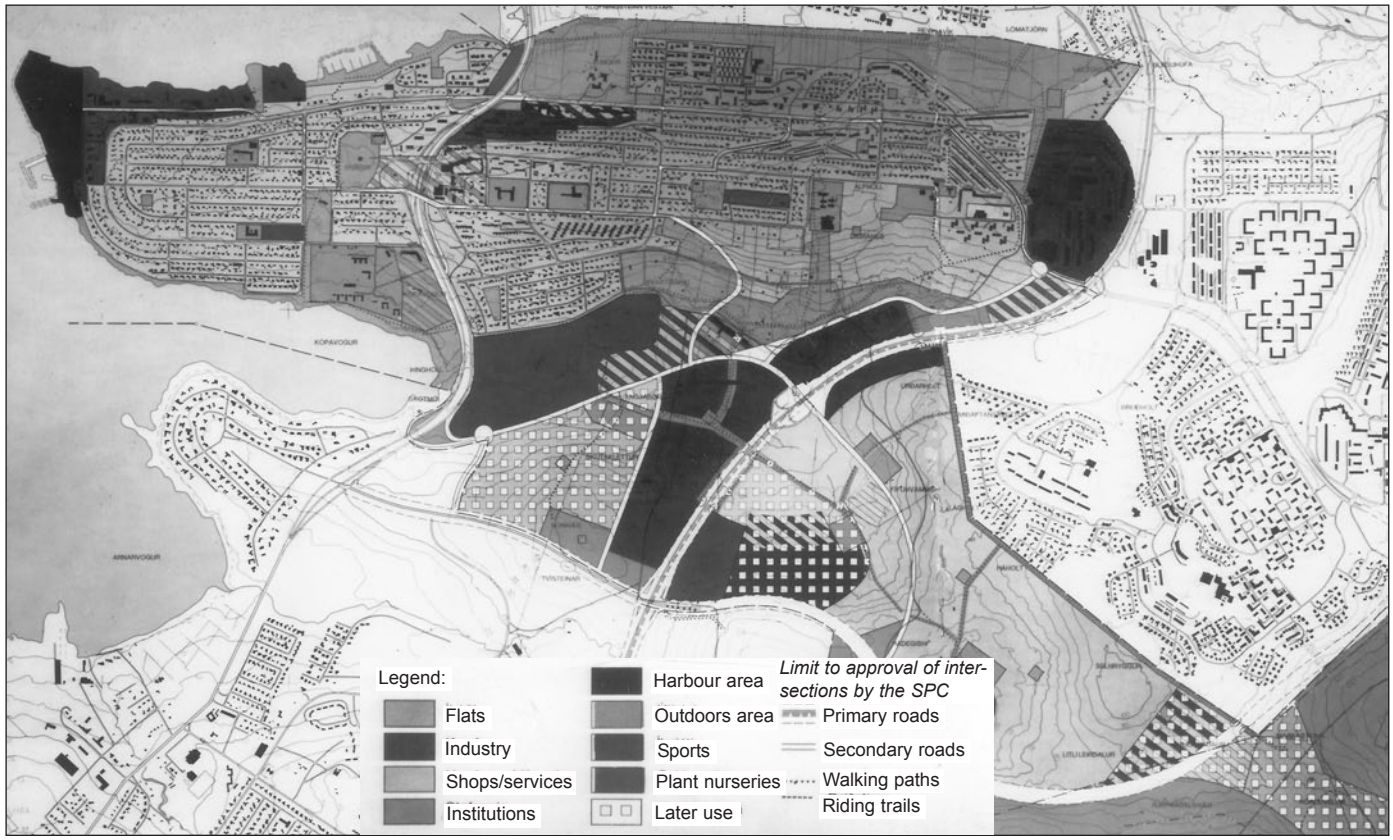
1955 plan. Block of flats along Hafnarfjördur Road.



The town of Gardabaer owns little land, making planning matters more complicated.



The Gardabaer 1985–2005 plan. Dark: building areas, light: after the plan period.



A proposal for the Kópavogur master plan 1982–2002. The industrial and commercial development alongside the Reykjanesbraut highway has been marked. Gardabaer is to the south, and in the north Breidholt stretches into Kópavogur.

Gardakauptún was that large and appealing lots were offered, especially on the Arnarnes Peninsula. This meant that most of the people who built their homes in this area were well educated and reasonably well off.

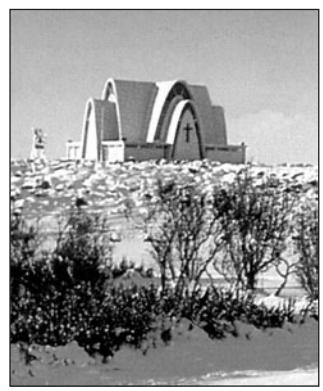
At this time Reykjavík had decided not to continue to offer lots because of how fast the land was consumed by the new neighbourhoods. Many have pointed out that because of this many of the highest taxpayers were driven away from Reykjavík and sometimes their businesses with them. Here is one of the reasons why the average salary level in Reykjavík has been decreasing.

This planning policy of Reykjavík turned out to be the beginning of the development that made the neighbouring communities – which earlier were the communities of the poor – into the communities of the wealthy. Reykjavík, on the other hand, has slowly become a community of the less wealthy, at least compared to its earlier standing.

The political as well as the economic landscape has become reversed, that is, the Conservatives now make up the majority of the politicians in most of the neighbouring communities. This is especially a surprise in Kópavogur, where the Socialists for decades controlled the majority vote.

The biggest political news is that in Reykjavík in the election of 2002 the Leftists then entered their third consecutive term of office. Indeed, it is possible that the Leftists have gained such a strong hold in Reykjavík that a Conservative majority is no longer possible.

The population of Gardakauptún had risen to 1800 in 1965. Two years later the community acquired trading rights and since then has been called Gardabaer. As with Kópavogur, Gardabaer was originally a bedroom suburb of Reykjavík. Early it adopted the same policy as Kópavogur, namely to increase the number of jobs as much as possible. The community was rather successful in this so that by 1980 there were about 1350 jobs in Gardabaer and the inhabitants numbered about 5000.



The church is a strong symbol of Kópavogur.

3 The Development of Hafnarfjördur and Bessastadahreppur

As already described, Hafnarfjördur, Bessastadahreppur (Bessastada District) and Gardabaer are a part of the old district of Álftaneshreppur. Therefore the communities share not only geographical proximity but also historical connections.

In the second half of the nineteenth century Bessastadahreppur was rather strong in fishing but most of the fishermen were also farmers. In 1870 there were 100 homes in the district and in all except three livelihood depended first and foremost on the ocean.

At this time, 50-100 small boats fished from the Álftanes Peninsula.

Overfishing of these shallow waters and later the coming of British trawlers into Faxaflói Bay in 1895 meant that the quantity of fish in these waters was greatly reduced.

At the same time the growth of Reykjavík increased the need for agricultural produce. The Álftanes area therefore changed in the first decade of the twentieth century from being a community of fishing farmers to a thriving agricultural area. In this process the number of inhabitants dropped to 300 from 600.

Improvement of the road from Reykjavík to Hafnarfjördur facilitated agricultural development easier so those who had to give up fishing in the rowboats used at the time had the good options of moving either to Hafnarfjördur or Reykjavík and becoming seamen on the schooners and later the trawlers, the first trawler being outfitted from Hafnarfjördur.

Many people in Hafnarfjördur therefore trace their roots back to the neighbouring communities in the districts of Gardahreppur and Bessastadahreppur.

Hafnarfjördur has a unique position among the neighbouring communities of Reykjavík in the fact that it is, like Reykjavík, a very old town. For centuries Hafnarfjördur was one of the strongest commercial ports in Iceland and it has, by far, the longest continuous history of commerce in the country.

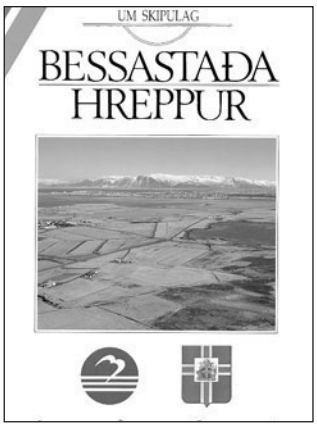
The main reason for this was the unique natural harbour in Hafnarfjördur, the result of an eruption of Mt Búrfell about 7000 years ago when much of the lava that was erupted flowed into the fjord. The largest lava stream was deflected to the north and west by a large rock, the Hamar, thus creating a lava breakwater that provided shelter in the inner part of the fjord.

In the German Era when Hanseatic merchants operated in Iceland, Hafnarfjördur was the main commercial port for the merchants from Hamburg, lasting until the Danish monopoly was introduced in 1602, when the Danish merchants took over the Icelandic trade.

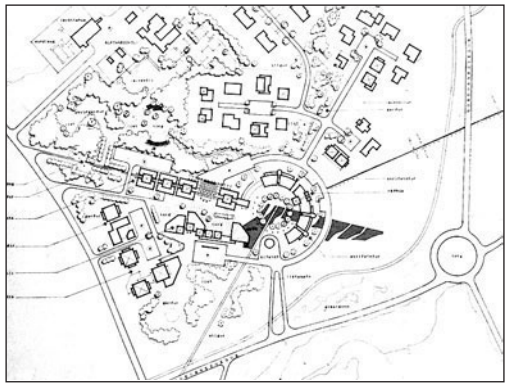
Hafnarfjördur, however, remained almost equal to the Hólmur trading station in Reykjavík, a trading station that was later moved from Hólmur Island, first to Örfirisey Island and then to Reykjavík.

It was not until with the decision to establish only six main trading centres in Iceland in 1786 when the trading station for the south-western part of the country was decided. Here Hafnarfjördur lost out in the competition with Reykjavík to become the main town in this area.

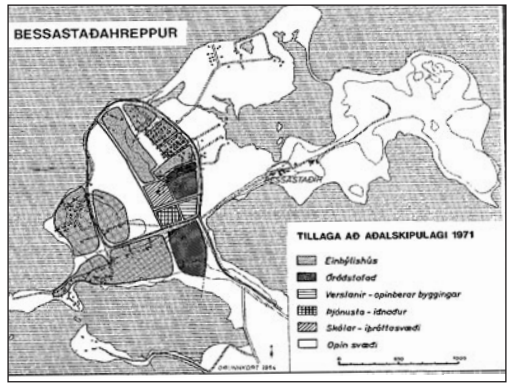
Hafnarfjördur gained trading station rights in 1908. A few years after the turn of the century trawler outfitting started in Hafnarfjördur, helped primarily by the availability of the good harbour. In 1922 the state planning commission



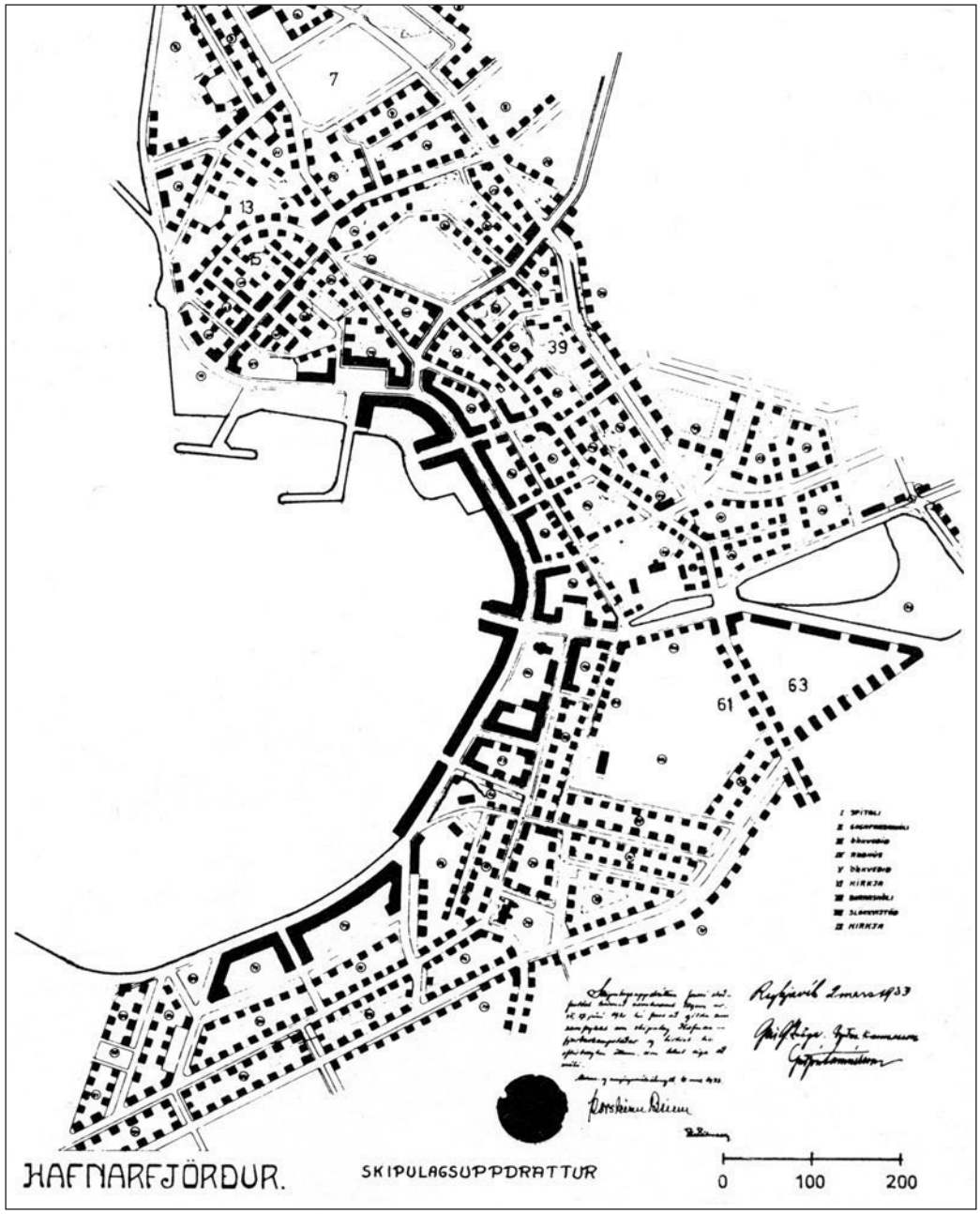
Competition for the town centre and the domicil of the president.



This is the winning proposal, with a town centre based on a circle and an axis.



A 1972 proposal for the master plan of Bessastadir district. The settlements are very dispersed.



The first plan of Hafnarfjördur was confirmed in 1933. Finishing the plan had been delayed for 10 years because of delays in topological mapping and how busy G. Samúelsson was.

The plan makes the Coastal Road the main street. For that purpose it was widened and rid off curves, e.g., by blasting into the Hamar headland.
The report also points out that the road north to Álftanes would preferably be a continuation of the Coastal Road.
Industrial areas were placed in plots 61 and 63, and a sports area in plot 7.
Plot 39 is said do be a beautiful lava valley. That valley later became the treasured Hellisgerdi Park.

started the task of drawing up a plan for Hafnarfjördur, shown in the picture above.

This plan was meant to be finished quickly but it was delayed, primarily because the topological map of the town's area was not ready. The plan finally was presented to the town council in 1930 and approved the by representatives of the the state government in 1933.

This plan was the basis for guiding the town's development for decades, though of course it underwent several changes.

In 1961 a competition was announced for the planning of the downtown and the adjacent harbour areas. This led to a completed detail plan of the downtown area which was approved by the Minister of Social Affairs in 1967. Ten years later several changes to this plan were made. (See page 403).

In 1966 work was started on a master plan for Hafnarfjördur for the twenty-year period 1968-88. In 1978 Hafnarfjördur started to take planning matters into its own hands by hiring a planner and establishing a special planning office, as did some other towns.

Samúelsson was the main author of master plans in this period.

4 The Development of Seltjarnarnes and Mosfellsbaer

For most of the time Reykjavík has been the ruling force in planning and settlement in the Capital Area, for example, for the planning of the whole region in 1965, again in 1972 and later still in 1986.

Of late the communities in the southern part of the region have been growing in strength and therefore have gained a rather strong position in planning. The fact that there are four communities in the southern part, with similar interests, makes them stronger.

The other two neighbouring communities of Reykjavík – Seltjarnarnesbaer and Mosfellsbaer – stand somewhat alone in terms of planning interests. Seltjarnarnes, however, is geographically almost a part of Reykjavík and also utilizes various services provided by Reykjavík.

Reykjavík has also had close co-operation to the north with Mosfellsbaer, among other things, for geothermal district heating. Mosfellsbaer is the town that, in the future, will probably share the most in common with Reykjavík in the field of planning. To start with, the two communities have grown together at the Úlfarsá River and also at Leiruvogur Bay and now they are also growing together east of the Mt Úlfarsfell at Lake Hafravatn. Reykjavík and Mosfellsbaer also share an interest in certain basic road construction, for example, the road system on the northern part of the Capital Area, because of their common interest in development to the north.

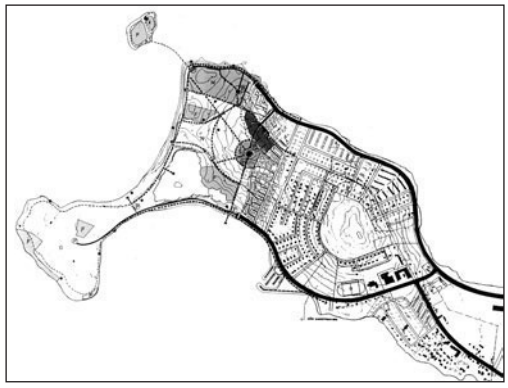
The Seltjarnarnes area has a long history, like most other areas in the capital region. In early times the warehouses that sheltered the falcons before they were sold abroad were built on Valhúsahaed and the Nesstofa building was the stately seat of the national doctor and a pharmacist. Just as in Bessastadahreppur there was a great deal of small-scale fishing from Seltjarnarnes but as fishing decreased in the shallow waters, as in Bessastadahreppur, seamen had to resort to going to Reykjavík for jobs on the - efficient schooners. Fishing from the community therefore almost disappeared but at the same time the practice of agriculture grew.

Around 1955 a considerable number of residential buildings started to rise in Seltjarnarnes. The lots were sought after and the inhabitants grew to around 1300 in 1960. In 1990 they had grown to more than 4000, soon reaching the limit of what could be built in this small area. Nevertheless, development of certain occupational activities and of certain types of commerce and services continued. Here the town profited from the fact that it can attract people from Reykjavík to seek these services.

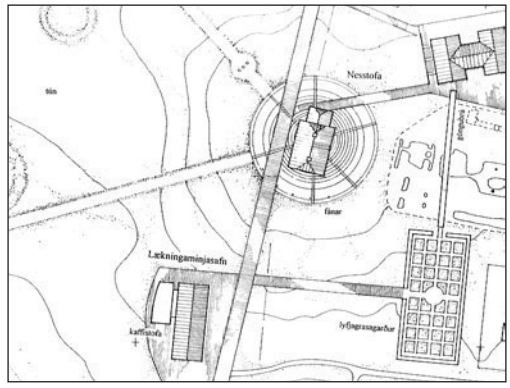
Mosfellsbaer originally was a rural district but the building up of several institutions, for instance for care of the sick and handicapped in Skálatún and Reykjalundur and the factories associated with them, sparked urban development in the 1950's. In that period agri-cultural and greenhouse activities also started to thrive, mostly because of utilization of geothermal heat. The number of inhabitants had grown to 700 in 1960 and since then the growth in population has been proportionally more rapid than in the other communities in the Capital Region. In 1990 the population numbe-red about 4200 and had reached 6100 in 2000. The first master plan for Mosfellshreppur was made to cover the period 1983-2003 with later revisions for 1992-2011.

The plan for the Mosfell area suffers from the fact that the Westland Highway goes through

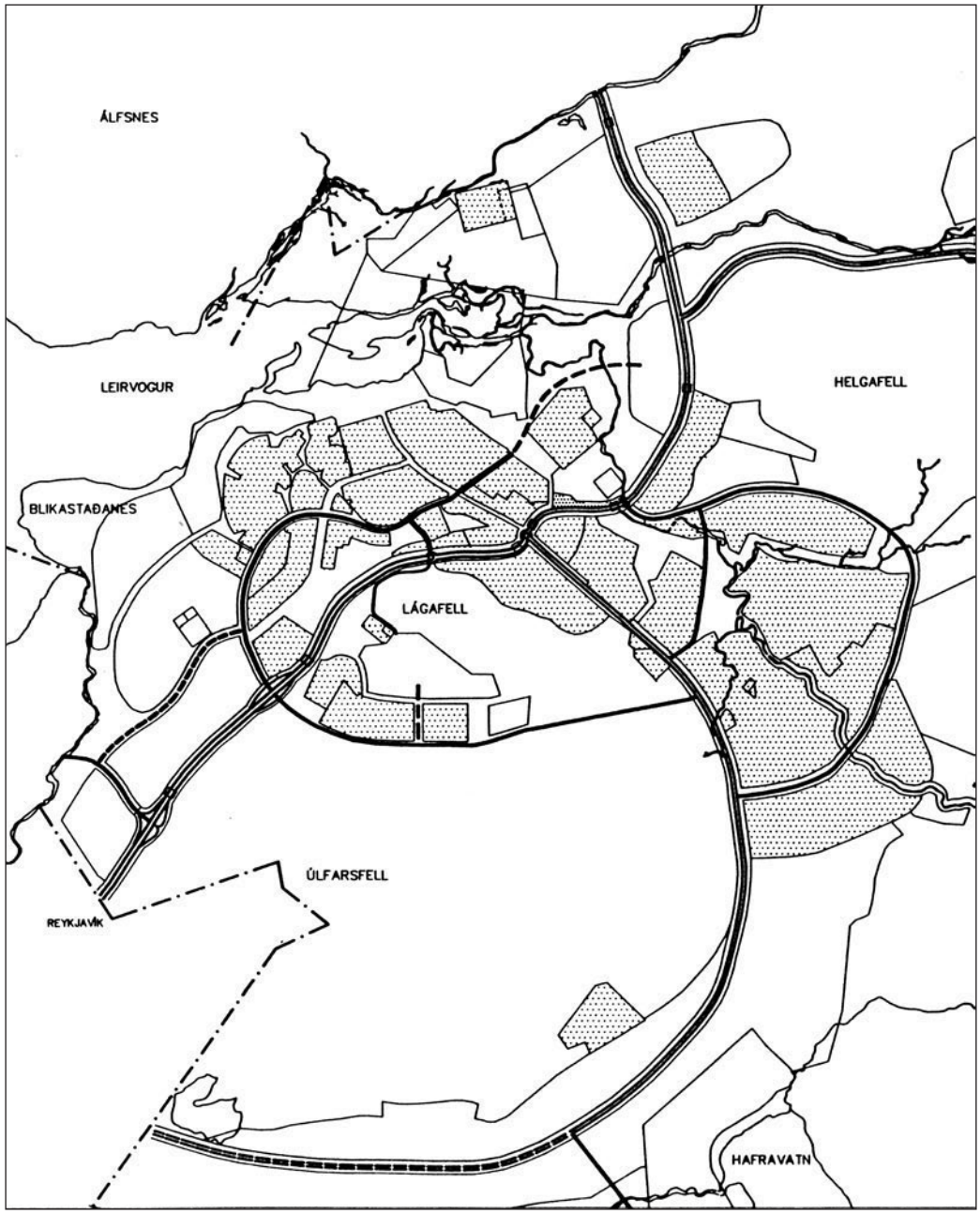
Industrial area near Grótta, possibly connected to map, p. 134.



A planning battle raged regarding the west area of Seltjarnarnes, hence a competition.



A plan around Nesstofa, also from the same 1st prize proposal.



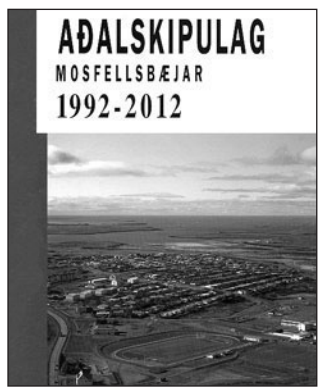
The Mosfellsbaer master plan for 1992–2012. Classification of roads: Double lines indicate the four primary roads and single lines, secondary roads. Grey areas symbolize settlement areas.

The main characteristic of the planning for Mosfellsbaer is that the Westland Highway splits the settlement in two. Admittedly pushing it somewhat to the east, within the town, has lessened the damage, but at a very high cost. The money would have been better spent for the new West Highway: Sundabraut.
It also would have been preferable if the Above-Settlements-Road had been continued to the north, i.e., east of Mosfellsbaer.

the whole length of the settlement. Through lack of foresightedness on behalf of planning authorities and the Directory of Roads, money was invested in the relocation of that highway rather than to start to build the planned future highway that will go over a bridge from Geldinganes Peninsula to the Álfsnes Peninsula, thus bypassing the town of Mosfell.

People argued that without an improvement in the old highway the Thingvellir Road would not have been connected to a good thoroughfare. Another fine future solution, however, would have been possible, namely, a road from the south from the River Korpa and over to Lake Hafravatn.

From there the road could have proceeded north between the Helgafell and Aesustadafjall mountains and be connected there to the road to Thingvellir. This road could have connected in the future to the Above-Settlements-Road that is supposed to run to the east of all of the communities in the Capital Area.



The report on the Mosfellsbaer master plan.

VII Regional Plan of the Capital Area

1 Initial Ideas and Conditions

Compared to urban development areas abroad, possible areas for development in the Capital Area are unusually clearly defined by environmental features. In the east there are high and snowy heaths, in the south there is a lava field, in the north the Esja mountain range, and the Atlantic Ocean in the west.

Because of these geographical constraints the limits of urban development had been obvious for a long time and should have provided an incentive to create ideas about the future use of this land.

Nonetheless it was not until around 1960 that people started to work on the first regional plan. This is even more surprising because good, clear suggestions for a regional plan of the area had been published a half a century before by Alfred Raavad, who proposed in 1909 that urban development should take place between Reykjavík and Hafnarfjördur.

It is regrettable that the state and planning authorities did not move sooner. When planning preparations finally started, the Capital Area had already been dissected into eight municipalities, which made attempts to form a regional plan much harder.

One of the things that has to be done at the start of all planning work is to analyse the basic geological and geographical features of the area in question and research what kind of problems could arise and to try, in the very first steps, to reduce the effects of any negative aspects.

The first picture in the series of three below shows the basic topographical characteristic of the Capital Area – that it is placed on four peninsulas. The next picture shows that the main city thoroughfares are today mostly located in the middle of the settlement areas, resulting in cutting areas apart and creating a vacuum. These arteries also cause more pollution and accidents than would otherwise be expected.

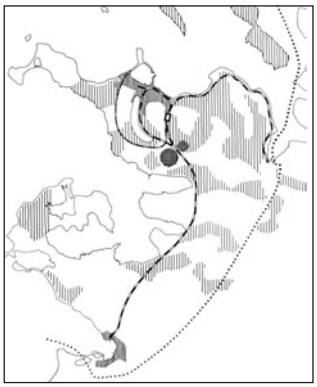
The last figure shows the optimal highway layout for the area that should have been planned for even in the first Danish drafts for a regional plan. This picture explains the principle of placing arterial roads out of the settlement areas; in one case the main artery lies to the front of the settlement, passing over bridges that would connect the peninsulas at their outer ends. In this way travel distances between the outer ends of the peninsulas would be greatly reduced.

Secondly, another highway should have been drafted to the east of the settlement area. In this way all heavy and through traffic would have been kept out of the residential neighbourhoods. In most foreign cities highways are placed well outside urban areas.

In the plan of the *Development Office* of 1977 people finally started to work according to these important basic conceptions, for example by moving the Westland Highway out to the Geldinganes Peninsula and from there to the Álftanes Peninsula – a highway idea today called Sundabraut.

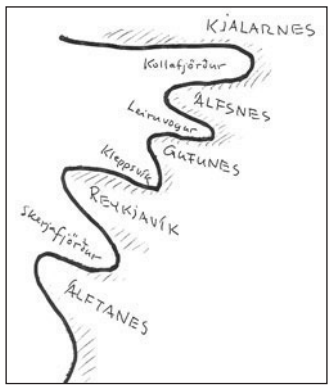
In order to work on moving the traffic out of the urban areas and to the east the office presented the idea of an Above-the-Settlements Highway (*Ofanbyggdavegur*), an idea that later entered the plans of the other communities.

Let us now return to the problem that today there still has not been formed a necessary common approach for the Capital Area. The communities are usually reluctant to give up any part of their power. Therefore some force most often has to be applied to achieve unification.



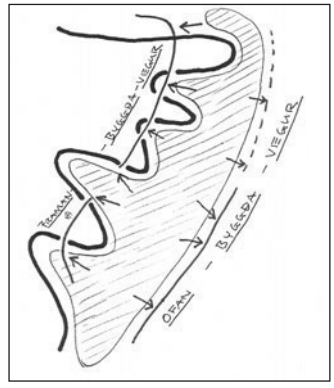
Ravaad proposed a regional development plan in 1909.

Danes formed ideas on the region ca. 1961.

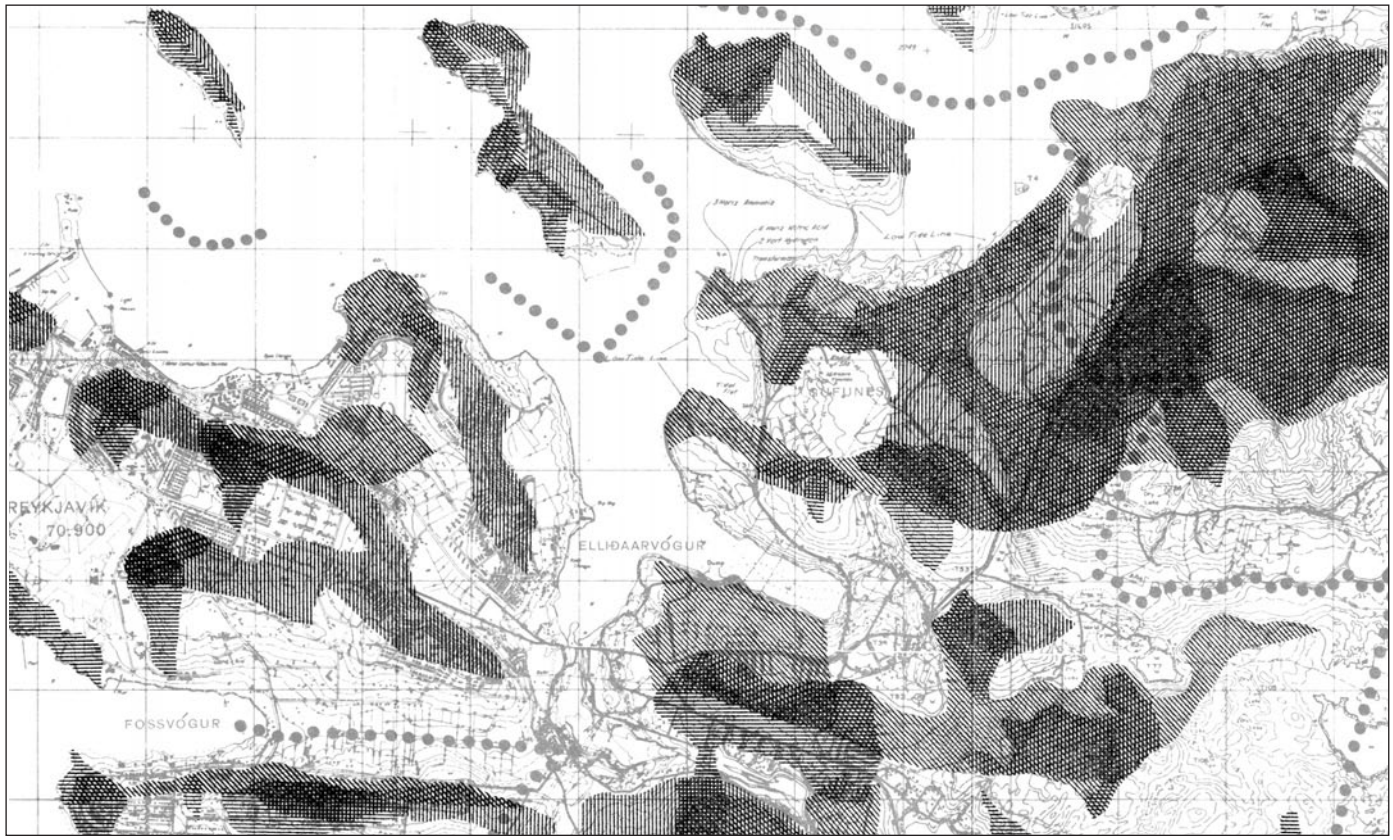


The Capital Area's chartacteristic feature is capes and fjords.

Freeways today go through the inhabited areas.



It is better to move traffic out of inhabited areas.



When the Danes were preparing the first regional plan they evaluated where the areas that provided the best view were located. There was no distinction between areas facing towards or away from the sun. Compare to the evaluation on page 132.

Over many decades the Icelandic government has been very reluctant to put pressure on the local governments until it has been absolutely clear that this was necessary. Experience shows that the communities are unable to get together on their own to produce an effective regional plan.

The ideal should have been for the Althing, sometime before 1950 before the urban cores in the neighbouring communities started to develop, to put the whole area, except for Hafnarfjördur, under the jurisdiction of Reykjavík.

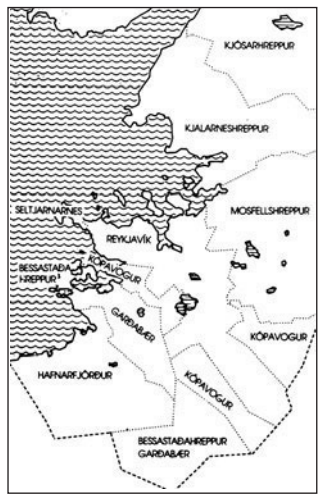
Any idea of unification is today politically very difficult, and a unification of only a few of the communities in the Capital Area cannot achieve the goal in question, namely, to come to grips with the basic aspects of planning in this settlement area.

In connection with the new regional plan of 2001 it has been proposed that the planning law should be changed so that the Capital Area Planning Commission will be continuously employed and certain specific clauses that only apply to the Capital Area will be put in the law.

The best solution, however, probably would be that some type of a Capital Area government be established that would have jurisdictional authority over aspects that have to do with the whole of the area, like the highway layout, the harbour questions, the airport issue, and where to place heavy industry.

The division of Iceland into electoral districts in 2003 can possibly lead to some shaking up of governmental traditions in the capital region. Firstly, Reykjavík has been separated from the collar of communities that surround it. Secondly, the splitting of Reykjavík into two electoral districts is a positive feature in that people are getting used to the idea that the city can be broken up into more units.

That Reykjavík will be cut up in some way is actually a precondition for the acceptance by the neighbouring communities of the idea of collaborating with Reykjavík. Up until now Reykjavík, with its size, has been overpowering and has been able to bend most decisions to its own advantage.



There were 9 communities in the region, but now 8.

2 Proposals for a Regional Plan in 1965 and 1973

As it had become clear in the late 1950's that Reykjavík needed to be extended beyond the peninsula, the question arose as to what direction development should proceed. Three main possibilities were at hand: to the south, to the east to the heaths in the direction of the Árbaer and Breidholt areas or to the north.

The City of Reykjavík now started to develop very ambitious ideas about planning. It soon became very clear that a vision common to the whole Capital Area needed to be developed. When Reykjavík had hired Danish planners in 1960, the city obtained the approval of the other communities in the region that the first step should be to create a scheme for the whole area.

This work of the planners actually was meant to be a preparation for a Nordic competition for a regional plan for the Capital Area. Soon it became apparent that the preparation of such a competition would be very elaborate and time consuming, so the concept of the competition was changed to be a Nordic competition for planning the settlement area of Fossvogur. Meanwhile, the Danish planners were hired to make a master plan for Reykjavík.

At the same time a collaborative committee was at work and the master plan that was published in a large book in 1966 also contained an idea for a regional plan for the Capital Area (see next page).

To begin with the work of this committee on the regional plan was informal, but in 1964 a new planning law provided formal legal authorization. The committee consisted of two representatives from each community and a chairman from the state planning commission, totalling 17 people, and thus proved to be rather unwieldy.

In 1965 the committee approved, in its own name, the first regional plan for the Capital Area. Obviously, however, there was still lot of work to be done so a special regulation extended the mandate of the committee.

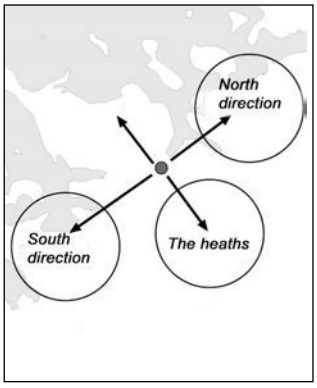
In November 1973 the committee approved the decision to send a new regional planning proposal to the communities of the Capital Area. The report included a revised and more detailed regional plan map made in 1972.

Comparing the two regional planning proposals of 1965 and 1972 reveals how the development of planning ideas had been progressing. An influential factor was that most of the communities had, in the meantime, been starting to carry out their own research for planning and had discovered many things that they questioned.

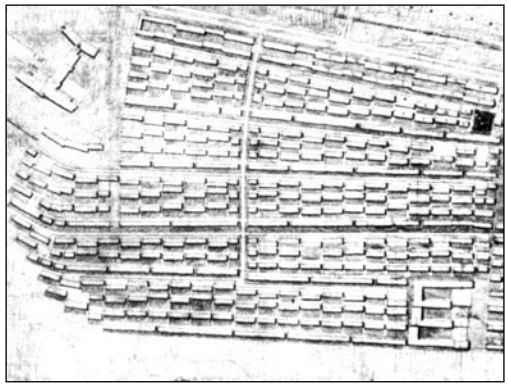
The plan of 1965 had an area extending from Reykjavík to the southern communities as well as northward that embraced a part of the Úlfarsfell Area. Mosfellssveit, at this time, still had not entered the picture, except for the small urban areas at Lágafell and Varmá.

In the 1972 map (see next spread) the most prominent change was that ideas were presented about broad development areas in Mosfellssveit. Land use in Reykjavík had not changed much between the two maps and was for the most part in accordance with the Danish master plan of 1965, except that the institutional areas in the Úlfarsfell Area were greatly expanded in the 1972 map and a residential area appeared in the Hamrahlíd neighbourhood. In addition, some work had been done on the highway ideas by the River Korpa, ideas that the Reykjavík planners were not impressed with.

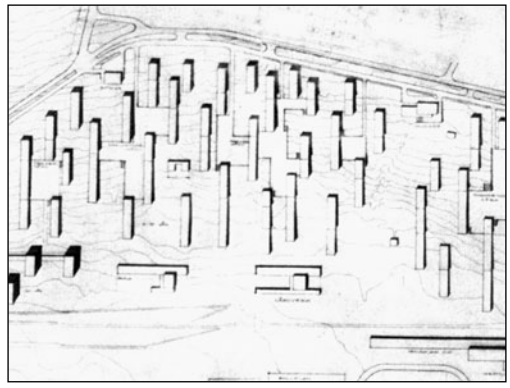
In the 1972 map green areas are shown on the Kópavogur side of the proposed Fossvogur throughway in an area where Kópavogur had



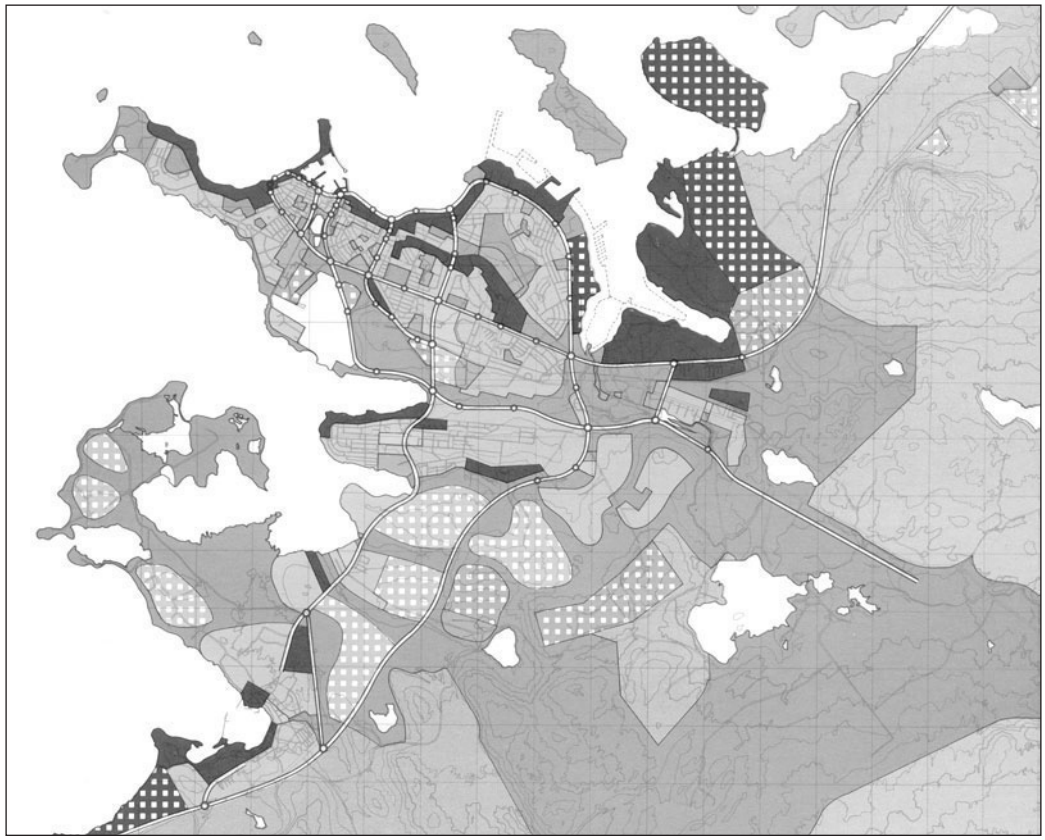
There were three directions for new settlements.



Foreigners were prizes in the Fossvogur competition, but Icelanders worked out.



Here houses are perpendicular to the valley, so both sides could be exposed to the sun.



Dark grey stands for industrial areas, middle grey for open or green areas, and light grey residential areas. Chequered symbolizes later use, i.e., after the end of the twenty-year planning period, in this case after 1983.

Regional plan drafts were published together with the Reykjavík master plan, which was approved in 1965. As usual the regional plan mainly presents the planning ideas of the communities.

nevertheless planned a residential area in 1973. This caused protests in Reykjavík because this would mean that the throughway would have to be moved all the way up to the Fossvogur neighbourhood in Reykjavík.

In Kópavogur industrial areas were also now shown along the new Reykjanes highway, for example at the Smidjuvegur and Skemmuvegur Roads, where later a large commercial and industrial area arose in an area that Kópavogur got from Reykjavík.

In Gardabaer the town centre was moved in the 1972 map from the ocean to east of the Hafnarfjördur highway. Soon afterwards the centre started to be developed. Here it has a more central location in the settlement than did the older location. Unfortunately people now have discovered that the town centre has insufficient space.

In the new map the industrial areas of Hafnarfjördur and Gardabaer at their jurisdictional boundaries at Hraunholt had been extended considerably. In addition, industrial areas in Hafnarfjördur were shown at the Straumsvík harbour, and the industrial area south of the old harbour at Hvaleyrarholt had been expanded.

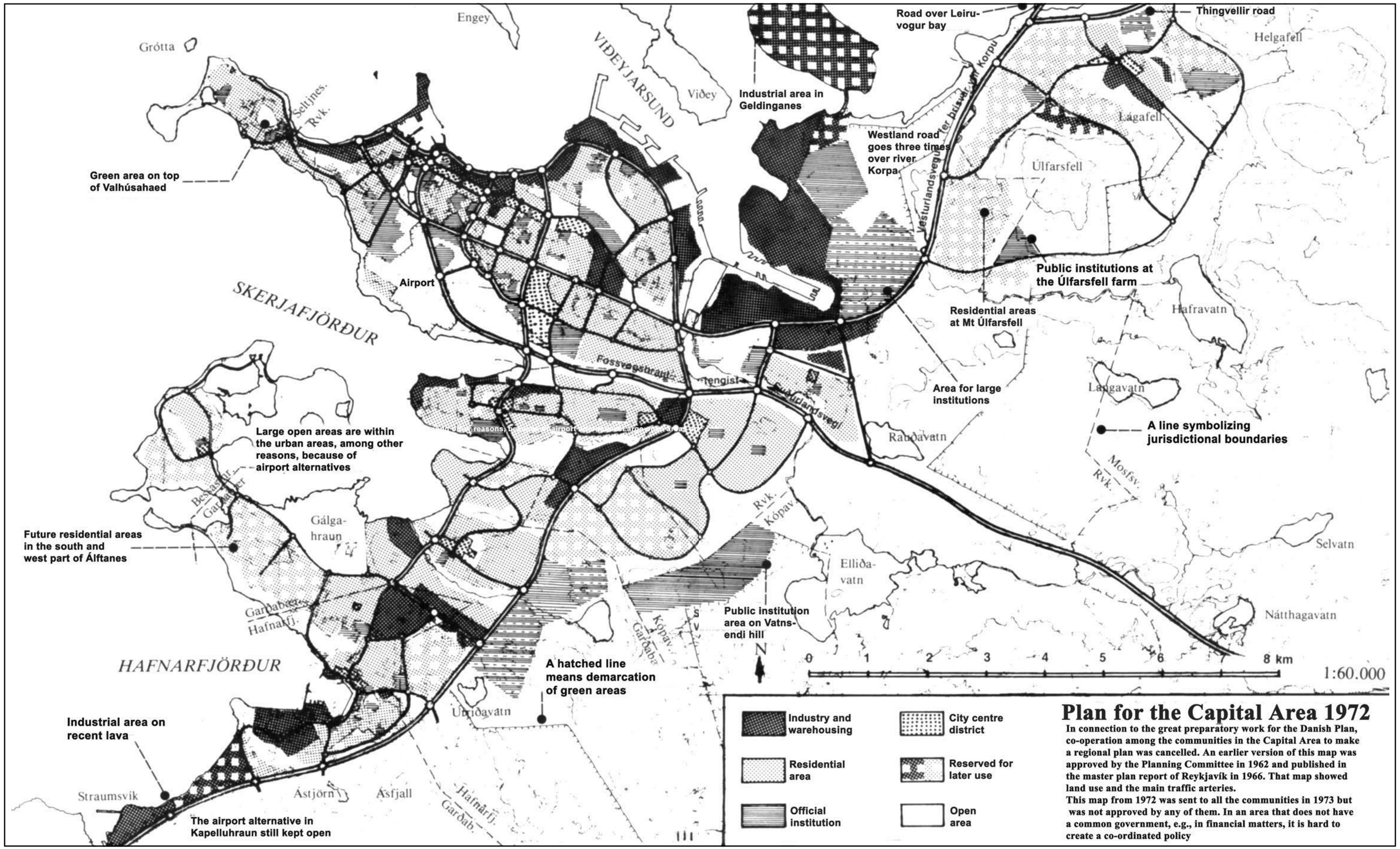
In Bessastadahreppur the residential areas were extended in the 1972 map and a small downtown area proposed. The residential areas on the Álftanes Peninsula had actually grown much faster than people had expected.

As the regional plan was introduced to the local governments in 1973, Reykjavík totally objected because it had by then started a revision of its own master plan and already by then it had become clear that it would be changed in a profound way. Similar objections came from the other communities.

Reykjavík also pointed out that the mandate for the collaborating committee had expired and that there had surfaced the idea of establishing a union of the communities in the Capital Area, a union that soon should start work on planning for the region.

This union was established in 1976 and two years later an agreement was made on the establishment of *The Planning Office of the Capital Area.*

A new idea for a regional plan was published 1973.



Plan for the Capital Area 1972

In connection to the great preparatory work for the Danish Plan, co-operation among the communities in the Capital Area to make a regional plan was cancelled. An earlier version of this map was approved by the Planning Committee in 1962 and published in the master plan report of Reykjavík in 1966. That map showed land use and the main traffic arteries.

This map from 1972 was sent to all the communities in 1973 but was not approved by any of them. In an area that does not have a common government, e.g., in financial matters, it is hard to create a co-ordinated policy

3 The Proposed Regional Plan of 1986

It has frequently happened in the history of planning that planning proposals have neither been approved of by the communities in question nor accepted by the ministry in charge of planning. This outcome, however, is not as negative as it looks because the important point is that the planning becomes part of the political agenda of the communities in question.

It can even be positive for a community to let a plan remain unconfirmed because that provides a better possibility of making speedy changes as sudden needs surface. On the other hand the lack of an approved plan is bad for various members of the community, industrialists and inhabitants, because they then have less assurance that the plans they have been depending on will in fact be executed. An uconfirmed plan means that they have less security in deciding financial investments and their own plans for the future.

As for a regional plan, there is no govermental level in Iceland that can assure that what is proposed in the plan will be carried out. Iceland has in fact two governmental levels: state and local governments. A third intermediate level, as the Fylki in Norway, has not been introduced in Iceland in spite of much discussion and an obvious need.

Because of this lack of an intermediate governmental level, regional planning is in fact important because it offers an achievable co-ordination of planning ideas for areas that actu-ally should form one settlement unit. Given this fact, it is certainly a problem that regional planning units in Iceland are most often too small.

In a proposal from the State Planning Authority in 1991 on the division of Iceland into regional planning areas, the south-west was divided into eight planning areas. This proposal has been followed to a certain degree. It would, however, have been better to work with the whole south-west as one planning unit for reasons explained later.

Because of the lack of an executive power and elected representatives who can see that a regional plan is indeed carried out, it is still more important that the regional planning proposals obtain formal confirmation by the communities in question.

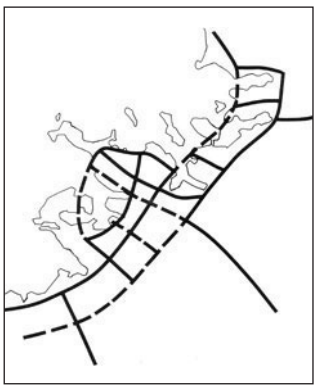
In addition, the state government must confirm both the planning process itself and the projects that the state government also have a part in. An example is the development of various infrastructures such as the road/highway system and various social services.

It was therefore highly regrettable that no type of confirmation of the regional planning ideas, neither in 1965 nor in 1973, was achieved. On the other hand it can be seen as a good step forward that somewhat later in 1976 a *Union of Communities in the Capital Area* was established, whose mission should include planning.

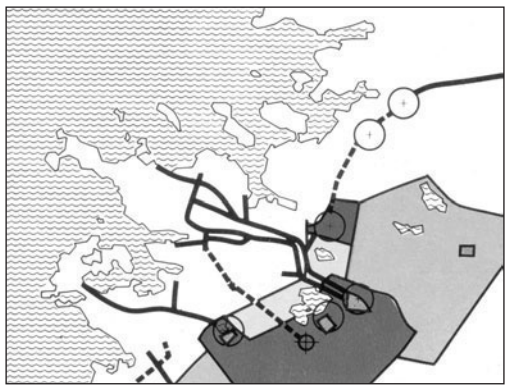
By this time similar unions of local governments had been created all over Iceland and they already had had an important role in regional development in their areas.

These unions, however, have become less important of late because of unification of some of these communities into still larger communities. The Union of the Capital Area has been operative since 1976, and in 1980 it established the Planning Office of the Capital Area.

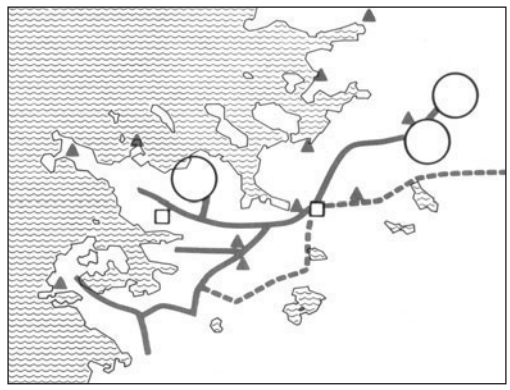
The plan report was short and concise.



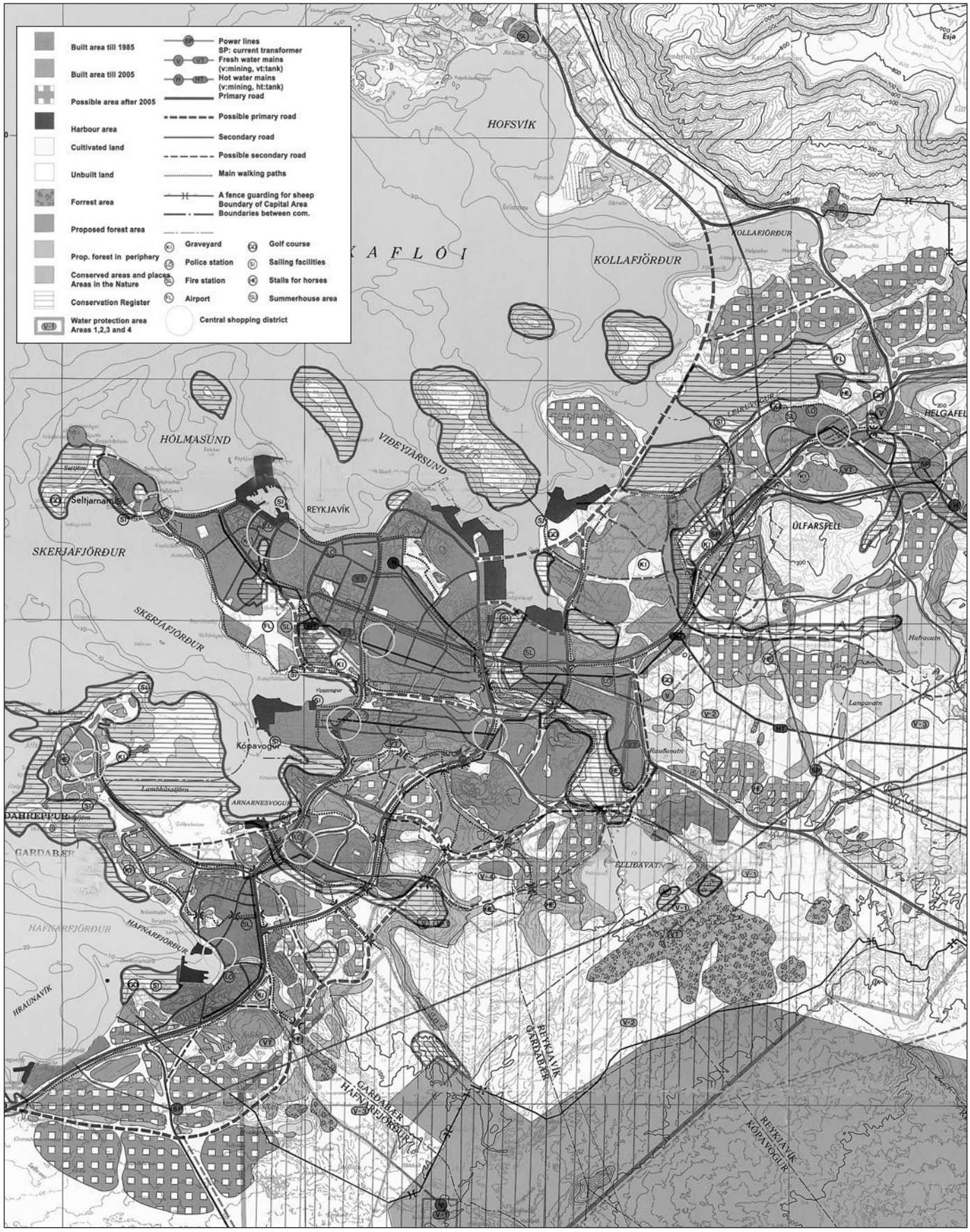
Stylized scheme of the future highway system.



There was good co-operation on technical aspects of the plan. Here water protection and water mains.



An idea on the main pipelines for district heating. Dotted lines show future ideas.



The regional plan of 1986 was – as unfortunately often occurs at this planning level – mainly the glueing together of planning ideas from the communities involved. The biggest gains of this plan were in the technological and environmental fields.

The office was given the main task of working on a new regional plan for the Capital Area and also worked on several related tasks like disseminating information and issuing a magazine on planning for the Capital Area. It also organized conferences and meetings, though many felt it sometimes overstepped its main objective of drawing up a regional plan.

About the same time as the regional planning work was starting, the name of *The Reykjavík Development Office* had been changed to The *Planning Office of Reykjavík*. A review of the master plan was then initiated. Some changes occurred in Reykjavík planning at this time, largely because a Leftist majority had come to power for the first time in the city.

To start with there was close co-operation between these two planning offices. In 1981 the Reykjavík Planning Office issued and obtained confirmation for a plan for the eastern part of Reykjavík east of Grafarvogur. Regrettably, because of the pressure of time, this was not really a total review of the master plan of Reykjavík.

As the Conservatives again came to power in 1982 it soon became apparent that Reykjavík did not want to take part in the work on the planning proposals that the Planning Office of the Capital Area had started. Sadly, people gave the reason that the new planning office would like to appropriate too much power for itself.

At these times Reykjavík had a very strong position in terms of the development in the region. It could for example, mostly decide for itself where the commercial and occupational areas were to be built. The other communities mostly got the leftovers.

Also it is sometimes said that this situation also had developed because of a clash of personalities, i.e., that of Davíd Oddson, the new mayor, and the chairman of the Capital Area Committee, Júlíus Sólnes, as well as the head of the Planning Office, Gestur Ólafsson.

Both the planning offices worked on the planning matters of the area for some years, but not with much co-operation. A new master plan for Reykjavík was published in 1985 before the policy for the area as a whole had been decided on and a regional plan issued. This master plan of Reykjavík has the time frame 1984-2004.

A little more than one year later, in October 1986, the regional plan of the Capital Area 1985-2005 was issued. As such plans are reaching their final stages the plans are presented to local politicians and officials in the area in question. These proposals were presented to all the town councils in the area except for the City Council of Reykjavík, where the presentation was not accepted. That Reykjavík was not a part of the approval process meant reduced interest within the smaller communities in the Capital Area to confirm the plan. And as a matter of fact most of them already had started a review of their own master plans and some of them even had had them approved and confirmed.

The disappointment of those who were working on the regional plan was great. Thorsteinn Thorsteinsson, a traffic engineer at the Planning Office at that time, described in an article attempts that were made to come to some agreement: "It can be said that the proposals have been watered down and the final text of the report has become full of phrases like (it would be preferable, one should aim for), etc., rather than presenting definite proposals."

Thorsteinsson ends his article by saying: "However low a common denominator had been found in planning in the Capital Area, it did not seem low enough so that the council members could sign it because of the fear that it would tie their hands or give the council members of other communities veto rights over some clauses."

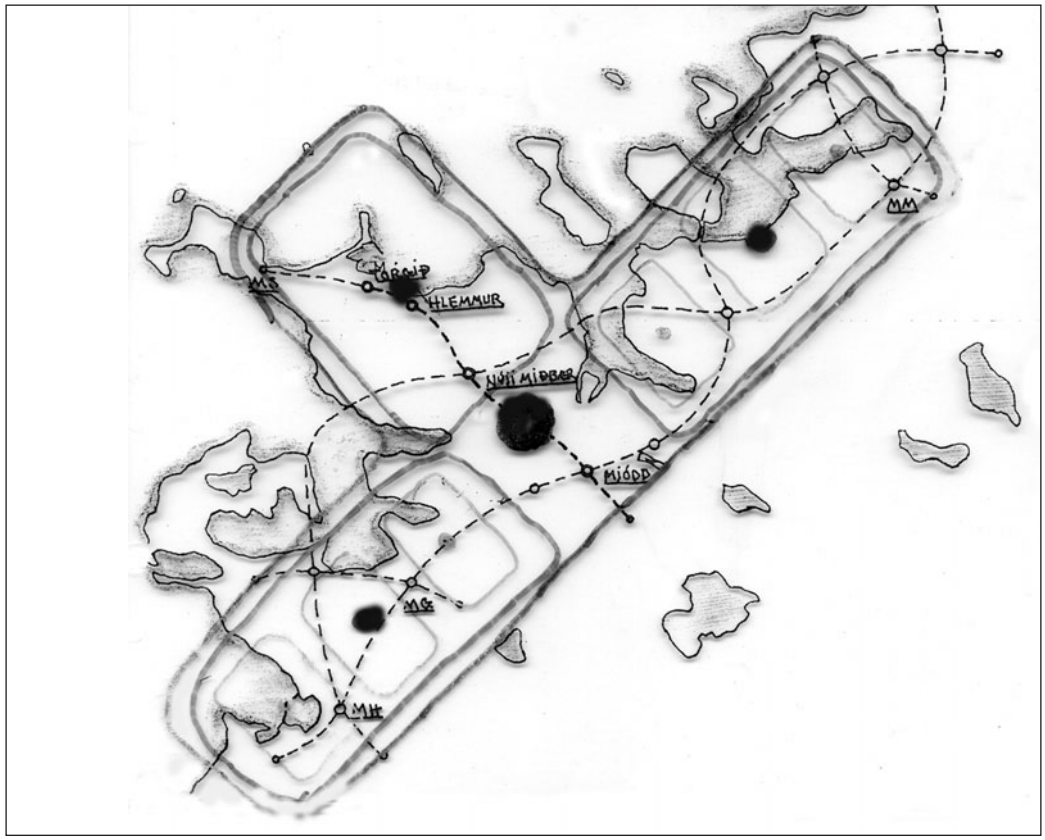
From what has now been described it is clear that regional planning should primarily operate at a level different from that of the master plan, i.e., more on a policy making level that concerns the largest issues involved. The main thoroughfares and connecting roads can be mentioned, but a proposal for this system was approved in the master plan of Reykjavík in 1965 and has, as a matter of fact, already led to the formation of the road system for the whole area.

The main city arteries are for the most part the financial responsibility of the Directory of Roads, which have a tendency to adhere to old policy, even though somewhat different ideas have surfaced in the meantime.

The question of the placement of harbours has also been a great issue in the region and the various communities have engaged in unbounded competition to gain the advantages presented by having good harbour facilities. An agreement among them on a harbour plan is not likely to be reached unless they can agree on the distribution of expenses and income from the harbours.

Legislation regarding harbours actually provides the possibility to do so with the establishing of *harbour associations* in a certain development area.

A regional union was created for common tasks in the area.



The large dot shows the geographically natural position for a city centre. The three wings all have their own centres of gravity which could, geometrically, be defined as their centres. The dotted lines show ideas for a train system for the region.

The Capital Area divides into three wings. The original wing goes out into the ocean, but the new north and south wings form a new settlement axis. The wings all divide into different units.

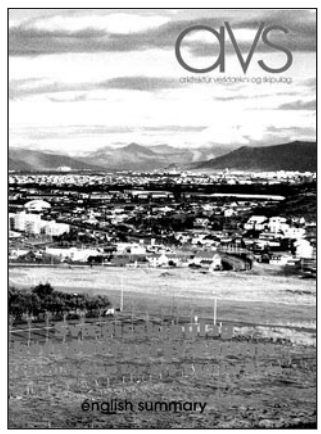
Because of what has now been described it seems necessary, as regional planning is starting, to make binding agreements on how to govern these largest aspects. Otherwise there is the danger that none of the communities will consider themself bound by the agreements unless they decide the features of the plan fit their own community.

At the beginning of a new regional plan in 1998 and 1999 many politicians talked about this problem and tried to find why it has been so hard to establish successful co-operation in planning for the capital region.

In an article in 1999, Ingibjörg Sólrún Gísladóttir, then the mayor of Reykjavík, said: "In the plan the communities will try to foresee future development in order to be able to respond to it in time and thus to shape conditions …. In order that this may come about the communities must follow the plans, accept the obligations that go with them, and nurture co-operation on what unites them and not on what separates them. This is easier said than done, not least because in this area there has developed a tradition of disagreeing." She then continued to trace how politics had affected decisions by referring to the fact that the Conservatives, when they were in power in Reykjavík, were not very willing to work with the Leftists in Kópavogur and Hafnarfjördur. She accurately pointed out the problems associated with the difference in the size of Reykjavík and the other communities.

Such emotional aspects certainly have some effect; it can never be expected that such aspects can be fully avoided and it is not to be expected that people approach attempts at co-operation with the only goal that of trying to be fair. The fact is that in community planning such huge interests are at stake, such as trying to get commerce and services located in their own community, that the communities are bound to try to exercise their rights to the fullest.

This situation will hardly be changed until some kind of a common Capital Area Government has been formed. In the forming of such a government it is most important that the economic aspects will to some degree be shared by the communities in common because that will reduce the need of the individual



The AVS reported on the planning of the Capital Region.

communities to be on guard for their private interests during the planning. In spite of such a union the communities have to maintain some independence as areas or neighbourhoods within the Capital Area.

Let us now turn to the projects that the Capital Area Office worked on. One of the projects was water conservation. It had become apparent by then which of the earlier conservation areas east of the Capital Area had to been reviewed. Somewhat later a new map was issued to assure the purity of the municipal water supply and the office also worked on establishing a common trash disposal company, Sorpa.

The office also laid out the foundations for establishing a bus company for most of the area. This company was created with the unification of the bus companies of the communities outside Reykjavík and in 2001 this company was unified in turn with the Reykjavík Bus Company, thus creating one common bus company, Straetó, for the whole area.

Additionally, the office created the idea of a fence to girdle the whole Capital Area to hinder sheep and horses from wandering into the area. Finally the Capital Area Association has worked on the planning of transportation for the handicapped.

As can be seen, these issues are not central to planning. The reason why so much attention has been directed to them is in part that there has not been agreement on the necessary steps to take on the large planning issues. The office therefore – in order to achieve something – had to approach issues where there was little disagreement, areas where certainly some good results could be achieved.

At this time there was no specific debate going on about the domestic airport area so Reykjavík confirmed a detail plan for the area in 1986. One of the projects that caused the most stir was the issue of the Fossvogur Throughway. This artery, which was planned to go from Breidholt down through Fossvogur Valley and then south and west around Öskjuhlíd Hill all the way to the old town centre of Reykjavík, had little traffic value for Kópavogur. Kópavogur therefore refused to allow such a throughway to be placed on the Kópavogur side of the valley and refused to accept it as a part of the town's master plan.

Therefore, as the master plans of Reykjavík and of Kópavogur were approved the maps contain some specific markings stating exceptions in regards to this proposed throughway.

The State Planning Office had great worries about this, and in 1989 it hired the University of Iceland to carry out an assessment of the influence of the proposed throughway on the neighbourhoods in the valley and also secondly on the environmental and traffic aspects as concerned the Capital Area – especially as concerned the development of downtown Reykjavík.

This report was issued in 1990 and led to some agreement to temporarily put the matter aside. In this case we can observe how political animosities between two communities can constitute a considerable part of a problem.

The work on the report induced Reykjavík to offer a compromise proposal to build the throughway below the present ground surface level to a certain extent and for the first time made public a proposal to reject the throughway proposal in favour of a tunnel to go under Kópavogur and to connect with the Breidholtsbraut Road.


Athugun á skipulagi í Fossvogsdal

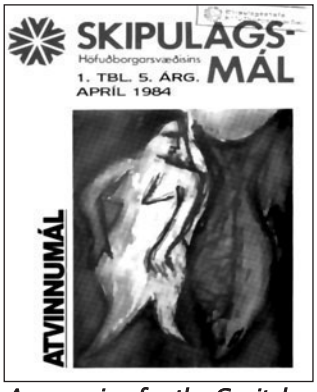
- Forathugun -

Unnið fyrir Skipulagsstjórn ríkisins

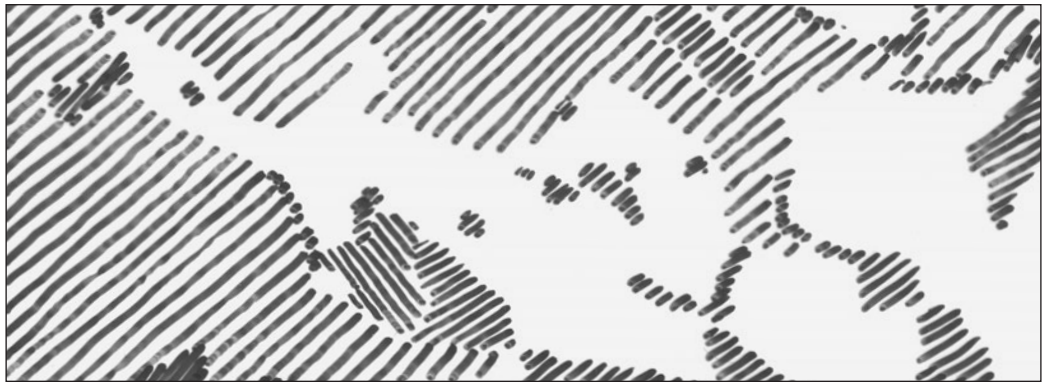
Líffræðistofnun háskólans
Raunvísindastofnun háskólans
Verkfræðistofnun háskólans

Janúar 1990

The University did a study of the Fossvogur disputes.



A magazine for the Capital Area was published for years.



This is a picture showing Reykjavík and its surroundings. The water and green areas are shaded but urban areas are white. This helps us understand how large open areas are in comparison to them.

4 Development of the Area till Year 2000

As Reykjavík had finished developing the Breidholt area it started to build towards the north and east and thus away from the centre of gravity in the Capital Area as it had become.

The centre of gravity started of course in the Kvosin downtown area and then gradually moved east over the peninsula. As settlement started to develop in the southern communities of Kópavogur, Gardabaer, Bessastadahreppur and Hafnarfjördur the path of this centre of gravity started to turn to the south and in 1980 it was already within the borders of Kópavogur.

Kópavogur had at the time developed a rather large commercial area in the Skemmuvegur and Smidjuvegur Roads and also presented, in its master plan at this time for 1982-2003, rather large commercial areas to the south in an area later called Smárinn.

Because of an economic downturn at the time the outlook was not good for the success of this area in spite of the opening of the new Reykjanes Highway, which was a prerequisite for the development of a centre in this area.

A new aspect of planning and development in an area of this type was that the area was privately owned. The Town of Kópavogur gave the developers appointed by the owners the right to plan a commercial area.

The developers invested a considerable sum of money to make the area suitable. Because of the economic downturn there was some delay in developing the commercial possibilities, but there was finally progress in the mid-1990's.

This development brought about an innovation, namely that Reykjavík was no longer, because of its size and topographical location, almost alone in controlling where a new commercial area could be built.

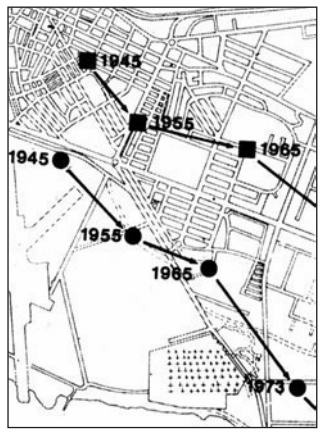
The spokespersons for Kópavogur were rather smart in advertising this new area as the centre of the Capital Area and also made use of the unfortunate name for the commercial centre at Breidholt, Mjódd ("The Narrow Strip") and advertised: "We build on Breadth". The continued development in this area, as well as in the adjacent Gardabaer – together with improved traffic conditions – has meant that today this commercial centre is on its way to becoming the strongest in the Capital Area. The largest event by far was the opening of *The Smáralind Shopping Mall* in the autumn of 2001.

This new commercial development probably was the strongest incentive for the communities in the Capital Area to start preparing a new regional plan where one of the main objectives was to come to an agreement on where the shopping centres in the area should be located.

This new co-operative planning, however, meant that the communities actually were trying to put some limits on the excessive growth of the centre in Kópavogur. Now the Town of Kópavogur was at least in a similar position to that of Reykjavík earlier, namely that common agreement among all the communities would primarily mean the limiting of the positive advantages of competition.

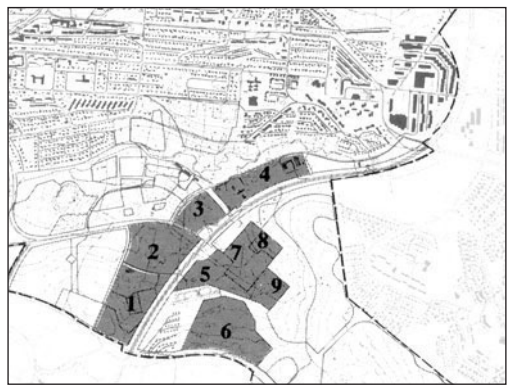
Somewhat later – as the regional plan for the Capital Area was introduced in the summer of 2001 – Kópavogur issued a plan for a new neighbourhood and a new commercial centre close to Lake Ellidavatn.

This new Kópavogur centre is also close to large residential areas in Reykjavík. Because of this nearness it is obvious that this new commercial centre is bound to reduce and even destroy some commercial centres in Reykjavík.



The movement of the centre of gravity from 1946–1980.

Mjódd and Breidd, on opposite sides of the Reykjanesbraut, are not linked.



Recent industrial areas around the Reykjanesbraut. Area 2 includes the new Smáralind Mall.

Kópavogur Valley's central position in the Capital Area.

In the last decade of the twentieth century a new vision started to develop – primarily involving young people – in the Capital Area. This new vision meant that the young people had become less interested in a suburban lifestyle.

Housing demand therefore shifted to flats close to downtown Reykjavík. This demand for space led to the re-kindling of the earlier dissatisfaction with the airport in the very expensive area of Vatnsmýri, close to downtown. This meant that the City of Reykjavík thought it necessary to have a referendum on the location of the airport on 17th March 2001; the public voted by a slight majority for relocating the airport.

In the early scheme of the regional planning work – that was now in its final stages – the assumption was stated that the airport would stay where it is. This new disagreement about the airport meant that people started more and more to say that this new regional plan proposal would probably not be approved and that therefore, like the earlier proposals, it would not be of much value.

It was as early as 1988 that the work on the conceptualization of the regional planning started but the planning itself was not begun until January 1999. It came as somewhat of a surprise that already in the autumn of that year one of the main planners of Reykjavík, Bjarni Reynarsson – who had by then moved to the Development Office in the City Hall – had written an article about how the regional planning work was developing.

In the article, Reynarsson complained about some of the concepts of the work. He wrote, for example: "…right at the beginning [the project] was directed towards seeking proposals for where to build in the Capital Area in the next two decades instead of promoting a public debate on future opportunities and a future vision for the area…. Soon people realized that the council members were not in possession of the necessary criteria to evaluate the pros and cons of the various proposals."

Reynarsson continued: "A second issue that has characterized the first part of the planning is the direct extrapolation of the development of the last few years, namely, a re-active approach instead of a policy-making pro-active approach. Of course, there is a need to take into account what the Capital Area would look like if the present development continues unchanged in the next few decades. But at the same time it should not be forgotten that planning is the formulation of harmonized policy where negative aspects of development are changed for the better."

Reynarsson continued: "As to traffic, it is accepted as a fact that today's private-car-centred policy will remain unchanged for the duration of the planning period, with all the concomitant costs, and the bus system is hardly dealt with even though this is a central issue in the regional plans of other city areas."

These quotations show us that it is not only Kópavogur that was dissatisfied with the conceptualization of this regional planning project. This led people to conclude that its final acceptance and approval were not quite certain.

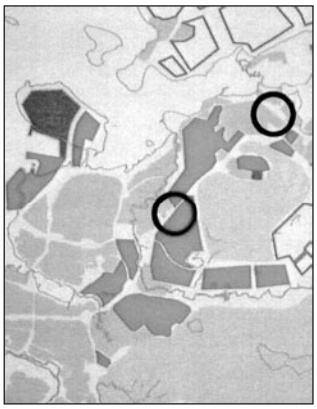
The communities, however, accepted the plan proposal individually in the autumn of 2002, but when the approval process reached the Ministry of the Environment, the State Planning Institute expressed its concerns on how the airport issue should be concluded. Reykjavík's response was that the airport was not included in this plan but rather that the white spot on the map simply meant that the decision on the airport would be delayed to a later date. This sufficed as an answer, so the plan was approved by the Minister shortly before Christmas 2002.

The regional plan shows a new shopping area by the Vesturlandsvegur Highway that extends into new areas south of Mt Úlfarfell.

In the spring of 2003 the first idea for a plan of that area was issued which made it clear that it would include a mall, which was a huge disappoint-ment to many. People could see that the plan did not succeed in coming to grips with the development of commercial centres – it can even be said that the battle has been lost and the law of the jungle prevails.

The uncontrolled development of supermarkets means, among other things, that the commercial areas that already exist will start to decline. In some places neighbourhood shops will be totally wiped out, with serious social consequences for those who do not own a car, like those less well off, young people, children and the elderly, who must, for the most part, depend on small shops in the neighbourhoods that sell products at high prices.

This development perpetuates the tendency towards car-centred planning and thus increased investment in the road/highway system. The communities seem not to care, because in Iceland the state pays for most of the cost for



The north wing is shown with two centres.

highways. This means that the communities do little to work against the added costs and they seem to be rather insensitive to the social costs that hit the underprivileged in their communities.

Another serious matter that evolves from the unconstrained building of these supermarkets is that they offer lower prices – if one does not count the social cost – that pull people from the countryside to the Capital Area. This makes the local commercial services remaining in the countryside both more limited in scope and more expensive.

Only a few other issues are as serious as concerns the sustaining of the rural areas in Iceland, but the state government turns a blind eye and seems to say: "The market and the capital shall guide our future development."

That Iceland has become a member of the European Economic Association (EEA) means that the planning of the Capital Area has to be announced within the European area. The project was given to a group of Danish and Icelandic planners, architects and engineers.

In some ways those in charge of the planning were unfortunate that the project was formulated just before 2000 because exactly at that time there was a great change in vision about the Capital Area, for example as concerns the priority of the car and the preference of young people for living in centrally located areas.

In addition, the airport issue erupted during work on the planning. This delayed the planning work and changed the schedule, but the worst thing about the airport was that a solution was not really reached.

It would have been right to tackle the airport area right at the beginning so that preliminary work in that area would have been a part of the work schedule. This was important because any decision on the airport would affect other decisions, especially how the lines are laid out in the plan.

Beside the issues that have been mentioned, a new matter surfaced in the autumn of 2000 as the first plan for a science park in the Capital Area was published. Students at the University of Iceland made the proposals, most of which are connected to their ideas about moving the domestic airport.

The proposals suggested using the northern part of the airport area in Vatnsmýri – between the University and Landspitali-University Hospital – for connecting these institutions.

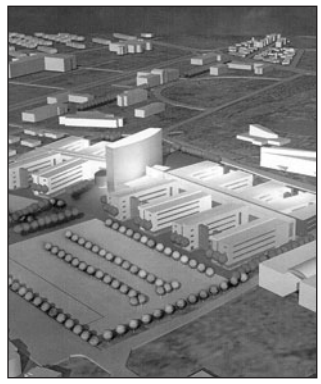
In the regional planning drafts the N–S runway was in the plan, but not the S–W runway.

Also they extended the science area to the south where deCODE Genetics had just recently constructed a fine building.

In the beginning of 2001, the University issued primary drafts for a science park in the area next to deCODE. In the middle of that summer three other communities published ideas about science parks – Kópavogur, Gardabaer and Hafnarfjördur.

It seems unrealistic that all these science parks could develop in the Capital Area, which means that this aspect did not become a part of the regional planning work.

The section on page 412 about the newest development in planning after the municipal elections in the spring of 2002 presents further elaboration on the planning concerns of the communities in the Capital Area as well as for the area as a whole.



A proposal for a science park at the University of Iceland.

VIII Development of Towns in the Countryside

1 Development of Towns in the West and West Fjords

This and the next three sections will trace how villages and towns were formed in the various parts of the country. In Iceland we have our own scale of defining a village and a town: even a small settlement of 50 is called a village and we use the word town for a settlement of 500.

It has been explained earlier how various centrally located farms in different regions almost became little villages, as did some of the central farms with religious and secular power during the beginning of the settlement of Iceland.

Trading sites on the coast in the early centuries also became the first step towards the development of villages. However, it was not until fishing and the fish trade started to develop to a considerable degree that permanent residence developed at these trading spots. Iceland, of course, could not export more than it could produce and, because conditions for agriculture are poor in Iceland, only the fisheries could become the basis for the forming of urban cores and trading sites, and then of course only at the coast.

At the end of the seventeenth century considerable seasonal fishing had developed at coastal fishing farms and from fishing stations, but during unusually cold years, smallpox epidemics, bad government, a violent eruption and ensuing haze in the later eighteenth century, and the aftermath of the Napoleonic Wars hindered the development of coastal settlements. Around 1820 there were fewer inhabitants in the first Icelandic fishing villages than there had been at the end of the eighteenth century.

It may come as a surprise that the greatest population growth in the seasonal fishing spots was on the Snaefellsnes and Akranes Peninsulas and on the Breidafjördur Islands. This means that the west was the area of first urban settlement connected to fishing. That these seasonal spots were rather big can be seen from the fact that Dritvík on the Snaefellsnes Peninsula often numbered 500-600 fishermen. In the late eighteenth century in Hjallasandur, called Hellissandur today, there were 100 fishermen's huts and in 1703 about 300 people lived there. Lúdvík Kristjánsson has suggested that this was probably the oldest fishing village in Iceland. The biggest island fishing station in Breidafjördur Bay was on the Bjarnareyjar Islands. In 1703 there were 50 boats there and the inhabitants and fishermen together numbered around 300.

The industrial revolution began early in the nineteenth century and led to an increase in the size of towns and cities in Britain and Europe. This called for the importation of a large amount of food, which in turn meant an increased demand for Icelandic fish. After the end of the Danish-imposed monopoly in Iceland in 1854 more nations started to trade with Iceland.

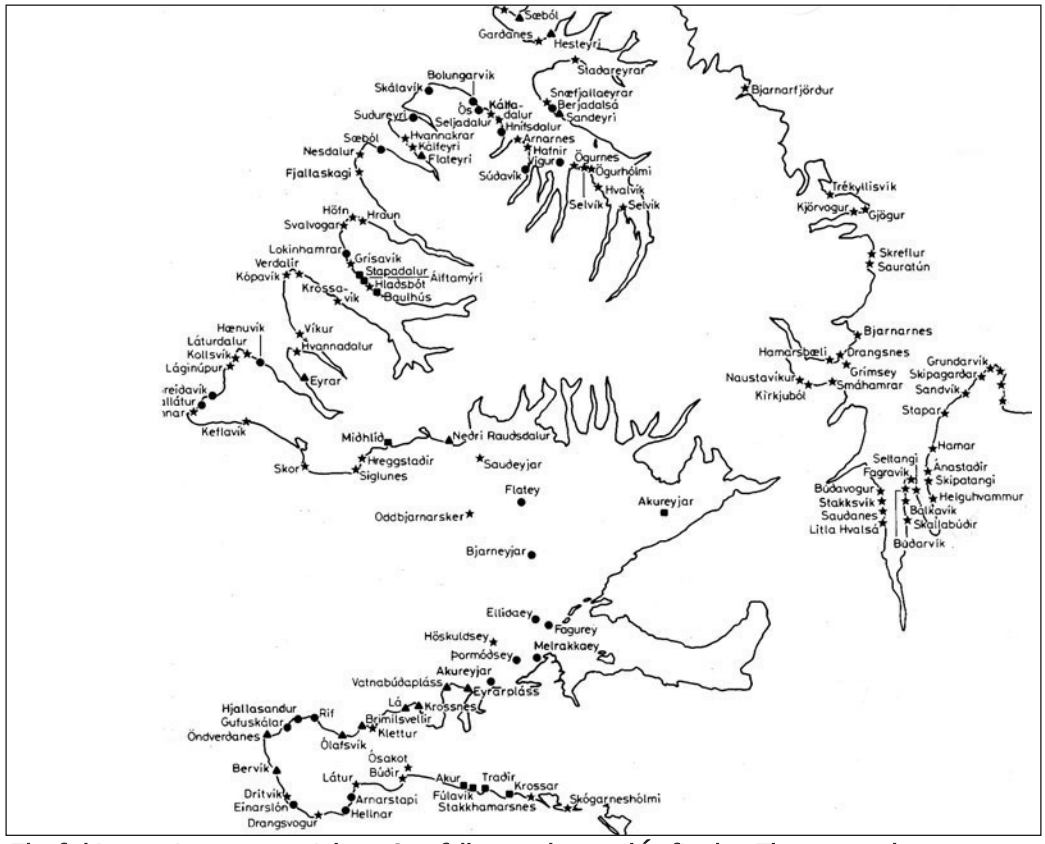
A new and profitable processing method for fish had become possible in Iceland – salted fish, and in 1865 to 1920 exports expanded ten-fold. This contributed to the growth of the fishing villages and thus the urban areas along the coast also grew. The main fishing harbours were now, as before, first and foremost on the Snaefellsnes Peninsula and in the south-west. Later, after the advent of decked ships in Iceland, two things happened: these larger vessels could go out in bad weather, but it also became harder to go fishing along open, sandy coasts like the south shore of Iceland. Additionally, harbours were built at small fishing spots and the smallest fishing villages like those on the Snaefellsnes Peninsula.

Fishing started to increase where there were reasonable harbour conditions, as at Eyrarbakki and Stokkseyri in the south and on the Reykjanes Peninsula at Sandgerdi, Keflavík and Njardvík. Further development occurred in Reykjavík and Hafnarfjördur as well as Akranes, and later fishing increased in Bolungarvík and other areas in the West Fjords.

As the twentieth century approached, Ísafjördur took the lead in the West Fjords. On the Snaefellsnes Peninsula, on the other hand, the number of trading harbours had been reduced to three – Hellissandur, Ólafsvík and Stykkishólmur, each with around 500 inhabitants. Only a few of these fishing harbours progressed, except Ísafjördur, which at the beginning of the twentieth century had about 2000 inhabitants.

The reasons why the urban areas that have been mentioned did not grow further included the fact that they were situated at the end of peninsulas or in narrow fjords, lacking space, which meant that urban development could not be supported by agriculture. An essential

Boats were pulled ashore into landing stages.



The fishing stations were mainly on Snaefellnes and around Ísafjördur. There were also many stations around Hrútafjördur where the West Fjords meet the north country.

function of agriculture was to add to the spectrum of job opportunities as well as to provide the inhabitants of villages with enough food.

Another reason is that these villages had started to grow because of fishing techniques that did not require advanced harbour facilities, but the larger fishing vessels that came into use required harbour facilities that could not be constructed except in a very few places.

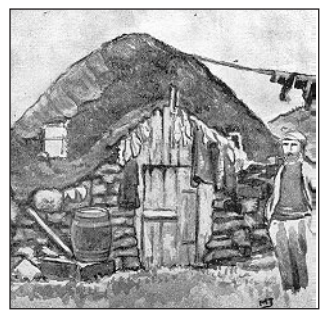
Later, the essential criterion was whether the harbour was suitable for coastal ships in order both to export fish easily and to provide access for the goods and equipment that needed to be brought in. This meant that only a few places in the country could become the fishing harbour towns of the future.

Ísafjördur was the only urban area in the western part of Iceland, except for Akranes further south, that grew considerably in the nineteenth century. One of the most important reasons for this was that Ísafjördur is located on a rather enclosed fjord. In this area many small fishing villages had developed like Hnífsdalur, Súdavík, Ögur, Arngerdareyri, Sandeyri, Kollsá and Hesteyri. The large quantity of fish exports from Ísafjördur was in part because the produce of these villages was brought there for shipping.

Despite the fact that fishermen and farmers started to bring wet fish to Ísafjördur, concentrating on fishing rather than processing the catch at home, the amount of fish from these small places still increased. In 1870 exports of salt fish from Ísafjördur amounted to ca. 670 tons and 50 years later in 1920 had grown tenfold to 6700 tons. The planning development of this future capital of the West Fjords will be described in the section on page 198.

Let us now return to a discussion of the nineteenth century places that would be commercial and urban centres in the future. After the Althing (parliament) had been reinstituted in 1845 the Icelandic members started to push the government to authorize permits for the establishment of market centres in their home districts.

The Althing was thus flooded with requests, but the realist Tryggvi Gunnarsson took the lead in the battle against this drive and in 1885 said that the parliament had legalized so many spots that the insurance companies no longer wanted

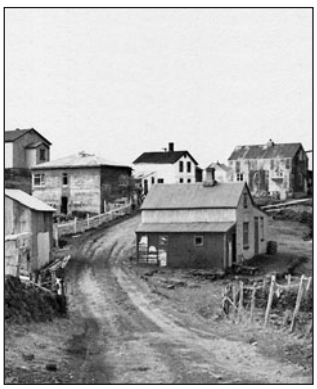


A typical hut. Fish and clothing hanging to dry.

to insure ships and cargo for all these places, unless with a special permit from the comptroller of insurance. Gunnarsson's attempts to control this expansion were not effective enough as the MPs lacked the understanding of the earlier Land Commissions that it was important to control the increase of legalized trading spots. A comment was published in the spring of 1927 in the newspaper *Dagur*, in Akureyri: "The nation has, in recent decades, overbuilt the country with villages and towns."

The farmers, who still held sway in the country, knew that urbanization on the coast was a threat to their power. In 1931 a comment in *Dagur* said that a battle was being fought on whether "the power of the farmers or of Reykjavík is going to be dominant in the future…. Reykjavík had, so to say, sprung up in just a few years and most people consider this to be an unnatural and unhealthy growth…and the country areas are almost bleeding to death because of the huge sacrifices in terms of manpower given to the capital."

Various technical aspects other than insurance were of importance in connection with the question of the number of harbours, for example, problems with providing health control and customs services.

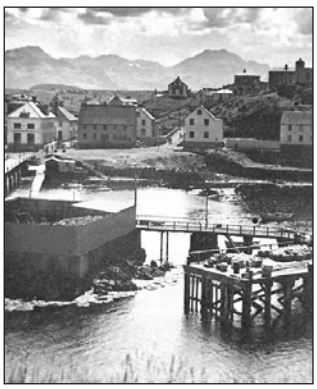


Hellissandur on Snaefellsnes in the 1930's.

On the other hand, it is no surprise that local people were pressing for obtaining legalization of a trading centre. There was, for instance, no legalized trading centre in the area from Reykjavík to Snaefellsnes. As the discussion took place in the Althing on whether Akranes should be given legal status, it was pointed out that travel from Akranes and Borgarfjördur to Reykjavík was extremely difficult because their only option was to go by boat and therefore travel was often delayed by the weather.

The road to Reykjavík from the rural areas in the west went over the Akranes Peninsula, where people had to wait for a boat ride. This meant extra pressure for the people of Akranes. This same sea route from Akranes to Reykjavík was for a long time well used and can be said to have been turned into a "national road" as the Akraborg plied between Akranes and Reykjavík.

In the discussion in parliament, some MPs stressed that a trading station in Akranes would hurt Reykjavík. In spite of this argument, Akranes was legalized as a trading centre in 1863. At the same time the people of Mýrar and Borgarfjördur called for legalization of their trading centre, Brákarpollur, today named Borgarnes; authorization was granted in 1867. Borgarnes never grew much as a fishing town because it was located deep in the fjord and did not have good harbour conditions. However, it gradually grew as a centre for the surrounding rural areas, among other things because regular ship connections to Reykjavík were provided until the causeway was built across the fjord in the 1990's to shorten the distance to Reykjavík. The causeway changed Borgarnes into a service centre for highway traffic.



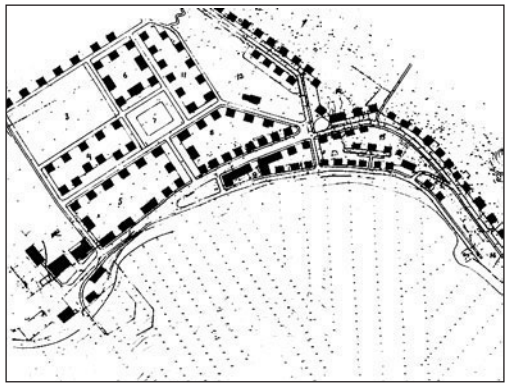
Stykkishólmur has a good harbour.

Let us now turn to the ancient origins of fishing villages on the Snaefellsnes Peninsula. Around 1880 three villages were legalized commercial centres – Búdir, Ólafsvík and Stykkishólmur. In 1901 Hellissandur was added and somewhat later Búdir was abolished. Stykkishólmur is among the oldest trading centres in the country and ca. 1840 had a population of about 130 and boasted a pharmacy, a shop, warehousing and cottages for the free merchants. Around the middle of the century, Stykkishólmur was chosen to become the seat of the *amtmadur* (deputy governor). In addition the sheriff's was located there, as well as a minister, a doctor and a library. In spite of this auspicious beginning, Stykkishólmur did not really take off as a fishing town and had only 600 inhabitants in 1920. In the twentieth century it grew only a little, having about 1100 inhabitants in 2000.

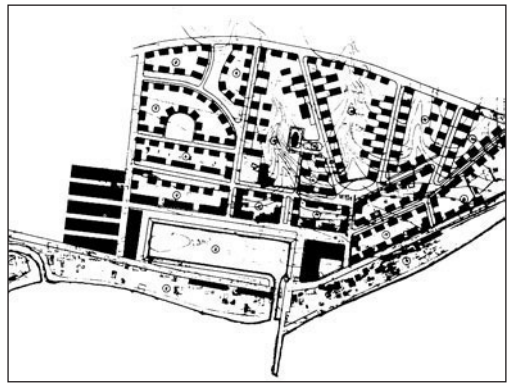
Stykkishólmur never reached the goal of becoming a fishing town of any size, though shrimp and shellfish production provided income until the collapse in 2002. What has helped the town is its beautiful location and its popularity among tourists. The picturesque setting of small islands, the hospital and the Catholic Church give the town a shape and an atmosphere which make it very beautiful.

As the twentieth century progressed some settlement developed at the old fishing stations of Rif and Grundarfjördur. On the southern part of the peninsula, however, there is hardly any other urban spot except for Arnarstapi.

There is only one urban spot in Dalir County – Búdardalur. This village has almost no fishing but has a service station for the surrounding agricultural areas. Búdardalur has had difficulties in growing, not least because the traffic to the West Fjords goes primarily over Hrútafjördur and the Djúp and not through the Dalir, Gilsfjördur and Bardaströnd. This could change, however, if a road is built over the Thorskafjördur highland from Gilsfjördur over to the Djúp. Road traffic would increase in the



The plan for west Patreksfjördur – on the Vatnseyri – from 1938.



Plan for Bolungarvík 1934; Settlement drawn away from the coast, and an inverse harbour.

Dalir if the ferry *Baldur* stopped running because then the road traffic to Ísafjördur over the Djúp and to the southern fjords of West Fjords would increase.

As 1900 approached, fishing started to increase in many places in the West Fjords. Engines were added to both rowboats and schooners. This meant that the fishing industry started to concentrate in certain villages, Bíldudalur being the first to buy schooners. In the southern part of the West Fjords a few fishing villages started to develop, Patreksfjördur becoming the largest and reaching 400 inhabitants in 1920. At that time, Bíldudalur had 300 inhabitants, Thingeyri around 400, Flateyri 300 and finally Bolungarvík, located at the outer end of the Djúp, around 700. All these fishing harbours were important in the utilization of the fisheries in the West Fjords in the twentieth century, even though the number of inhabitants did not substantially increase.

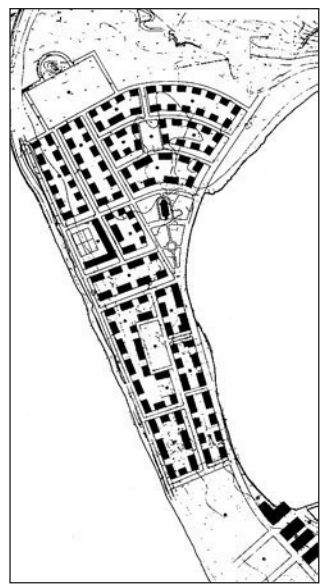
At the end of the twentieth century, as fishing was regulated with quotas, the people of the West Fjords did little to secure quotas so that the quotas and therefore the fishing have moved away. Because of the nearness to fishing grounds the West Fjords have historically held a good position, not least fishing from small boats. Therefore, after the loss of quotas, the settlements in the West Fjords have mostly depended on fishing from small motor boats, except for Ísafjördur, where they have a few big fishing boats.

Whaling has constituted a very special chapter in the history of the West Fjords. The pioneers were mostly Norwegians and whaling companies established whaling stations in many places in the West Fjords and also in the East Fjords. Whaling was prominent in 1890-1915 (until banned in 1915 as whale stocks were threatened by the size of the catch). The largest whaling station was Sólbakki, which is now called Flateyri in Önundarfjördur Fjord.

The production of whale oil amounted, in this period, to ca. 100,000 barrels. At the Framnes station they produced some 55,000 barrels, in Sudureyri 64,000 barrels and in Meleyri around 62,000 barrels. A few other places produced less. The profits from whaling were huge, and it has been estimated that the net profit was double the income of the national treasury during this period.

In order to process the whales the Norwegians brought equipment with them to Iceland, including steam-driven whaleboats and steam equipment to extract the oil. Many of the buildings of the whaling stations were also imported from Norway and put up at the new whaling stations. Thus almost complete industrial villages were imported from Norway. Later, when the whaling stopped, many of the buildings were moved away, many of them to Ísafjördur. Others were moved, for example, to Reykjavík. The private home of the director of Sólbakki, for example, was rebuilt in Tjarnargata Street; today this building is known as the government reception hall.

The highly mechanized operation of whaling became an important school for the Icelanders, where they learned how to operate machines and tools. This helped very much in the introduction of motorboats and trawlers to the country, and this also is the reason why the West Fjords were ahead in this development.



The plan for the Flateyri Peninsula from 1933.

2 Development of Towns in the North

Herring fishing was the impetus for the development of the fishing towns in the north just as fishing for cod and groundfish had started the urban development in the west and the West Fjords. Actually it was in the east that herring fishing first started in the mid-nineteenth century.

The first herring outfitters were Norwegian merchants that brought goods to sell to Iceland in the spring, mainly lumber, but then started to fish for herring during the summer and finally took the herring home with them at the beginning of the winter. To start with, the herring were caught in nets that were pulled towards the inner part of fjords where the fish were scooped up.

Around 1900 the herring started to be caught in the north and actually also, to a certain extent, in Ísafjardardjúp Fjord. In 1901 the number of barrels of salted herring produced in Siglufjördur had already reached 2800. In 1910 the number had grown to 7600. After that there followed a slump in the herring catch but after World War I there again came a peak and then another drop around 1920. The ups and down attest to the fact that fishing for herring, as well as marketing it, has been quite a gamble. The people from the south that flocked to this work in the north and east therefore sometimes returned with a lot of money but also, sometimes, they had hardly earned a penny. One of the main advantages that came with the herring fishing was that it gave both workers and ships new tasks which helped to make fishing a year round industry and which meant a strengthening of urbanization by the coast.

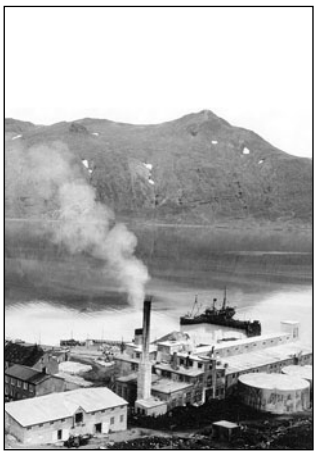
To start with, the only product was salted herring, cured directly on the landing piers and put into barrels. In 1911 the first herring cooker in Iceland was installed in Siglufjördur; somewhat later two more processing plants were built in Akureyri and Krossanes, and finally one in Hjalteyri in 1937. Two cookers were installed at Strandir and at Eyri in Ingólfsfjörd, but the herring cookers that were in Djúpavík and Ófeigsfjördur never became operational because by that time the herring had disappeared from the north and moved to the east.

The main herring salting harbours, besides those already mentioned, were Hólmavík, Skagaströnd, Saudárkrókur, Hofsós, Ólafsfjördur, Dalvík, Hrísey and Raufarhöfn, where a cooker was also installed in 1926. The profits from herring reached their peak shortly before World War II, when herring accounted for about 40% of the country's export value.

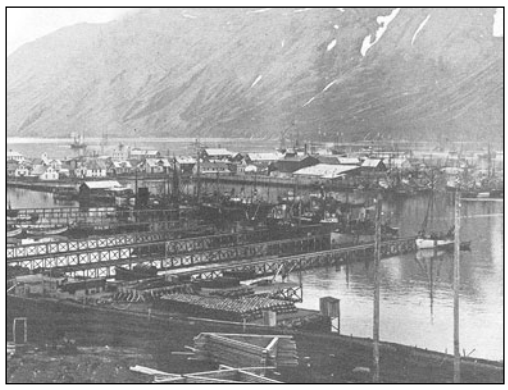
Foreigners played a big part in the fishing, mainly Norwegians, but because these fish could not be transported long distances without cooling or processing most of the work took place in Iceland, though some of the foreigners processed the fish onboard.

In 1945 the herring catch dropped suddenly but rose rapidly again and in 1947 had reached 200,000 tons before again dropping until 1955. In the war years, the herring suddenly appeared in the south so that much of the herring was processed in harbours on the Reykjanes Peninsula and in Faxaflói Bay. The percentage caught in the East Fjords also gradually increased.

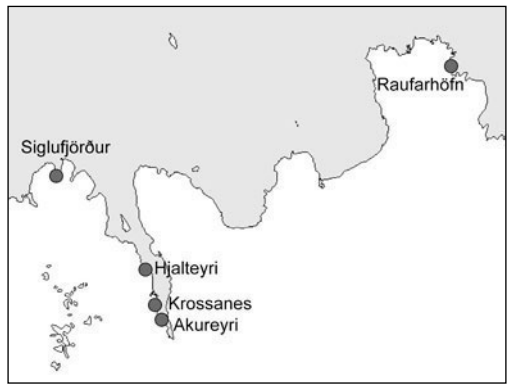
Around 1960 the herring catch started to grow immensely and did go up to about 800,000 tons in 1966, among other things because of a new power block that could pull up the seine so that the herring could be pumped directly from the seine into the boats, instead of having to scoop them up from floating seines alongside the ships.



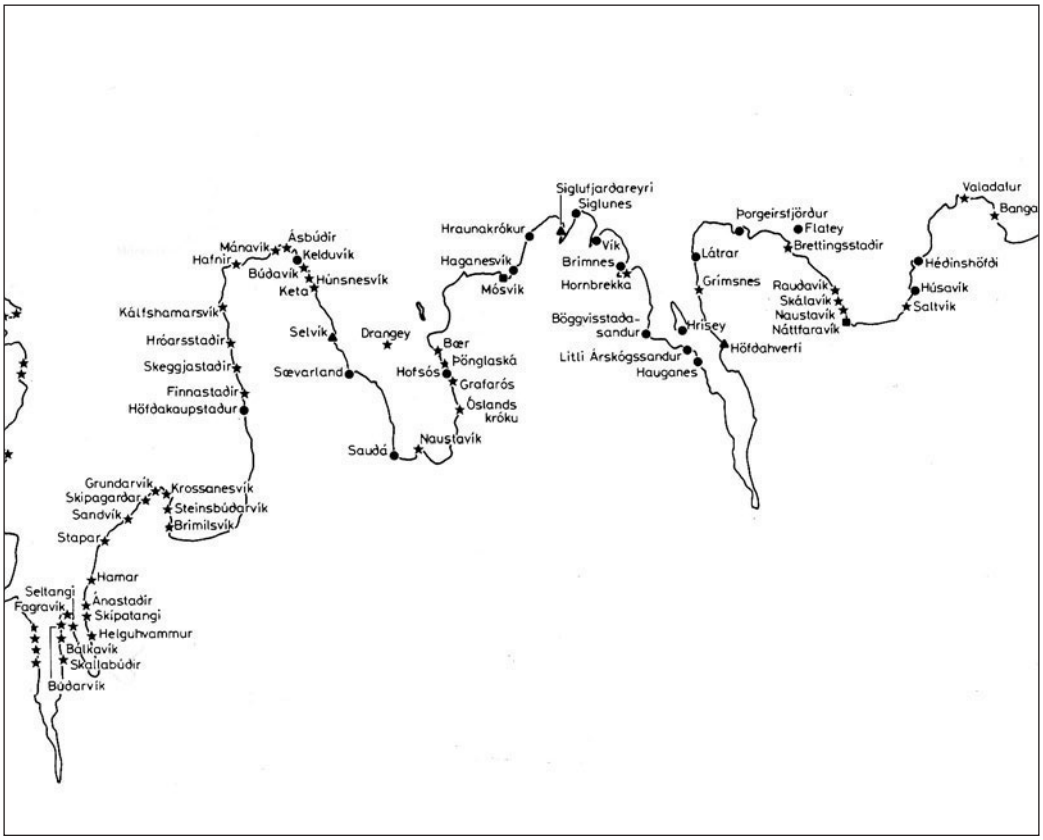
Herring factory in Djúpavík – now a ghost town.



Siglufjördur resembled an old gold-mining town. Rapid buildup, and decline as industry slowed down.



Places in the north where herring factories were built in the early 20th century.

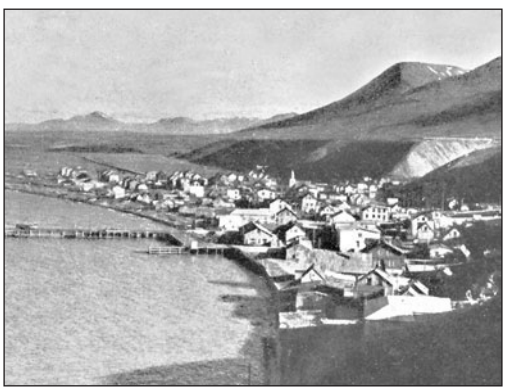


In the north country people did not have the benefit of the fish coming into shallow waters for spawning in late winter and in the spring.

The enormous effort expended in catching the herring meant that the stocks almost completely collapsed in 1968. The stocks began to make a comeback around 1990 and since then it has been possible to catch herring, but almost wholly to the east and south of the country and farther out to sea.

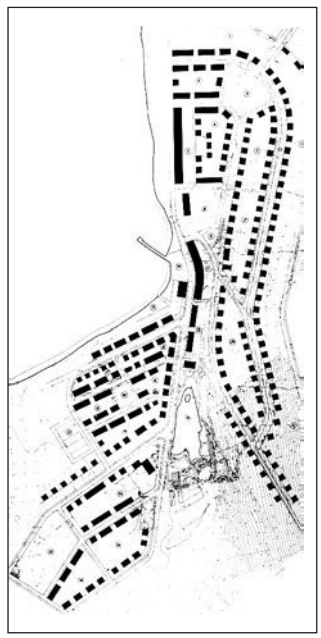
Icelanders became rich during World War II because of the high prices for fish products and because of the huge amounts of money paid out by the British and American military. After the war Icelanders started to use this money to buy new motorboats and trawlers for year-round operation, but after the herring disappeared some of the fishing towns in the north have, however, had a hard time finding a good enough base for their existence.

Most places in the north that were agricultural service centres as well as fishing ports have the surest existence. These are often towns that are located close to the centre of rural areas, which often means that they are placed close to the heads of the fjords, such as Blönduós, Saudárkrókur, Akureyri and Húsavík. The three



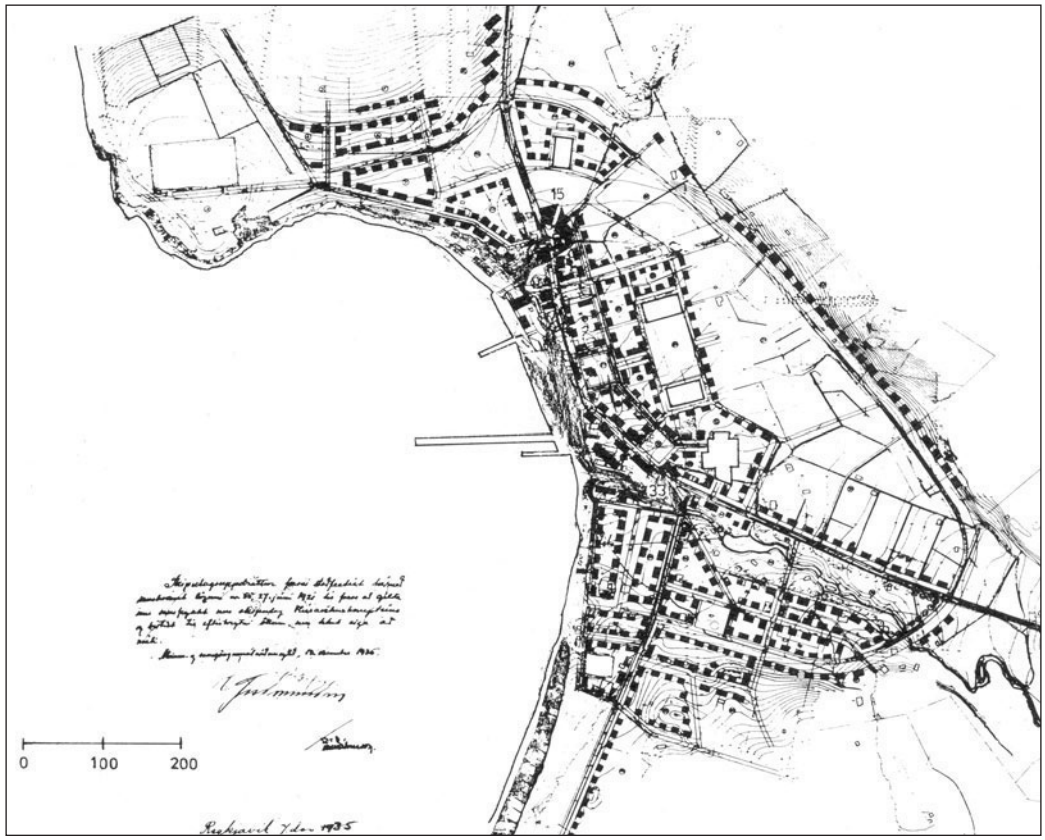
Saudárkrókur enjoys lying in the inner part of Skagafjördur where there is extensive land.

Ólafsfjördur is one of the fishing towns in Eyjafjördur that rose because of good harbour conditions.



The Ólafsfjördur plan of 1937. House rows at the harbour.

This first Húsavík plan was confirmed in 1935. The site of the town is beautiful, where it embraces a wide inlet.
It also has a good exposure to south and west. There is a little flat land, but most of the terrain slopes down to the inlet.



The headland that protects Húsavík from the ocean waves was created by a movement along an earthquake fault. – The unusual thus often creates both positive and negative things.

first of these towns have also enjoyed the privilege of being located on the Ring Road around the country and are therefore service centres for the Ring Road traffic. Húsavík, on the other hand, is placed rather far north of the Ring Road, which has meant that it has had the most difficulties of these main towns in the north. Húsavík has lately been trying to find a new foundation for its existence, primarily in the area of tourism. Whale watching trips are popular and a whaling museum has been built.

Some of the towns in Eyjafjördur Fjord have been developing quite well, primarily because they are situated close to Akureyri and can make use of the services that are available there. These include Dalvík as well as Ólafsfjördur, after a tunnel was built through Ólafsfjördur Múli. Before that the road ran along the steep hill of the Múli and was dangerous, especially during the winter.

Now in 2003, work has started on building two tunnels to connect Siglufjördur to the other settlements in Eyjafjördur. These two tunnels create the possibility for tourists to make a circle tour around the eastern part of Tröllaskagi, which is on the west side of Eyjafjördur.

Húsavík church, from1907, gives Húsavík a dignified look.

Húsavík 1934, looking north. This picture shows the close interplay between town and country, which strengthens both, resulting in a profitable union.

3 Development of Towns in the East

Eastern Iceland has always had some uniqueness in terms of settlement in Iceland, primarily because of its geographical position and characteristics.

The central East Fjords are deep and have little lowland area. In this they share a common characteristic with some of the fjords on Tröllaskagi and in the West Fjords. In such fjords the settlers from Norway will have felt at home and this, together with the nearness to Norway, meant that the East Fjords were the first areas to be settled in Iceland.

Not much agricultural area was to be found in the fjords but there are wide agricultural areas in the Fljótsdal District as well as in the lowlands of Vopnafjördur.

Above these areas rise the huge eastern highlands, the enormous Ódádahraun lava field and the Vatnajökull Glacier, the third largest in the world, that frame and isolate the east. Because of these enormous landscape features the east was almost totally cut off from other parts of the country when it came to land transportation, except for some connection with the north-east.

Job collaboration of people in the east with those in other parts of the country was minimal compared, for example, with the exchange of manpower between the south and the north. An exchange of manpower occurred when people from the north came south for the winter or spring fishing and people from the south went north to help process the herring catch in the summer.

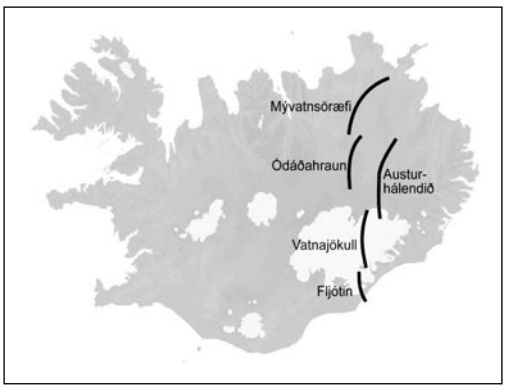
A low population was also characteristic of the East Fjords; though one of the four quarters of the country, it had only about 10 % of the population. And because the settlements mostly were rural areas and small villages and towns, this percentage has dropped more than in the other quarters of the country so that now the people living in the East Fjords number only about 4% of the total population.

Because of the lack of land for cultivation, the good harbour facilities in the east were a compensation. Therefore there were numerous fishing farms and farmers from the agricultural inlands came over the mountain paths to the fishing stations in the fjords, as in most other areas in Iceland.

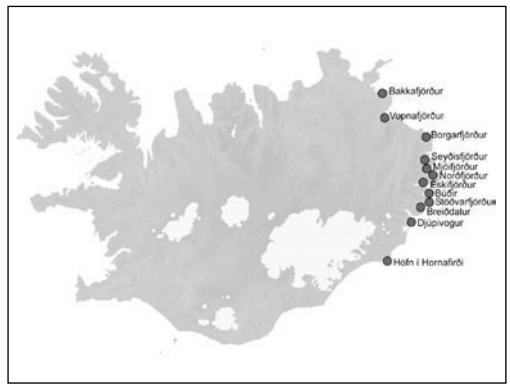
As urbanization took off in Iceland it also started to a certain extent in the East Fjords region. The urban areas in the east are characterized by being small, among other things because the mountain ridges between the fjords made it harder for people from nearby regions to exchange work than for those who lived, for example, on the rather flat terrain of Faxaflói Bay.

The commercial harbours were also, from early times, both small and numerous. This was primarily caused by the fact that each fjord had to have its own commercial village because of the mountain ridges that separated them and the fact that, in most places, no land transportation was possible around the steep headlands. The geography of the region did not allow the inhabitants of several fjords to band together to use one big harbour.

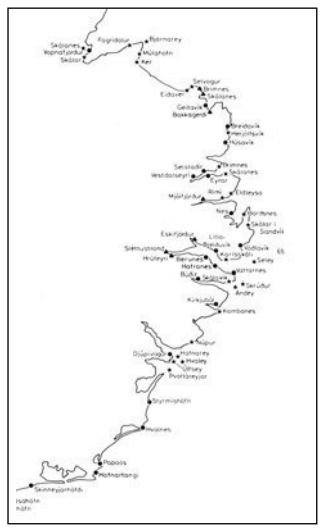
At the turn of the century in 1900 there were thus many small commercial spots in the East Fjords: Bakkafjördur, Vopnafjördur Eystri, Seydisfjördur, Mjóafjördur, Nordfjördur, Eskifjördur, Búdareyri, Hrúteyri, Búdir, Stödvarfjördur, Breiddalur, Djúpivogur and Tálknafjördur. The most progressive period in the East



The east coast was isolated from the rest of the country, as far as land transport was concerned.



Commercial towns in the east in 1900. Almost every fjord needed its own commercial centre.



Fishing spots on the east coast. Few led to settlements.

Fjords, around the turn of the century in 1900, was caused by the substantial participation of foreigners in the fishing, especially by the Faroese as their islands were only 500 km away.

Unlike the other foreign fishermen, the Faroese most commonly had their headquarters in Iceland, in this case in the East Fjords. What drove the Faroese to the fishing grounds off the East Fjords was the invasion of British trawlers in their home waters. Around 1900, they got about 70% of their catch in Iceland. The Faroese fished all round Iceland, but mostly in the east as well as in the West Fjords region.

The people in the East Fjords profited greatly from the fact that the Faroese landed most of their catch there, both at their own companies and also at Icelandic companies. This gave the easterners work and later income as their own fish were exported.

The eruption of Askja in 1875 had a huge, negative effect on settlement in the East Fjord region. Westerly winds prevailed at the time and the ash and pumice fell over the East Fjords and were even blown as far away as Stockholm.

The thickness of the ash in the fjords was commonly 5-10 cm and around 30 cm at the innermost settlements. Many of the farmers on the heaths were forced to abandon their farms.

This uprooting meant that people from the eastern regions made up the highest percentage of those who emigrated to North America at the time.

It is surprising how fast the pumice and ash are eroded by wind and water and how fast the vegetation is able to regenerate. Grass had returned by the last decade of the nineteenth century, which induced many Icelanders to migrate to the farms that had been abandoned because of the eruption and the emigration to America.

It has already been mentioned that the Norwegians started fishing for herring in Iceland in the East Fjords around the middle of the nineteenth century. Many of the outfitters were, at the same time, merchants, some of whom in due time settled permanently and became some of the most entrepreneurial and progressive people in the East Fords, the most famous of them being Otto Wathne.

Around 1883 the Norwegians also started the new enterprise of whaling, especially in the East and West Fjords. They built processing plants where they rendered liver for whale oil. The rest of the whale was usually thrown away, though the locals often made use of what was left over.

The largest whaling stations in the East Fjords were both in Mjóifjördur, one at Asknes close to the mouth of the fjord – which produced ca. 88,000 barrels in the whaling years – and the other at Hamarsvík in the inner part of the fjord, which produced ca. 60,000 barrels.

There were also large whaling stations in Sveinsstadaeyri and Svínsskálastekkur in Eskifjördur, which produced 35,000 and 17,000 barrels respectively. The highest catch was in 1905 with about 1000 whales killed. After that the catch fell year after year until whaling was finally prohibited in 1915.

Right up to 1920 fishing was mostly conducted from small boats and most of the catch was within the fjords themselves. After that the ships started to increase in size. In spite of this it has been a characteristic of the East fjords that the ships have been rather small and in 1940, when there were already 34 trawlers in the country, there was not yet a single trawler in the East Fjords.

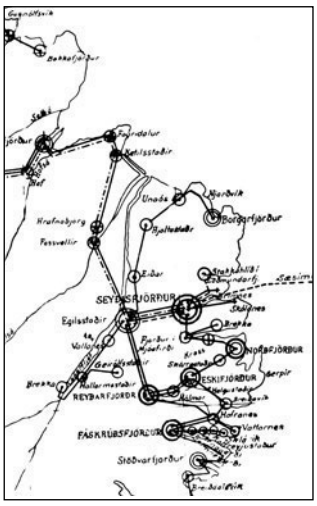
Because the East Fjords are closest to Europe the first undersea telegraph cable came to land in Seydisfjördur in 1906. From there a telegraph line went overland north to Akureyri and then westward before turning south to Reykjavík. Because of the telegraph a bridge was erected at the end of Lake Lögur, where the town of Egilsstadir now is. A road connection from the east to the north, however, was not established until 1934. Some fishing towns were not connected to the road network until very late, e.g., Neskaupstadur in 1949.

Egilsstadir is unique in terms of road transportation as it is located by the Ring Road. In addition, mountain roads go from there down to the most important fjords. The bridge over the end of Lake Lögur contributes to this concentration at Egilsstadir.

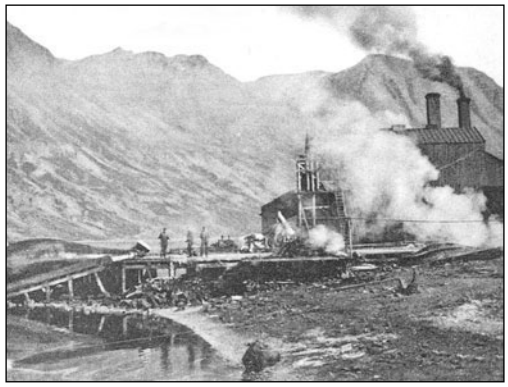
As people started to build houses by this bridge in 1947, the settlement started to grow quickly. It has, since then, been constantly on the increase. In 1990 the inhabitants numbered 1500 and 1700 in 2000.

In the same period the population of other communities in the east dropped, with the exception of Hornafjördur, which has experienced considerable growth, among other things because, like Egilsstadir, it too is located by the Ring Road.

During the years of World War II the military used the deep fjords in East Iceland (and elsewhere) as safe havens for naval vessels that waited to take part in the protection of shipping



The ocean cable came ashore in E. Iceland. — 1926 phone system.



The largest whaling camps were both in Mjóafjördur. There is no settlement there now.

Seydisfjördur around 1920. The town stretches along the fjord.

Neskaupsstadur exceeded Seydisfjördur as the largest east coast town around 1930.

Djúpivogur has the oldest history as it is the site of the Gautavík trading centre.

convoys that were on their way north to the Soviet Union. Their second purpose was to engage in battle in the ocean east of the fjords. A seaplane harbour was also located in the east of Lake Lögur, where the village of Egilsstadir started to develop after the war.

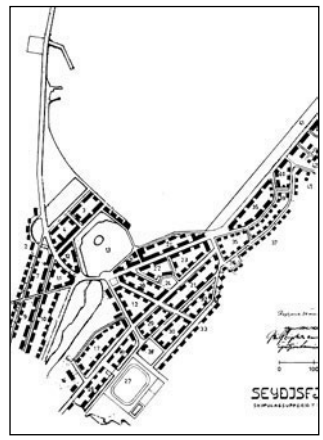
Even though the agricultural area of Hérad is rather good the road connections down to the fjords, where most of the people lived, were difficult. Milk, therefore, could not be transported and therefore there was little cattle farming in the district, though in most of the fjords people could keep enough cows to meet local needs for dairy produce. The main agricultural activity in the area has therefore always been raising sheep.

One of the aspects that has long held back the development of the East Fjords is that there has been, for centuries, a lack in agreement on what should become the main town of this part of the country. As free trade was in sight, the Danish government had to decide in which harbours captains could present their ship's documents. A bill that the Danish government put to a national meeting in 1851 proposed that the main commercial harbour be in Seydisfjördur, a proposal that the meeting accepted.

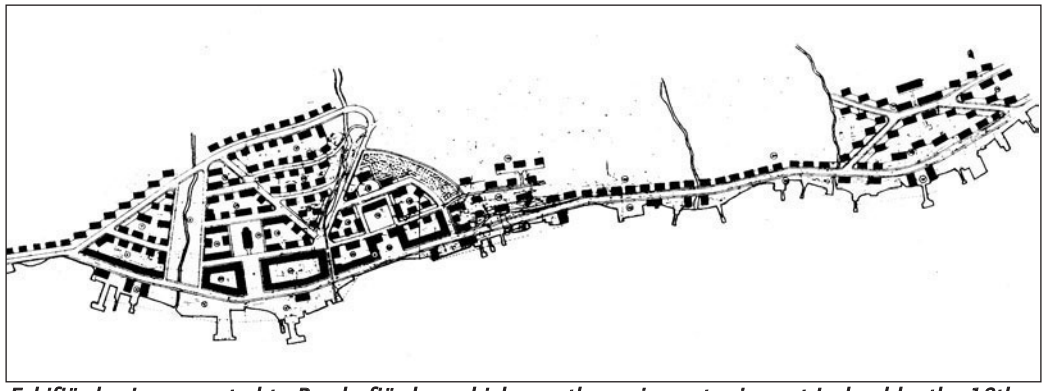
In the law on the freedom of commerce of 1854, the Danish parliament decided that the main commercial harbour should be Eskifjördur. The people of the East Fjords were very dissatisfied with this decision and they again and again stressed that Seydisfjördur was the better choice.

Commercial activity had already grown considerably greater in Seydisfjördur than in Eskifjördur as a result of the fact that the Norwegians had made it their main harbour. The main reason behind the decision of the Danish parliament for Eskifjördur was probably that the seat of the county sheriff was situated there.

In the ensuing discussion in the Althing in 1893, Björn Bjarnason from Grafarholt showed that the Hérad district and Reydarfjördur had a very strong position as concerned future roads between the agricultural areas and the fjords. Bjarnason did point out that most of the



The Seydisfjördur plan from 1933. River at its centre.



Eskifjördur is connected to Reydarfjördur, which was the main centre in east Iceland by the 18th century. The Danes agreed. The route up to Hérad is rather good.

agricultural produce came from Hérad and that the snowy Fjardarheidi Road to Seydisfjördur was a problem. He furthermore pointed out that land transportation from Hérad would be easiest down to Reydarfjördur but not to Eskifjördur because road connections presented basic difficulties.

Bjarnason visualized that a train track would be put through the Fagridalur Valley between Hérad and Reydarfjördur and he concluded: "And then the capital of the east might be best placed by Lake Lögur."

These primary arguments about transportation and its importance for a capital for the east were already clear to Bjarnason in 1893. This part of the country would have fared better if the people there had shared Bjarnason's keen understanding of planning.

In the beginning of the twentieth century Seydisfjördur was one of the fastest growing towns in Iceland, together with Reykjavík and Akureyri. But already in the 1920's the boom was almost over and after that Neskaupstadur (Nordfjördur) sped ahead of Seydisfjördur, becoming the most populous town with about 1100 inhabitants in 1930. Neskaupstadur got its trading station rights in 1928.

In 1925 the State Planning Commission started to deal with the planning of Neskaupsstadur, then still named Neshreppur, and the plan and report were finished in 1928.

That same year an article written by Gudmundur Hannesson, a member of the commission, appeared in *Morgunbladid*. Hannes-son wrote: "I am in no doubt…that my work on the planning commission is the most important of the tasks that I have been working on….In Nordfjördur there is, for example, a very important task for us planners, as it is the fastest growing trading station in the east.

"The fisheries are the strongest there and there is a good agricultural area close to town. But this town has been built under a steep hill where there is no low ground and over the whole hill there is one gully after another. In addition, more than half of the town is built in a danger zone where people know that avalanches have fallen into the ocean."

The planning proposal tried to make some amendments and recommend precautionary measures, which in fact was difficult. These planning faults eventually caught up with the town when a huge avalanche hit in 1974, killing 12 people.

Eskifjördur was the commercial harbour in the east that was first granted trading station rights in 1863. After that a map of the town area was made according to instructions from the king.

This map not only suggested that there be residences and warehouses for merchants but also industrial institutions, houses for manual labourers and water mills. Even though the Danish government took a positive view, not much happened in terms of its growth.

Gudmundur Hannesson described Eskifjördur in a newspaper article in 1927: "Eskifjördur is built on the south side of a steep hill by a good harbour…. The village is primarily one row of houses along the road by the ocean, long but very narrow…. It is a considerable distance out to the fishing grounds and the herring catch, that earlier was the main source of wealth, has failed the inhabitants for a long time, and in addition there is almost no land available for cultivation. This has meant that there is little progress there."

Good road over Öxi (939) would reduce traffic in the fjords.

4 Development of Towns in the South

In the earlier parts of this book the first sprouts of urbanity which occurred in the south have been described. The first villages were the seasonal "village" of the Althing (parliament) meeting at Thingvellir and the bishop's seat at Skálholt, which was also a major centre of learning. In addition to these, large farms and cultural centres in the south, like Oddi and Haukadalur, were almost like villages.

The study of the commercial sites in Iceland has also been traced, the most important being Eyrarbakki and the Westman Islands. This section will describe the forming of urban cores as they started to develop in the nineteenth century and then continued to strengthen in the twentieth century.

As in other places in Iceland it was fishing that became the foundation for the new towns. The lack of harbours on the sandy south coast meant that even though the south had very strong agricultural areas – as well as fishing grounds along the coast – only four places along the coast proved to have some future: Vík in the Mýrdalur Valley, Thorlákshöfn, Eyrarbakki and Stokkseyri.

The town in the Westman Islands was by far the largest fishing town in this part of the country. It grew steadily through the whole twentieth century becoming, eventually, the biggest fishing town in Iceland. For some reason fishing from Eyrarbakki and Stokkseyri never took off and it is not very clear why this was so. It is, however, likely that outfitters had the Básendar sea flood of 1799 in mind, as they took care not to venture into flood areas.

This great flood and its influence on Eyrarbakki was described as follows: "…the ocean broke apart and washed away one warehouse….all loose stones rolled as well as a wall that had been built from big rocks…. The ocean…undermined the foundations of most of the merchants' houses…[and] came up through the floor of the houses and through locked doors, breaking windows and smashing walls." (*Minnisverd tídindi II*, pp. 107-110).

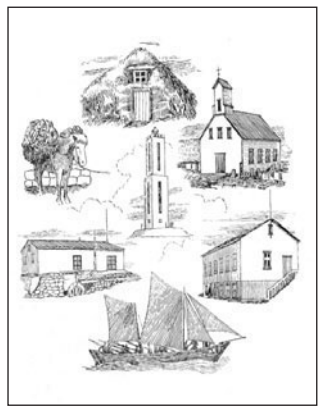
Another factor that held down growth in these two villages may simply have been that conditions, in many ways, were better in the Westman Islands and the fine Reykjanes and Reykjavík areas were not very far away. An additional reason for the lack of growth could have been that Eyrarbakki merchants had long been unpopular primarily during the period of trade when the Danish merchants retained their residence in Denmark.

As the route for transportation of goods over the Hellisheidi Heath improved, people started to bypass the merchants at Eyrarbakki. This unpopularity may even have contributed to the discussion in the middle of the nineteenth century on legalising a commercial centre on Dyrhólaey Island, along the coast further east.

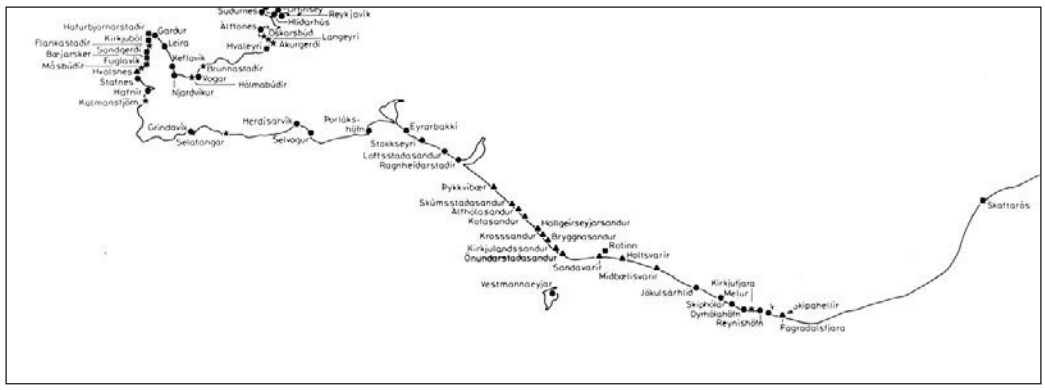
In 1877 Thorlákshöfn was legalized as a trading centre and Stokkseyri in 1883. However, a shop was not opened in Stokkseyri until 1889 and at the turn of the century the village had about 500 inhabitants.

By 1930 Stokkseyri was in decline. The only one of these four villages on the south coast of Árnes county that has continued to grow is Thorlákshöfn, where large and expensive harbour facilities were built during the 1960's.

The best agricultural areas in Iceland are located in the southern lowland, for most of the time utilized for raising sheep and cattle. When the road over the Hellisheidi Heath had been

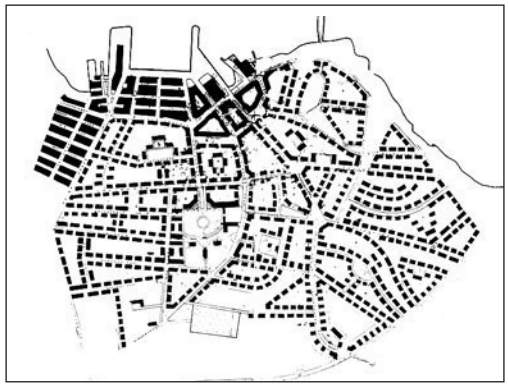


The symbols for Stokkseyri; lighthouse, boat, church, etc.

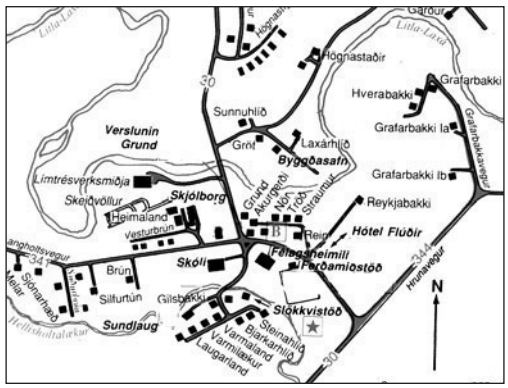


Fishing spots in the south and on Reykjanes. Difficult harbour conditions because of sand and surf led to little settlement on the south coast, despite the good fishing grounds.

Eyrarbakki in the 1930's. Stokkseyri in the distance.



Heimaey plan, 1932. Conjoined houses by the harbour but not in the residential areas.



Flúdir is one of the school locations that has developed into a village.

built, as well as the bridges over the Ölfusá River in 1891, the Thjórsá River in 1895 and the Hvítá River at Brúarhlöd in 1907, the southern lowland became the biggest producer of agricultural produce for the Capital Area.

What followed was the establishing of processing plants in the region, the first being the Rjómabúin dairy to produce cream. Most of the time, however, milk was processed at home. Cream and butter from the dairies, as well as eggs and skyr (Icelandic yogurt) from the farms, were transported over the heath to market.

In 1930 two dairies were established, one in Hveragerdi and the other in Selfoss. In the same year the Árnes Co-operative Association was established in Selfoss. The establishing of these two large industrial and service companies meant that the village of Selfoss started to grow rapidly.

The establishing of a branch of the National Bank in 1919, as well as of a co-operative shop in 1925, was among the first steps towards the urbanization of Selfoss. In 1970 the population was about 2400 and in 2000 about 4600. The major agricultural activities in the south needed services, and therefore two additional villages developed, Hella and Hvolsvöllur, as well as Vík in the Mýrdalur Valley.

Another incentive for urban development in the south was the establishing of secondary schools, usually located where there was the possibility of utilizing geothermal heat. Urban cores in the south that were originally selected as sites for schools were Laugarvatn, Haukadalur, Reykir in Biskupstungur, Flúdir in the Hrunamanna District, and Árnes in Gnúpverja District.

The geothermal heat also provided an opportunity for starting other types of activities, mainly greenhouses. Some maintenance services developed and finally services for tourists. In the latter part of the twentieth century the area experienced a growth of summerhouse settlements.

Besides the geothermal heat and other natural resources, the south has huge hydropower resources because of the two largest rivers in Iceland, the Hvítá and the Thjórsá. It was, however, on the Sog River that the first hydropower plants were built by the City of Reykjavík. Reykjavík built three power plants there to meet the needs of the city, but the local people enjoyed some of the advantages, such as increased work and a supply of electricity.

In 1968 the first large hydropower plant on the Thjórsá River, in the northern part of Gnúpverja District at Mt Búrfell, started operation. Since then the building of power plants in the Thjórsá and Tungnaá River area has continued, which has created work for the local inhabitants and thus secured the settlements.

For the greater part of the twentieth century the town on the Westman Islands was the most populous in the south, but shortly before 2000 Selfoss surpassed it in population. The Westman Islands for most of history had a very unique position, at one point having been a separate county. The town was granted trading station rights in 1786 and again in 1918.

The Islands are very beautiful and well suited for settlement. There is a good natural harbour and some agricultural area, even though a lack of agricultural produce in the early ages most probably held down community growth.

In 1973 an unusually dramatic volcanic eruption started in the eastern part of Heimaey Island, just outside town. The island was successfully evacuated, with no lives lost.

The people had to put up with living on the mainland for many months or until it was

This area in heading towards increased activity.

Selfoss is the largest town in Iceland that has arisen in an agricultural area. The coming together of transportation routes at the bridge led to the creation of services and later to the establishing of shops and processing industries for the agricultural areas. Today, Selfoss is mainly growing because of services for tourists and the summerhouse settlements in the south.

The Selfoss master plan of 1987–2007. The biggest flaw is that Highway 1 goes through the town, but there is a plan is to build a new road and a new bridge over the Ölfusá, north of town.

considered safe to allow them to move back to the Islands. Because of this catastrophe, houses were built on the mainland, financed by a state contingency fund, among other places, in Thorlákshöfn, Höfn and Reykjavík.

Many of the islanders did not return, so the eruption meant a reduction in the number of inhabitants.

In modern times maintaining communication with the Islands has become a great problem. This factor is actually the main reason why most of the islands in Iceland have been abandoned, even though in earlier times they were considered to be some of the best places to live.

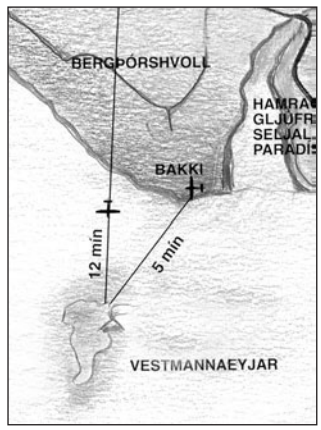
The Westman Islands, for a long time, have enjoyed the services of a state-supported ferry: *Herjólfur*, sailing from Thorlákshöfn. The problem is that it takes three hours to sail from there to the Islands, which is about four times as long as from Eyrarbakki if the ferry went from there instead.

In that sandy area it is, however, very hard to construct a harbour, but in the autumn of 2000 the Althing agreed to start an investigation into constructing a ferry harbour there.

A little further inland there is the Bakki Airport, where some of the Westman Islanders have garages for their cars so as to drive when they come to the mainland. The flight time to the Islands from there is only five minutes. Some discussion also has taken place on building a 15 km tunnel to the Islands, but that would be very expensive.

It is not unlikely – if air services out of Reykjavík decline still further or are stopped – that air service will be operated from the Bakki airport and also probably to some extent from the Selfoss airport.

There has been much talk about introducing hovercraft boats for transportation, but the height of the waves makes it impossible to use such boats in bad weather. A ferry, on the other hand, can go in most weather, though the great question is whether it is possible to build a harbour at Bakki that will not constantly be filled with the sand drifting along the coast.



Short flights: From Westman Islands to Hvolsvöllur and Bakki.

IX Development of Larger Towns in the Countryside

1 Ísafjördur and Vicinity

In this and the next two sections the towns in the countryside that are most likely to be the most important urban cores of the future will be described. It should be noted that large towns in Iceland means much smaller towns than in larger countries.

This first section describes Ísafjördur and vicinity. Although the West Fjords have been losing population, it seems that Ísafjördur is going to survive. The state has given considerable support to Ísafjördur and vicinity in many ways, for example by building an 11 km tunnel that was opened in 1995.

This tunnel starts in Ísafjördur and branches in the middle of the mountain to Sudureyri in Súgandafjördur and to Önundarfjördur, where the village of Flateyri is located.

In addition, the villages of Bolungarvík and Hnífsdalur are located very close to Ísafjördur and thus also take part in creating a cluster of towns in the Ísafjördur area. Even though there are currently problems in the fishing industry in this area, various other possibilities are being attempted to strengthen the settlements.

Ísafjördur has a long history as an urban core and was one of the six places in the country that first got trading station rights in 1786. As the fishing started to improve in the nineteenth century the settlement by Ísafjardardjúp Bay started to grow and Ísafjördur soon became the main outfitter and export town for the cluster of settlements located on the bay.

At the turn of the century the inhabitants numbered about 1100. In 1930 the population had grown to 2500 and had reached 2900 in 1945. Since then only a small increase has occurred.

As is usually the case with the narrow fjords in Iceland, the lack of lowland areas is a disadvantage. On the other hand, these fjords have the great advantage that most of them are natural harbours, especially where a spit of land stretches out into the fjord, sheltering a calm body of water.

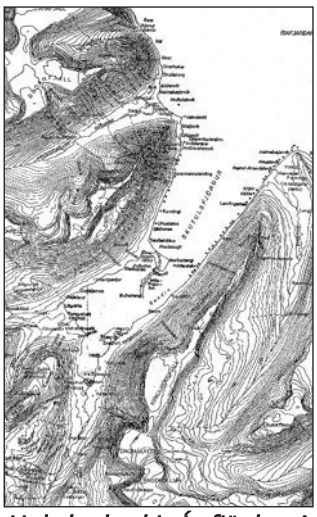
At first, the settlement now called Ísafjördur took its name from this spit and was called Skutulsfjardareyri. So the town of Ísafjördur actually stands by a fjord that still bears the name of Skutulsfjördur.

Because the town has a long history, a considerable part of the buildings on the spit is from earlier times. Many of the buildings represent important epochs in the architectural history of Iceland.

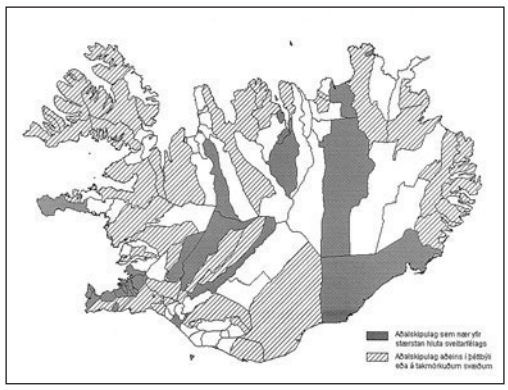
This has proven to be a resource for Ísafjördur, as well as in some other old towns in Iceland, now that tourism – meaning both foreign and native tourists – has become an important industry. For a long time this heritage was not respected, but later, ideologists started to explain the importance of this architectural heritage to the Icelanders.

In 1992 – 93 a special investigation was conducted into this architectural variety. As often with such investigations, the settlement is categorized according to periods, building material, planning, characteristics, etc. Such an investigation is a foundation for making wise decisions as to what houses, or units within the settlement, should be preserved.

In 1971 the Icelandic planning law became 50 years old. The State Planning Committee then decided to announce a competition on the planning of a fishing town with respect to the

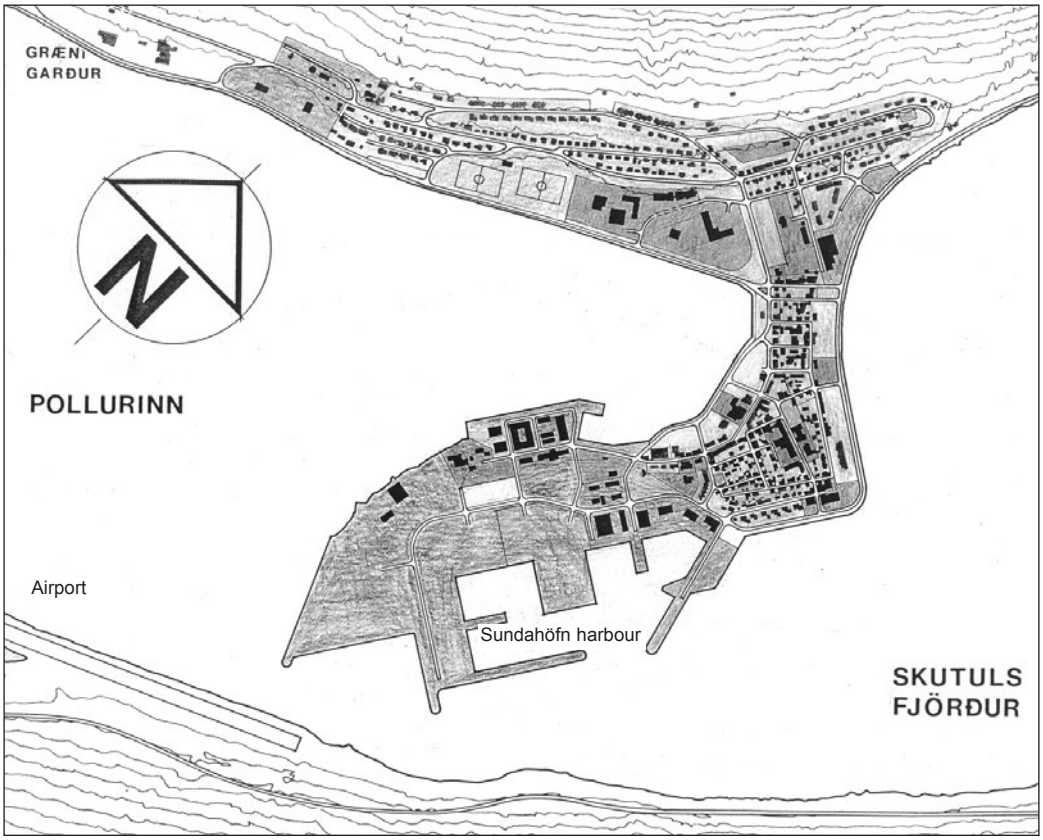


Little lowland in Ísafjördur. A sandbank forms a natural port.



The status of master plans in Iceland, Dec. 2002. Dark: both urban and rural plans confirmed.

Elegant conjoined buildings from the 1927 plan give the appearance of a capital town.

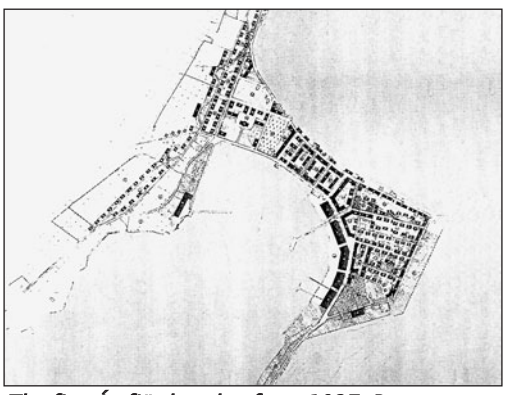


This Ísafjördur master plan, 1989–2009, was confirmed by the minister in 1990. This is the centre section of the map, which stretches to the town of Hnífsdalur and to a settlement at Úlfsá.

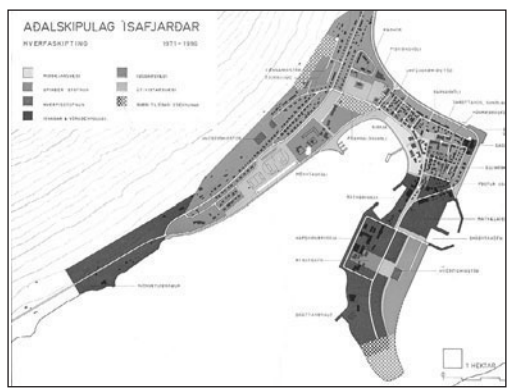
social and economic connection of these towns to the surrounding rural areas and urban centres.

The prize was shared by two proposals, one of them for Ísafjördur and the West Fjords and the other for Thorlákshöfn and the southern lowland. The authors of the winning proposal for Ísafjördur were four young men: Ingimundur Sveinsson, now a well-known architect, Ólafur Erlingsson, a chief engineer, Ólafur Ragnar Grímsson, now the President of Iceland, and Gardar Halldórsson, later the State Architect of Iceland.

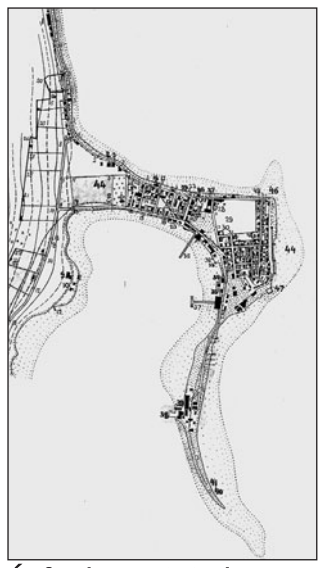
In the special issue of the Sveitastjórnarmál announcing the winning proposal, the introduction stated: "What was proposed has been achieved, namely, to induce a closer collaboration between disciplines concerned with construction, on the one hand, and social sciences on the other."



The first Ísafjördur plan from 1927. By comparing maps one can trace development of ideas.



A proposal from a competition covering the 1971–1990 period. Sundahöfn is already there.



Ísafjördur in 1913, the year the first trawler came.

2 Akureyri and Vicinity

Akureyri has a long history as a trading place and its location, deep in the Eyjafjördur Fjord, surrounded by agricultural areas, makes it a good spot. The good harbour conditions, protected by the gravel spit of Oddeyri, are also an important asset.

The first settlement was created on a little sandbank below the Búdargil gully, where now is the town centre. The Oddeyri spit, created by material deposited by the River Glerá where it enters the fjord, was much larger and a little further north. Fjaran lies beneath a high hill that stretches inwards beside the fjord. These three areas – the downtown, the Fjaran coast and a part of Oddeyri – form the old part of Akureyri.

Because of Akureyri's tradition as a cultural centre and a school town, the state government decided in 1987 to establish the University of Akureyri. Many thought this was rather bold and as a matter of fact hardly sensible for such a small country as Iceland to spread its power at the university level.

The establishing of the university on the other hand has proved to be a necessary foundation for the town to come to grips with future development. The state has been very supportive, for example by relocating research divisions and creating branches of state institutes in Akureyri connected with the university, including the Fishing Industry Research Institute and the Oceanological Institute. Furthermore, various other offices have been moved to Akureyri, such as the Office of Equality and an office of the Tourist Council.

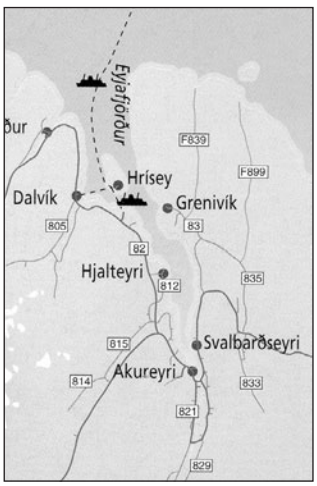
This has had the effect of allowing Akureyri to succeed in moving away from being primarily an industrial and fishing town to becoming a centre of culture and information technology. Agriculture and the fishing industry, however, are still the main base for the town's occupational activity. The new development means that young people are now willing to settle in Akureyri and various sprouts for future growth have now succeeded in finding their place there.

Let us now turn to planning matters. One of the prerequisites for attaining the cultural standing that strong modern towns need to have is that the town is beautiful and that it has beautiful architectural areas that attract tourists and create a pleasant atmosphere. In this regard, Akureyri builds on the past, for example, within the field of education.

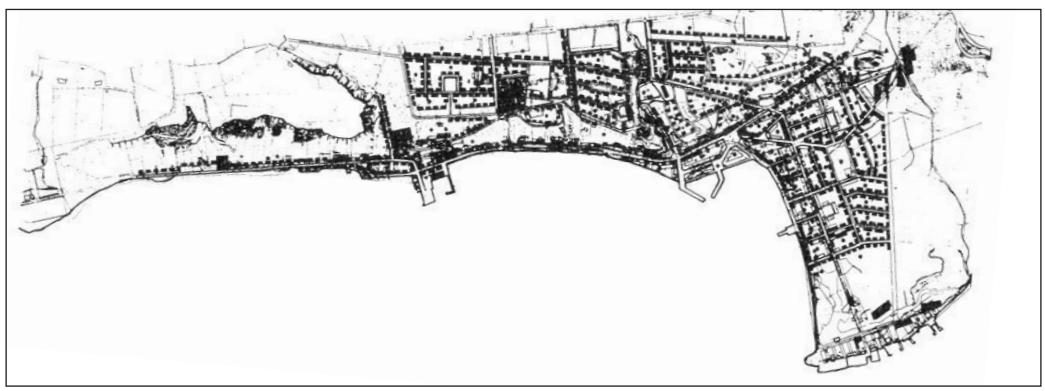
Akureyri also has a long tradition in gardening and the planting of trees. The pioneers in these fields were Danish merchants and their wives, who were the elite in the town's formative stages. The most famous plantings are the Lystigardur Garden and Kjarnaskógur Forest.

Because of how Akureyri had already become a strong town around 1900, many beautiful wooden buildings were built there, buildings that still today create the foundation for the attractive atmosphere in downtown Akureyri. In addition, there are old and beautiful neighbourhoods in the Fjaran and Oddeyri areas.

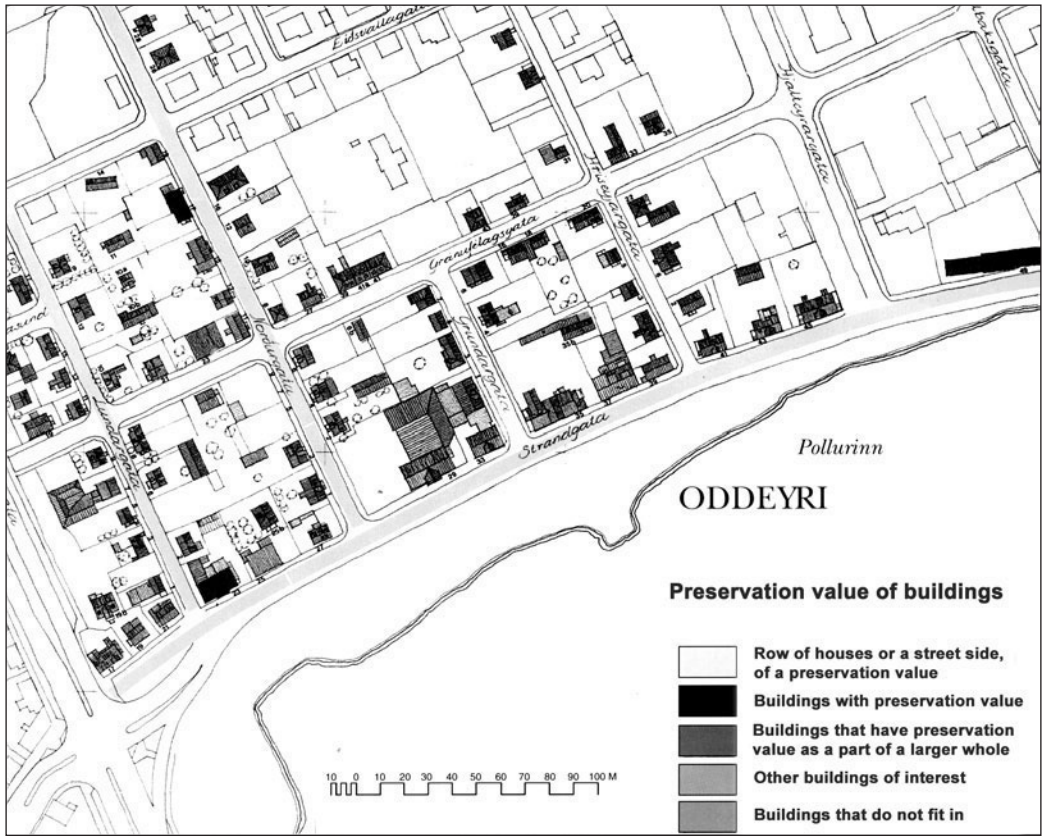
The people of Akureyri discovered early that this architectural heritage was a cultural resource and therefore started to do research into the value of the buildings and the older neighbourhoods and adjust them to the plan. The first master plan for Akureyri was confirmed in 1927, and development followed the main lines of that plan for a very long time.



It is a good policy to create a cluster in Eyjafjördur.



The plan from 1927. The surroundings of downtown are fully planned and also a part of the Oddeyri (to the right). The town stretches southward, along the coast.

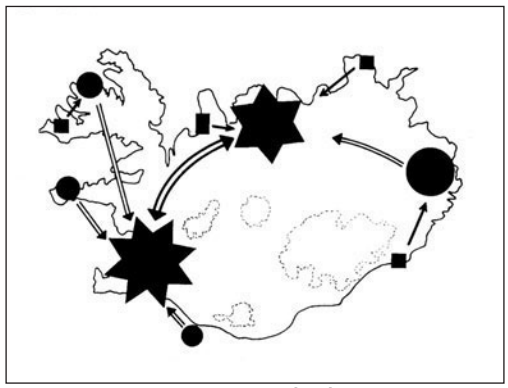


A map showing conservation values of buildings in the Oddeyri area. Before a planning proposal is made, specific evaluations have to be made of building materials, age, history and appearances.

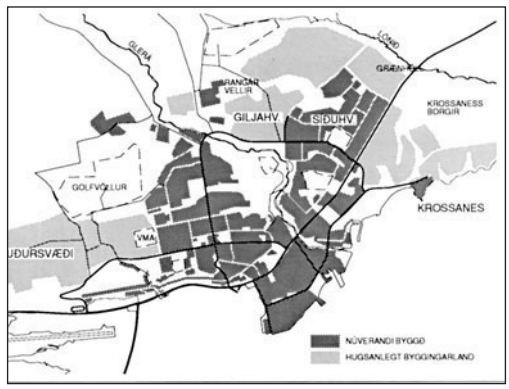
Finally, however, it was decided to make a new master plan, valid for the period 1972-1993. This plan took some guidance from the extensive work of the Danish planners in Reykjavík in the 1960's. Among other things, the road system in Akureyri was, as in Reykjavík, divided into *four categories of roads*, i.e., primary roads, connecting roads, collecting roads and residential streets.

Social matters were also introduced into the plan, among other things by carrying out a survey among the townspeople about their ideas about planning and the future, which can be seen as a step towards what we today call participatory planning. This plan was made by Gestur Ólafsson and his office.

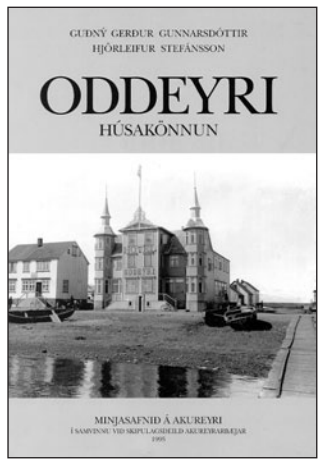
The next master plan was worked on during the last decade of the twentieth century, mostly by Finnur Birgisson, but in close co-operation with the Planning Division of the town and its planning director, Árni Ólafsson. This plan covers the period 1990-2010. Even though the



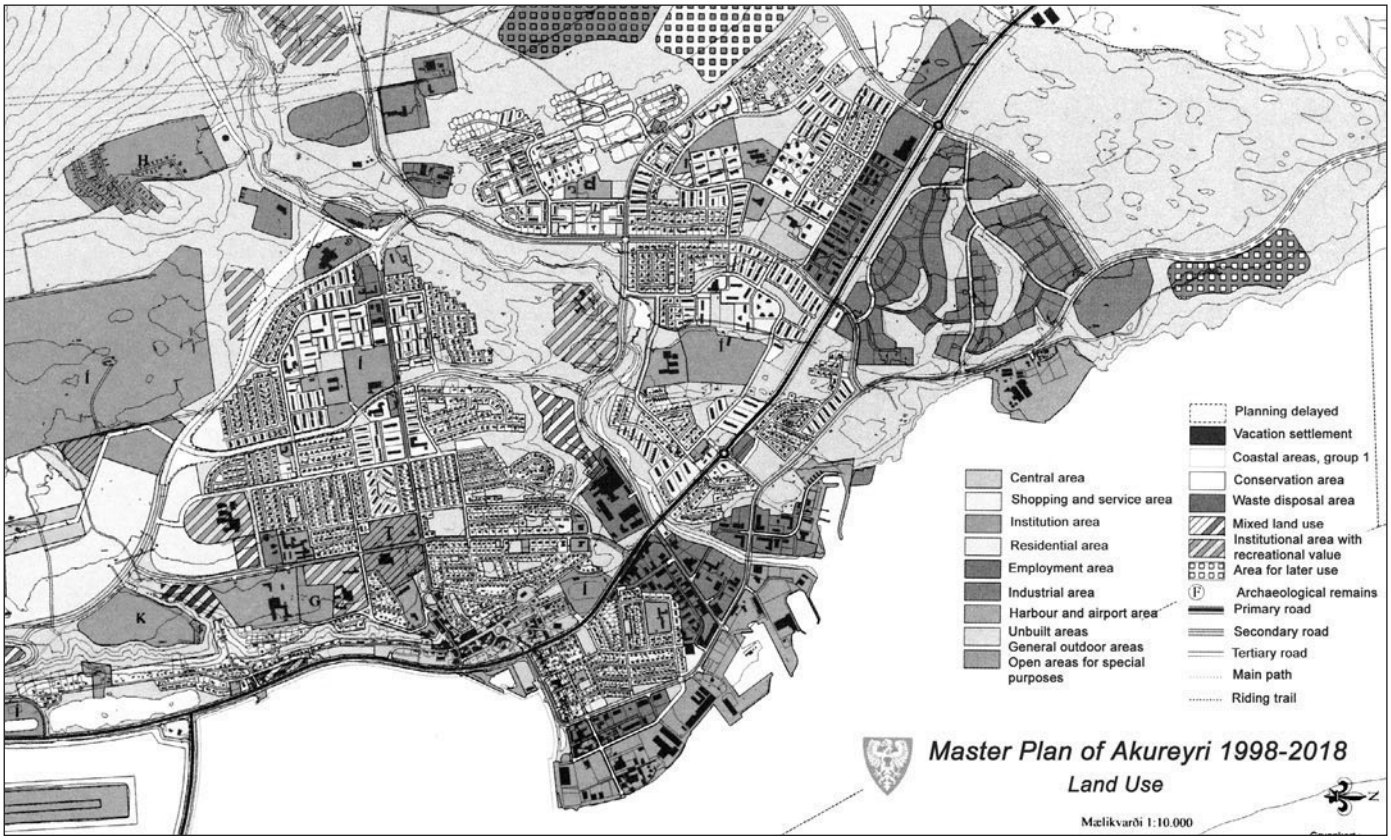
Already in 1963 the idea of a few large centres in Iceland was introduced.



In the 1990 Akureyri plan, possible future building land was shown in light grey.



Good architectural studies have been made of Akureyri.

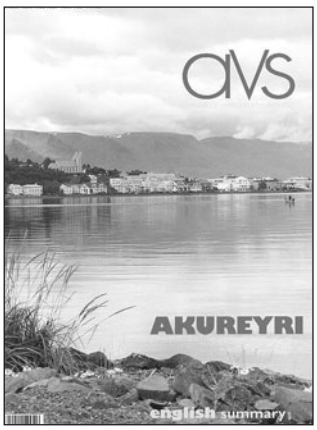


The Akureyri master plan, 1998–2018. Large new neighbourhoods south of the town. The slope opposite the airport is very steep. Most neighbourhoods cannot be seen from downtown as they are on raised ledges, as are most of the new neighbourhoods too.

law requires that a master plan should be reviewed every five years, a revision did not occur for eight years. Work on that revision started in 1995. Now it was the planning division itself that was in charge, with Árni Ólafsson and Matthildur Elmarsdóttir at the helm. Future development is shown in the master plan to the south of today´s settlement on the Brekka. The next step was to advertise a competition for planning this area – the result being announced in 1996.

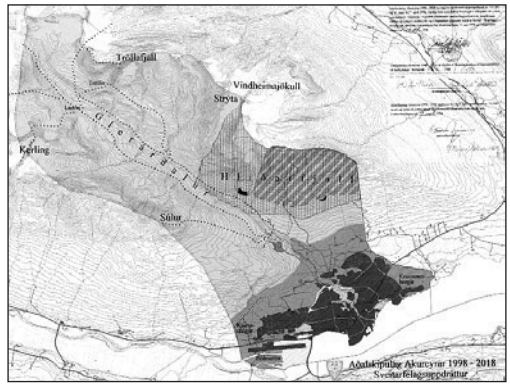
The new neighbourhoods, meant to contain 2000 flats, have an estimated building time of 20 years. With this plan a new type, *a frame plan*, was introduced as an intermediate step between the master plan and the detail plan.

The principal idea of the plan is that an urban street goes through the whole length of a neighbourhood, with the idea of making the street somewhat like an old city street with a dense and lively atmosphere.



An AVS report on Akureyri's planning issues.

The plan of the Naust is characterized by an urban street that goes through the whole length.



After it became compulsory to plan all district-owned land, a map showing is required.

3 The Mid-East Fjords – A Multi-Core Area

For a long time there has been a lack of policy making within the regional and country planning levels of Iceland. The politicians in Iceland have lacked the courage to have such plans made. The process would have included making decisions about what settlements are the most important, e.g., in order to utilize the natural resources of the country.

In order to be able to formulate such a policy, people also need to come to a conclusion on what will be a logical settlement structure of the country in the future. The development towards a few, large fishing towns and the need of people and companies to settle in or close to strong service centres mean that the development areas in the country are going to be few in number. Some of them are already very apparent: the southwest and the north central areas. Areas that can be served by these settlement cores are the area from Vík in Mýrdalur to the Holtavörðurheidi Heath in the south and the area from the Holtavörduheidi Heath to the Langanes Peninsula in the north. The fishing areas in these regions also follow this same division.

A look at this scheme on a map of Iceland (see the map below) reveals that the coastline outside of these two main settlement regions in Iceland, i.e., from the Langanes Peninsula in the northeast to about Vík in the south, is very long or about 1/3 of the country's total coastline. The necessity for a strong service region in the east, close to the middle of this area, is therefore evident. What follows from this reasoning is that the settlement structure of the future needs to have these three basic pillars: south-west, north central and east central.

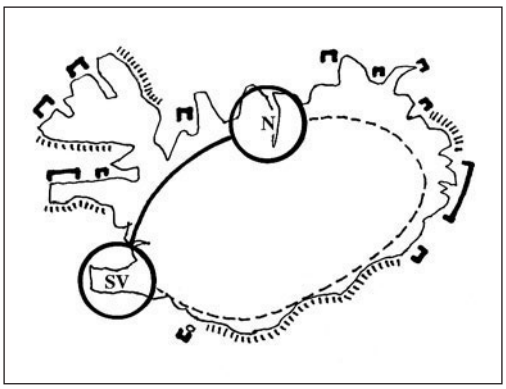
In order to let this triangular settlement structure work as a whole, people need to make sure that the east pillar holds up, for example, by improving and shortening road distances, both on the Ring Road and also by building a highland road on the north side of the Vatnajökull Glacier.

The task of strengthening the eastern pillar is of national interest because the profitability of fishing and fish production in the east would thereby be secured. In addition, the utilization of the energy resources would become easier and cheaper and the things that the eastern part of the country has to offer, in terms of tourism, would be more easily obtainable for the benefit of the whole country.

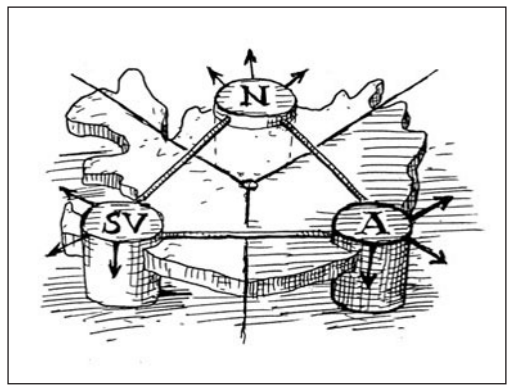
In view of this, the present distribution of settlement areas in the eastern part of the country is clearly a problem, but the huge Kárahnjúkur power plant and the aluminium smelter at Reydarfjördur that are now being built can turn development for the better. But there are more things that need to be considered in assessing the future regional outlook for the east. People need to estimate, in a realistic way, what can be done in terms of the various villages and towns.

On the next broadsheet there is a graph that shows how the older towns in the east have been losing population. The new towns of Egilsstadir and Hornafjördur, on the other hand, have been growing steadily. This demonstrates that these two towns have some of the preconditions needed for the future, for example, a location along the Ring Road.

One of the biggest problems in the east is that there has been no agreement on which of the existing towns should become the capital or main centre of the east, even though the development of late has clearly shown that Egilsstadir is the most logical town for this task.

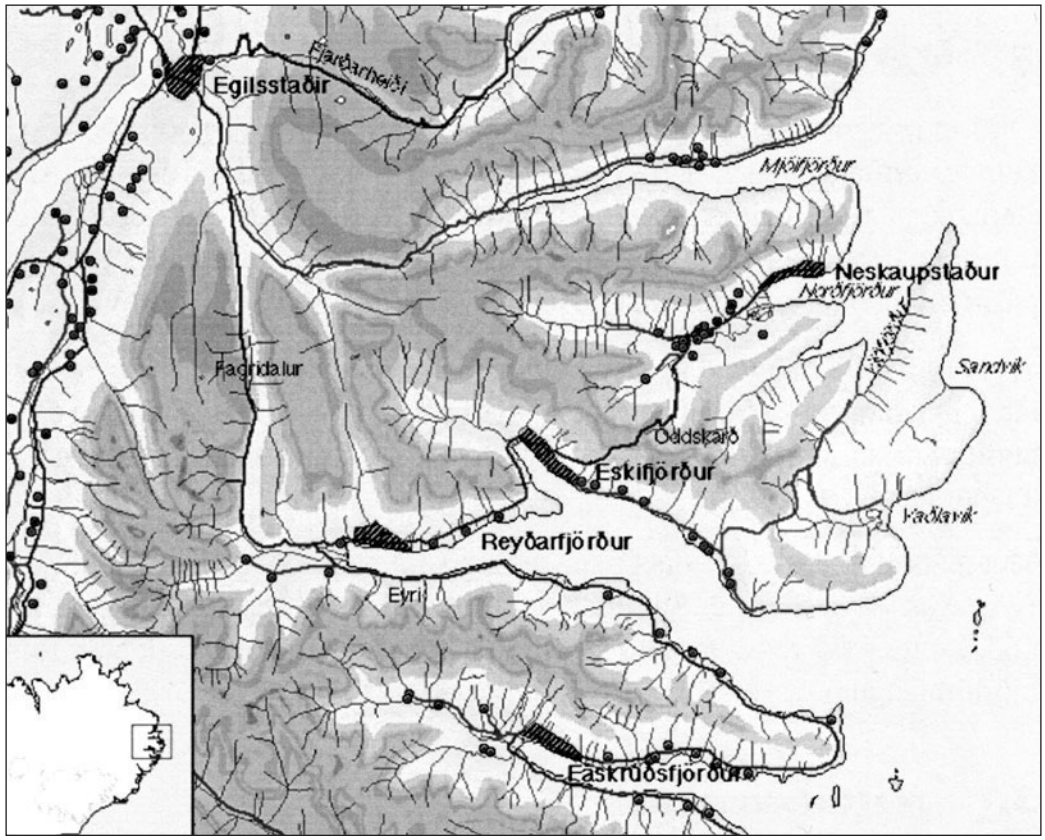


The south and east coasts need a powerful centre. The mid-east would be convenient.



The east coast is needed as the third support pillar in the country's triangular system.

This plan was the predecessor to unifying the area.



The mid-section of the eastern coast, and its urban centres. The construction of a new aluminium plant in Reydarfjördur also leads to the construction of road tunnels.

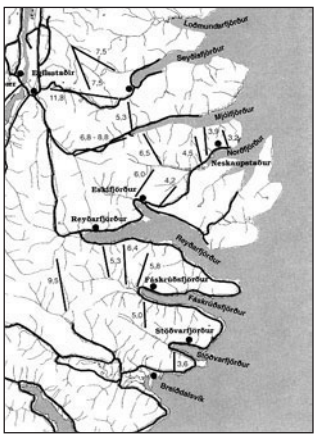
In the section on the early development of towns in the east, on page191, an account was given showing why, in the historical development of the area, there was no agreement on which town should be strengthened to become the service centre of the region. This unfortunate disagreement is quite different to the experience of people in the southern, western and north central areas.

The result of this strife is that no single town has been decided on as the future core and therefore central services have been distributed widely over the towns in the region. In addition to the earlier disagreements, various disputes as to which of the towns in the fjords should be accorded privileges in terms of a central harbour and other services have also caused troubles.

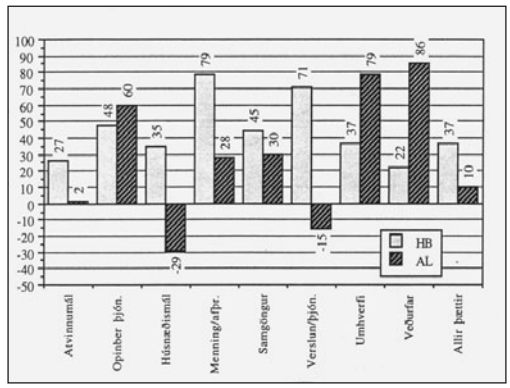
Emotional aspects have also been a part of the question as to which place should be the capital of the east because the old towns in the fjords have had a very hard time accepting the vision that the future service centre should be inland, in the new town of Egilsstadir.

This is also partly because the road connections from the fjords up to Egilsstadir have been rather poor and also because these towns are socially different. On the one hand we have harbour towns in the fjords but on the other, the agricultural and service town of Egilsstadir. In addition to this difference in nature, Egilsstadir is so new that it does not have the respectable appearance that the people of the East Fjords would like their capital to have.

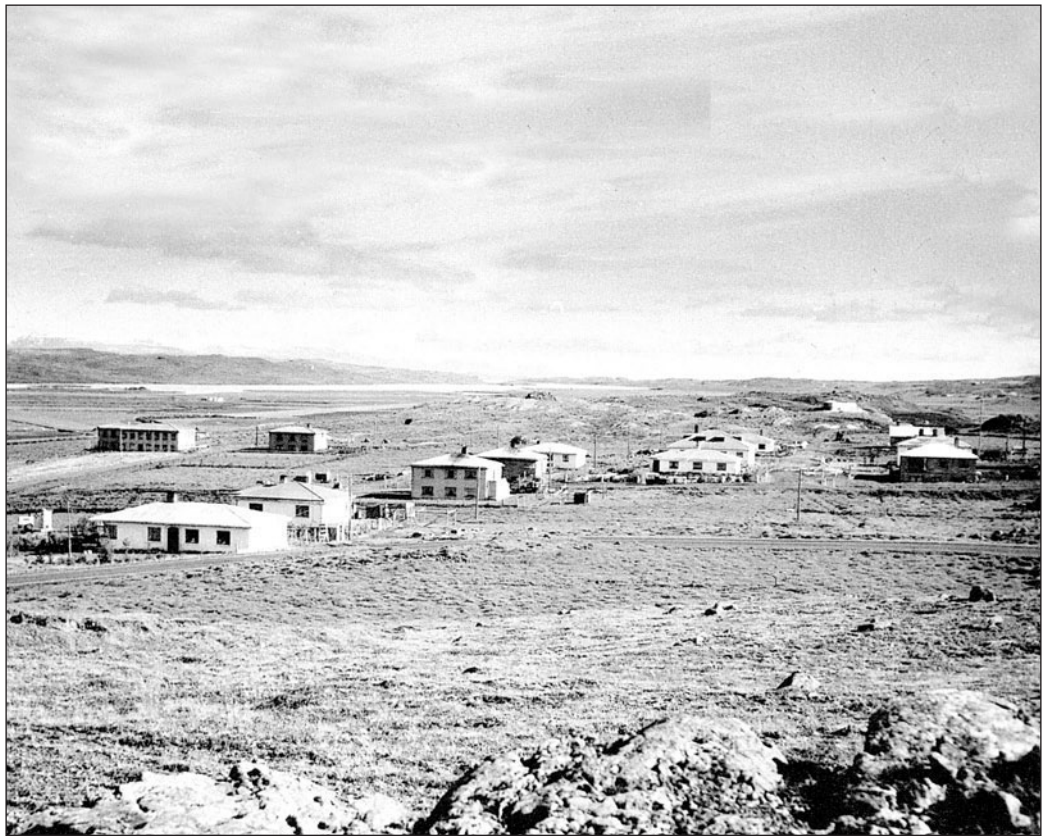
In spite of this, the fact remains that Egilsstadir has been constantly growing stronger. An upper secondary school has been established there, and good sporting facilities, a hospital, a



Explored tunnel options in '93. Distances in kilometers.



Satisfaction and dissatisfaction with varoius features in Reykjavík and in the east.



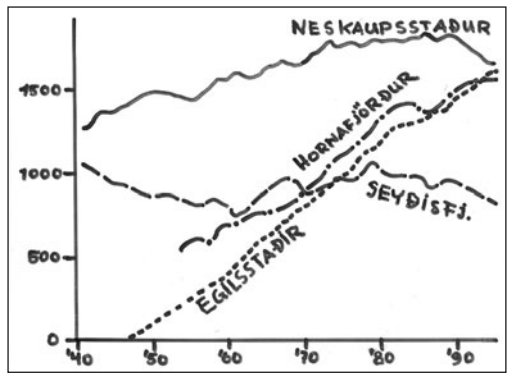
Egilsstadir started to develop around 1947. Its positioning has many advantages: its central position, the intersecting transport routes due to the bridge, and its location on Highway 1.

hotel and other service-related activities, so it is not unlikely that the people of the East Fjords will soon come to an agreement on the policy to make Egilsstadir the capital of the region.

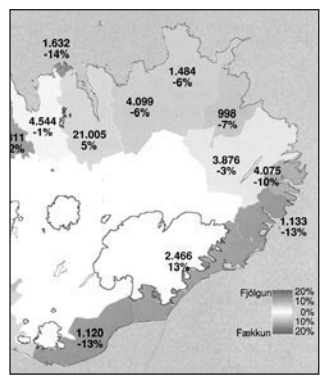
What the future development of the east will be is hard to predict, but it will mostly depend on the new power plant and the building of the aluminium smelter in Reydarfjördur. What happens after these huge construction projects are finished is hard to tell, i.e., whether this will be able to turn things around for the East Fjords in a permanent way.

A part of the this has been that the state is now in the process of constructing tunnels between some of the fjords to shorten distances, providing the residents with better opportunities to get to services and new work locations. At Egilsstadir a back-up airport for the international airport in Keflavík has been built. Recently, direct flights from Europe have started to go into Egilsstadir and, together with the coming of the new ferry, *Norröna*, in 2003, are hugely improving the region's position in terms of communication and tourism.

The Lagarfljót Bridge was built 1905 when the telephone lines came from Seydisfjördur.



The population of old towns decreased while it increased in towns on Highway 1.



County population numbers, and changes, 1987–1997.

X Regional Planning in the Countryside

1 Regional Planning in the West and West Fjords

In this chapter on the development of regional planning of the countryside in Iceland, those regional plans that have been completed will be described in four sections, one on each of the four parts of the country.

As planning work at the level of regional planning has not yet developed considerably, this section will partly deal with the position of regional planning in general: how well things have been going, what the next projects are, and what projects are considered to be logical from the point of view of the ideology and theory of regional planning.

Regional planning is a rather new component of the law on planning. It was introduced into Icelandic law in 1964 because people in charge of planning in Reykjavík realized how necessary it was that the other communities in the Capital Area enter discussion on the planning of Reykjavík itself as well as of the surrounding areas.

In the large report on the master plan of Reykjavík, published in 1966, there is a chapter on the regional plan of the Capital Area on pages 204-209. In addition, an idea for a regional plan for the Capital Area has been published.

The basic idea of the regional planning level is to be an intermediate step between programmes on the country scale and programmes of individual municipalities – and also to provide a platform for co-operation among communities in certain areas, where their closeness is such that it is logical that they work together on certain tasks.

The last point has had some effect in making the communities more amenable to start co-operating with their neighbouring communities, even though it demands some financing, the level of which depends on the number of inhabitants. Together they pay half of the cost, the other half is paid by the state.

The planning law does not demand that a regional plan is made but rather that regional planning originates in the willingness of the communities in question to start such a project. Often some urgent issues or problems need to be at hand in the region in question so that communities are ready for a large project like this.

Three factors are largely responsible for making regional planning weak in Iceland. Firstly, there is no intermediate governmental level between the state and the municipalities. After 1960 there was much talk about introducing a third government level, which would embrace large regions in order to secure co-ordinated work on the common interests of the area in question. Unfortunately, this discussion did not lead to any results.

Secondly, the regional plans that have been carried out in Iceland have most often only covered small areas. And thirdly, there has been a lack of co-ordination in regional planning work with other programmes that have been underway, such as development plans on behalf of the Regional Institute of Iceland.

These projects have mostly been made to assist in the building up of certain occupational areas like those of fishing or communication. These two types of plans – an economic regional development plan and a physical regional plan – should have been co-ordinated and should also have embraced the same areas.

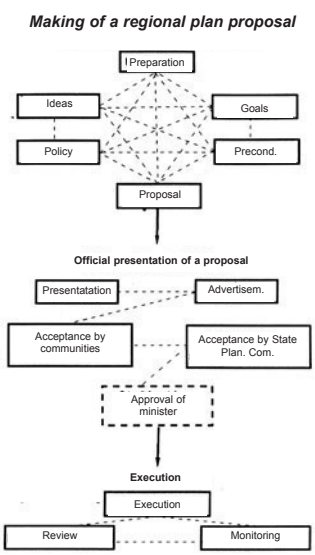
In the section on plans for the larger regions of the country, on page 223, an account will be given of various attempts that have been made to work with these larger regions – both in the governmental sense and also in the physical planning sense.

In the four sections here, the focal point, however, will mainly be on how the regional planning work in the countryside has developed, a description that both provides an overview of the work that has been done and that will also put us in a position to understand better where enough progress has not been made.

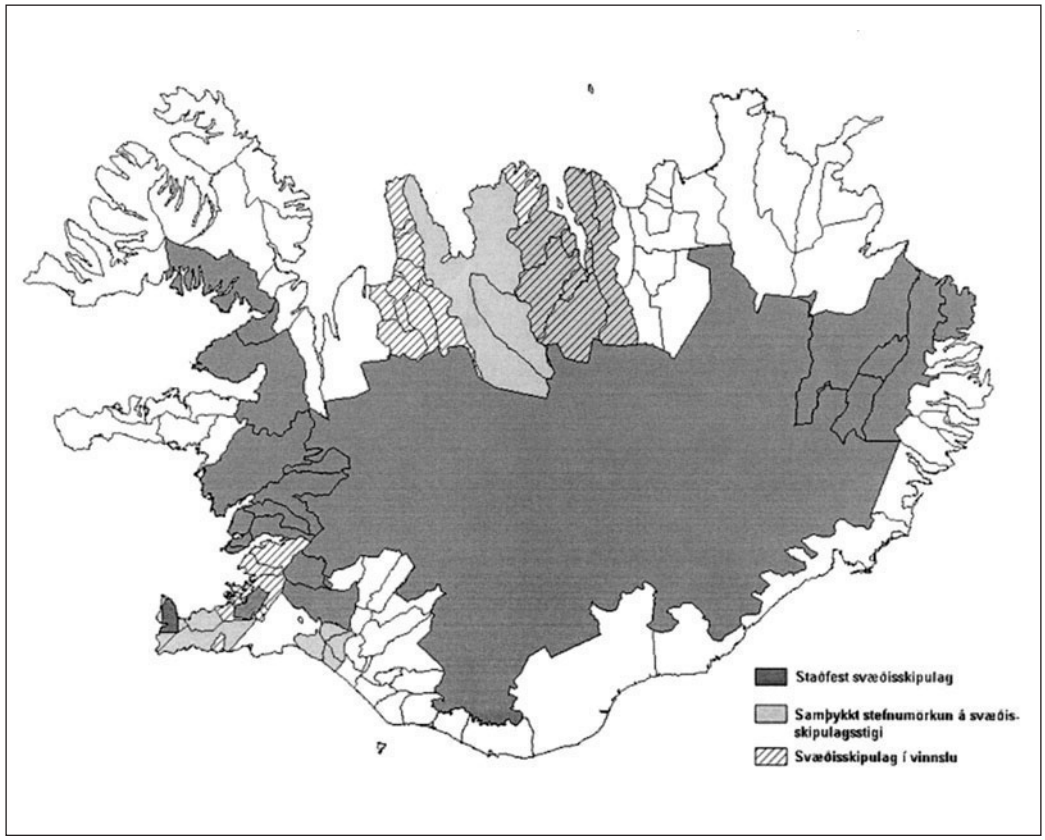
The biggest problem is, as mentioned earlier, that the regional plans usually cover too small an area and therefore most often do not embrace areas that are large enough to be logical units that need to be looked at in their totality, yet this is what is necessary to be able to lay out the larger lines that are required to form a plan for large areas.

It is not completely wrong to have started with rather small regions because often planning then proceeds to encompass a wider area. If this, however, takes too long a time, even many decades, then valuable opportunities may be lost. It is also a problem that in Iceland little work has been done on the country plan level, which could be used as a forum for co-ordinating ideas – e.g., among the three transportation sectors, land, sea and air – not only for the country as a whole, but also for individual regions.

The basic characteristic of regional planning is that it is an intermediate step between the



A scheme and process in making regional plans.



An overview of the status of regional plans Dec. 2001. The largest plans that have been confirmed are in the west, the central-highlands and the Hérad region in the east.

State government, on the one hand, and on the other, the level of the usually small, individual communities. Today these small communities first and foremost come together at the regional planning level to co-ordinate ideas and to formulate a policy in a rather limited area. The big problem is that, even though some good ideas on policy are created, what is missing is planning at the intermediate regional level that could provide follow-up on the various programmes and would be responsible for furthering the goals of the plan.

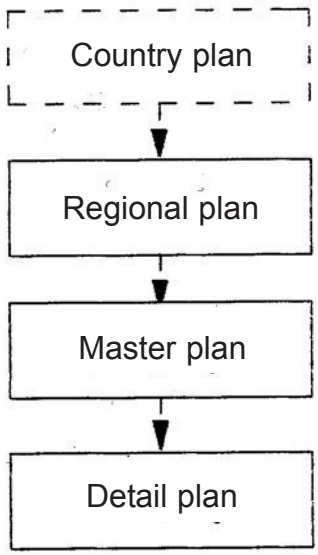
Some might ask: If the work at the regional planning level is so hard to execute, for example because of the lack of an intermediate government level, why should communities embark on such an uncertain journey, a journey that will produce plans and programmes, when it is uncertain if there is enough will to follow up on them once they are formulated. And those who ask could add: Keep in mind that because the regional planning work is on a voluntary basis among the communities, then the communities have a veto right, both during the planning work itself as well as at the moment of approval or rejection.

Because of the situation that has now been described, it has frequently happened that the proposals of the regional planning commissions have been rather inadequate and later, when placed before the communities for approval, then one or more has refused to sign. This means that a plan that has not been approved of at the community level may not be confirmed by the minister in charge of planning concerns.

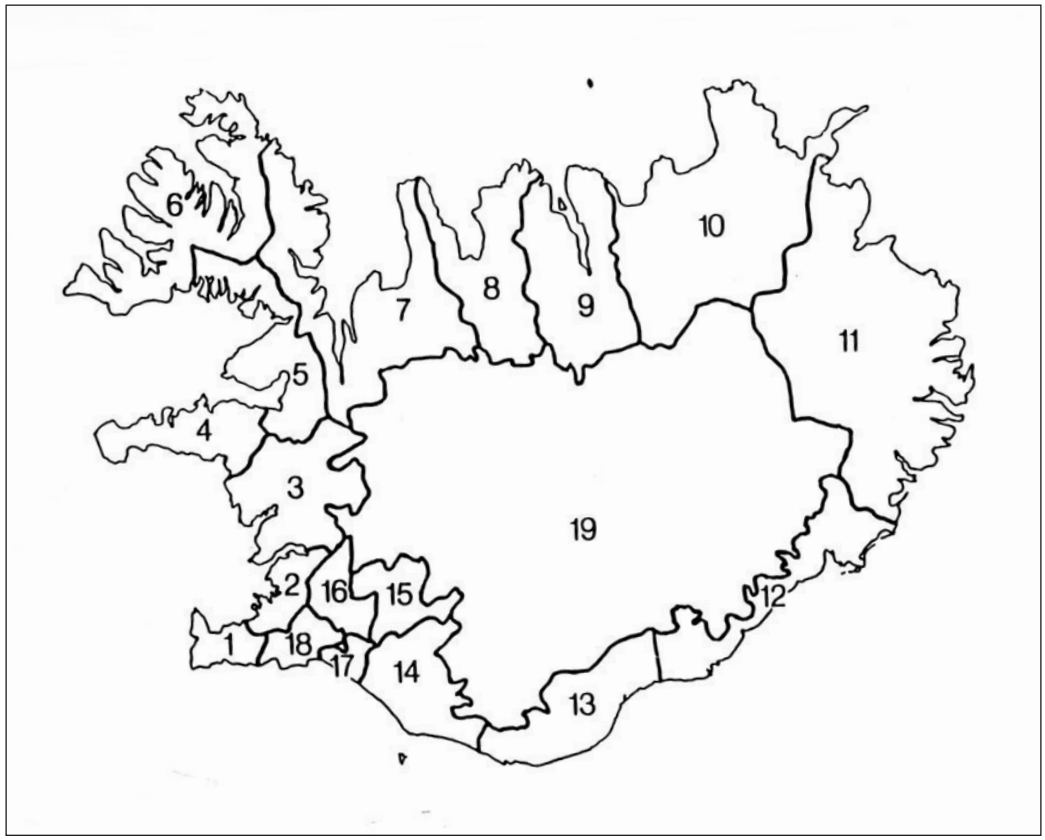
Let us now study the map on p. 208. The map shows an idea of the State Planning Office from 1991 on how the country should be divided into regions for planning. Here the country is divided into 19 regions, starting with no. 1 on the Reykjanes Peninsula. No. 2 is the Capital Area, and the third is Borgarfjördur.

Rather good regional planning work has been conducted in areas 1 and 2, but when it came to the west central area no. 3, unfortunately the area was not looked at as a whole but instead was subdivided into three small regional planning areas.

There are many reasons why this happened. First, that as this regional planning work started, the number of communities in the Borgarfjördur and Mýrar counties was so large that a



Regional plans are between the state and local levels.



In 1991 the State Planning Authority put forth this proposal on dividing the country into regions for the making of regional plans. These planning areas have changed somewhat since then.

collaborating committee for the whole area would have been too large to work together effectively. This is because, according to the law, two representatives from each community shall have a seat on any regional planning committee as well as a district representative most often appointed by the State Planning Authority.

Let us now briefly examine each of these three regional plans. The first is the regional plan for south of Mt Skardsheidi (see map to the right), which is actually the town of Akranes and vicinity as well as the area to the east on the north coast of Hvalfjördur Fjord.

The main motivation for this plan was that Akranes, with about 5700 inhabitants, has rather little area so that the town has to seek to collaborate with its neighbouring communities to solve various concerns, for example, a fresh water supply, waste disposal and various types of outdoor facilities.

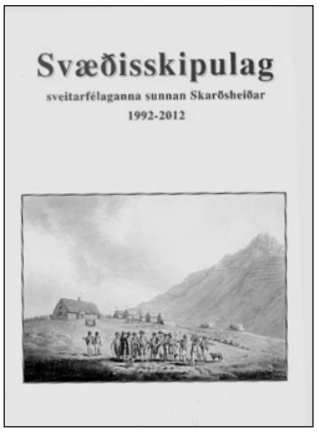
The most logical route taken to effect co-operation would have been the unification of the neighbouring communities with Akranes. Such unification proposals in the countryside usually lead to the objection that the wishes and needs of the smaller communities will be disregarded in the face of the votes of the urban area, which will usurp all the power.

What has helped unification in spite of such worries is that these neighbouring communities often have so few inhabitants that they have trouble coping with the increased responsibilities that are being delegated by the State to the local governments. Examples of such issues are schools and services for the handicapped.

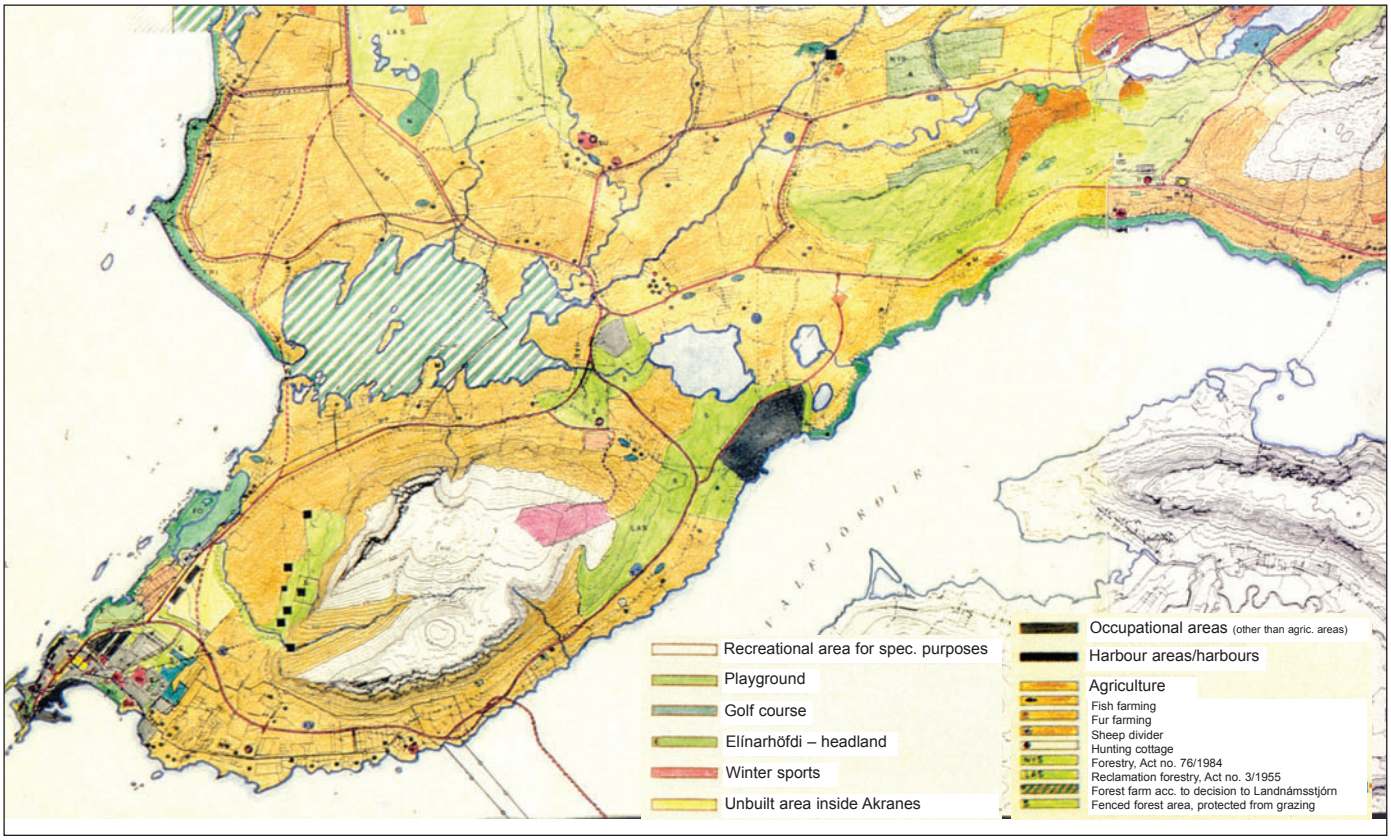
Given the economic problems that small communities often experience, the larger communities frequently have been able to negotiate with the rural districts to offer them services that they would otherwise not have. The agreement often specifies that costs shall be shared by the entire community, e.g., for providing for utilization of geothermal heat in the most densely populated areas.

In the case of the unification of Kjalarnes with Reykjavík, Kjalarnes got a good deal which included, among other things, an enlargement of the primary school and kindergarten as well as a promise of regular bus service into the city.

What primarily has stood in the way of unification in the Akranes area is that two of the small communities, the Skilmanna and



Hvalfjördur's northern shore is an important area.



Regional plan south of Skardsheidi, 1992–2012. It would have been more natural to include Kjós on the south coast of Hvalfjördur because the whole area in that fjord is one geographical unit.

Hvalfjardarstrandar Districts, enjoy high incomes from the harbour and the aluminium smelters at Grundartangi. Because of the lack of interest in unification, creation of a regional plan became a method to induce and regulate the necessary collaboration.

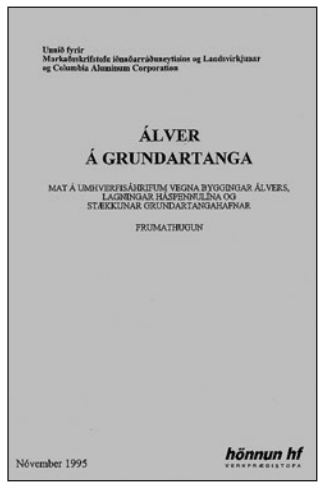
Let us now take a broader perspective of some regional planning concerns in the Akranes area and on the north coast of Hvalfjördur. What, first of all, characterizes the activity in the fjord area is the heavy industry area at Grundartangi (aluminium and ferrosilicon smelting) and deeper into the fjord the NATO defence areas, including numerous oil tanks. The whaling station is in the same area but has not been in operation because of the international ban on whaling, but this could change in the near future.

All this activity depends on considerable ship traffic in the fjord, which can affect environmental issues. Therefore it did not come as a surprise that, when the idea of enlarging the heavy industry area at Grundartangi was introduced in 1995, the community on the opposite south coast, the Kjós District, lodged serious complaints. The basis for this was, among other things, that the Kjós District declared that it should have equal rights with the communities on the north side even though the legal limits of communities along the fjord are based on where they can put their nets, i.e., 150 m from the shore.

In connection with this it should be noted that ships waiting to be allowed into the harbour at Grundartangi often lie to in the calm waters on the south side of the fjord. Furthermore, the pollution from Grundartangi is highly visible to the settlement in Kjós.

Earthen walls and the planting of trees to reduce visual pollution are only provided at the northern side of the industrial area. Since the people in Kjós look directly across the fjord to the factory, as do the people from the Capital Area that have built their summerhouses there, these attempts to mitigate visual pollution are of no effect.

In addition to the factory buildings themselves, rather large power lines have to run through Kjós. It is therefore logical that planning for the north coast of the fjord should also be seen as a planning concern for Kjós. In reviewing this problem, we now see that it



Inhabitants of Kjós protested against the aluminium plant.

would have been logical for the regional planning to have been extended to the south side of the fjord.

The Grundartangi/Kjós example demonstrates that it is not fair that communities on one side of a fjord can make drastic decisions which concern the whole fjord without consulting their neighbours on the other side of the fjord and giving them the possibility of influencing the decision.

Another odd thing connected to such heavy industry areas in Grundartangi is that all fees paid by the two industries there go to communities with very few inhabitants. It seems that both the profits and the negative aspects should be shared by all the communities involved.

The next regional planning area in the Borgarfjördur area was decided to be the areas north of Skardsheidi Heath, which embrace the upper regions of Borgarfjördur, i.e., south of the River Hvítá. Within this area there is no urban core except Hvanneyri, but the area, however, is in many ways interesting, among other things because of its popularity for summer housing and its rich natural resources, especially geothermal hot water. The district heating of Akranes gets its hot water from the Deildartunga hot springs in this area.

There are few areas of disagreement about this regional plan because few people live there and because there is not much building activity. It is, however, worth noticing that – when the regional planning proposal had been approved by the joint committee and been advertised publicly – 50 of the 77 critical remarks came from people around a single lake, Skorradalsvatn. There are many summerhouses at this lake.

The problem is caused by the fact that for a long time this lake has been a reservoir for the Andarkíll Power Plant. What happens every year in the late winter is that the water level becomes very low because the water stored there is then being used to generate electricity. The lower shores of the lake that then appear are rather unattractive and cause the summerhouse owners problems as it is difficult to push their boats into the lake.

This is a good example of how conflicts of interest can surface in planning. In this case people will have to try to resolve this conflict, for example by setting limits on how low the water level can be. The fundamental lesson from this example is that it is not a good idea to use beautiful lakes in summerhouse areas as reservoirs.

The plan north of Mt Skardsheidi, 1997–2017.

Other things were disputed about this regional plan, for example proposals on areas for *cultural landscapes*. Such proposals include putting restrictions on changes in the areas in question because of their historic importance. Because of objections the idea of establishing such areas in the Skorradalur and Lundareykir Valleys was abandoned. The proposal on a possible cultural landscape at Hvítárvellir was, however, supported.

Nor was an agreement reached about the position of the Borgarfjördur Road from Fnjóskárdalur River to the Kleppjárnsreykir Farm. Because of objections there was no common agreement about the regional planning at this time and therefore it was neither approved by the communities nor confirmed by the minister.

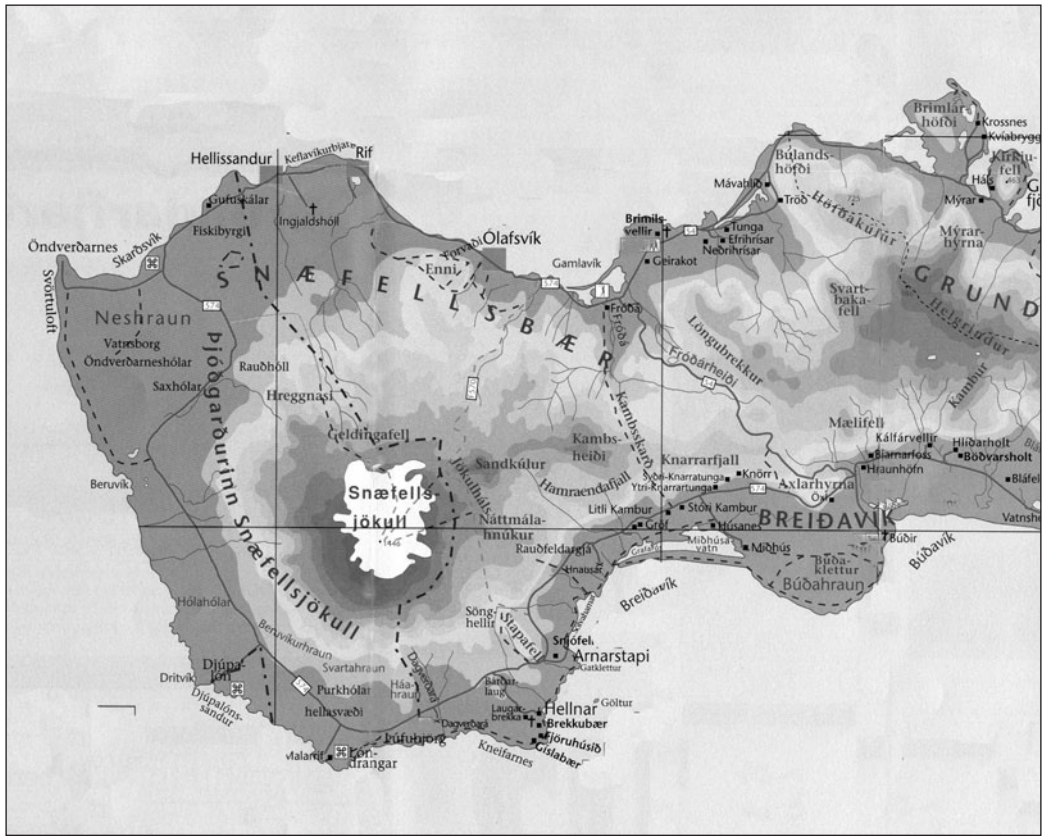
The third regional planning area is the regional plan for Mýrasýsla County for 1998-2010. The plan spans only 12 years, which was a novelty that was introduced in the new planning law of 1998, i.e., that a regional plan could cover a minimum of 12 yeas. Earlier the general rule had been 20 years.

This regional plan has one town, Borgarnes, within its limits. In addition, there are rather big summerhouse areas within the area, as well as many good salmon and trout fishing rivers. The long and varied coastline is a valuable asset. The focus of this plan was primarily on environmental issues. One of the biggest issues was the selection of a site for waste disposal and the idea of placing it at the Fíflholt farm even got to the pages of the national newspapers.

Different opinions surfaced, for instance, on the best site for obtaining fresh water for Borgarnes. This issue was delegated to the master plan of that area because at this time the communities around Borgarnes had been unified with the town. This meant that many such problems could now be dealt with on the master plan level.

In spite of this delegation to the master plan, *water protection areas* are shown in the regional plan and they are divided, as most often, into three categories: spring areas, nearby areas and distant areas. This was one of the issues that was confirmed. Other issues raised by the regional plan that were confirmed included the classification of the coastline according to the *pollution protection regulation*, the waste disposal site at Fíflholt farm, and a gravel mine at Lyngbrekka.

On the map of the Planning Institute, mentioned first in this section, the Snaefellsnes Peninsula area is no. 4. There, nothing has



The Snaefellsnes Peninsula is very rich in geological formations. The highest volcano is covered with ice. The area around it has now become a national park.

happened in regional planning matters as yet. What is of some relief in this situation is that the communities at the far end of the peninsula have been unified into a large new community, Snaefellsbaer. The master plan of this community was approved in 1996 and embraces an area big enough to have earlier been called a regional plan because of the small scale of regional planning in Iceland. A new national park, *Snaefellsjökull Glacier*, was established in this area in June 2001. The new park should substantially increase opportunities for tourism.

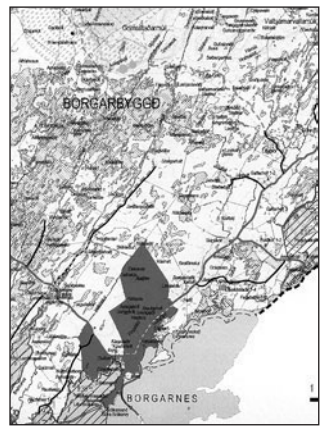
Area no. 5 on the map covers the Dalir and East Bardaströnd Counties. A regional plan was made for this area in the 1990's. This regional plan was never printed, as were the two regional plans for Skardsheidi Heath.

To print and distribute such a proposal, with analyses and ideas about a regional plan, is a very effective way to advance planning and ideas about how to effect co-operation. In spite of the fact that the plan was not printed, this plan was a step forward, not least because the numerous islands in the inner part of the Breidafjördur Bay were incorporated into the planning area.

Area no. 6 on the planning authorities' map is the western part of the West Fjords comprising the south and north fjords and Hornstrandir. An outdoor life plan is now in the process of being made for the national park of Hornstrandir. Besides that no other regional planning work has been carried out in the western part of the West Fjords. Master plans, however, have been made for the urban parts of the communities in this area, and one of the communities, Súdavík, has had a plan made for the whole of its region.

A very logical regional planning area, on the small scale of such plans in Iceland, would be Ísafjördur and vicinity because this area has become a rather big interactive settlement following construction of the new road tunnels.

Another logical regional plan area would be the south fjords. As can be seen on the map of the Planning Institute, the eastern part of the West Fjords, i.e., Stranda County, is shown as a logical part of a regional planning unit encircling Húnaflói Bay.



Borgarnes is on the southern border of Mýrar-county plan.

2 Regional Planning in the North

The area in the countryside most in need of a regional plan is the Eyjafjördur area where Akureyri is located. The planning process in this area started in 1982 when a joint committee was formed to produce a regional plan of the area.

Besides Akureyri, there are quite a few urban sites in the Eyjafjördur Fjord region: Ólafsfjördur, Dalvík, Hrísey, Árskógsströnd, Svalbardsströnd and Siglufjördur. But not all the towns or communities took part in this first regional planning. Hrísey and Ólafsfjördur were not among the first and the Glaesibaejarhreppur refused to accept the joint platform that had been approved.

The high degree of urbanization and strong position of agriculture in the region makes it rather easy to formulate clear ideas about the development of this area. In addition, it helps that the areas by the fjord are clearly defined by high mountain ridges on both sides as well as from the central highlands to the south.

Sigurbjörn Hallsson, an engineer and planner, was hired to work on the planning. During his time four reports were published, meant to mediate the steps of formulating the basis of work for the Planning Committee and others who needed to be informed. This was fine work and though it did not end with confirmation of the regional plan proposal, it did result in publication of a large report titled *Svaedisskiplag Eyjafjördur* (Regional Plan of Eyjafjördur – Prerequisites, Outlook and Goals). This 220-page report has many positive features compared to what commonly has been the praxis of primarily publishing only the basis of the work process in order to create a dialogue.

This regional plan proposal has a strong point – compared to all other regional plan proposals that have been made since, namely, that it is also a kind of regional development plan for the area. This is expressed in the fact that it describes clearly how the various programmes of the State and communities have to be a part of the process of forming ideas so that sensible conclusions can be reached on how the area could develop.

The first part of the report describes the general settlement development in Iceland and demonstrates, in a clear way, what a difficult time the countryside had in maintaining its position. The author emphasizes his opinion that if the countryside and the Akureyri area can not be strengthened there is little need for making plans because in areas of decline there is much less need for creating new infrastructures and preparing areas for construction and development.

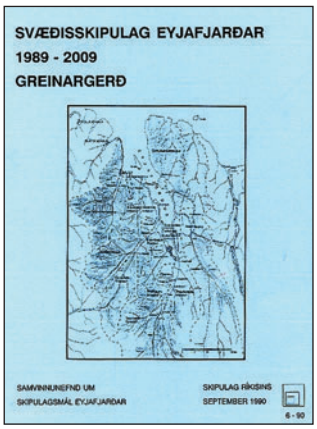
The author goes into the basic factors of settlement development, such as the influence of the change in occupational structure in the Akureyri area, and also the outlook because of the lower percentage of manpower in Iceland in the basic trades. He demonstrates how service industries will increase and that this will not be good news for the Akureyri area unless a special effort is made to better the position of the area in terms of service.

In connection with the development of the basic trades, Hallsson discusses the position of the fishing industry and how the country's foreign exchange policy has so often been hard on that industry, which has meant the weakening of the fishing towns and the countryside in relation to the Capital Area. He also describes the position and development of agriculture and explains what can be done to strengthen it.

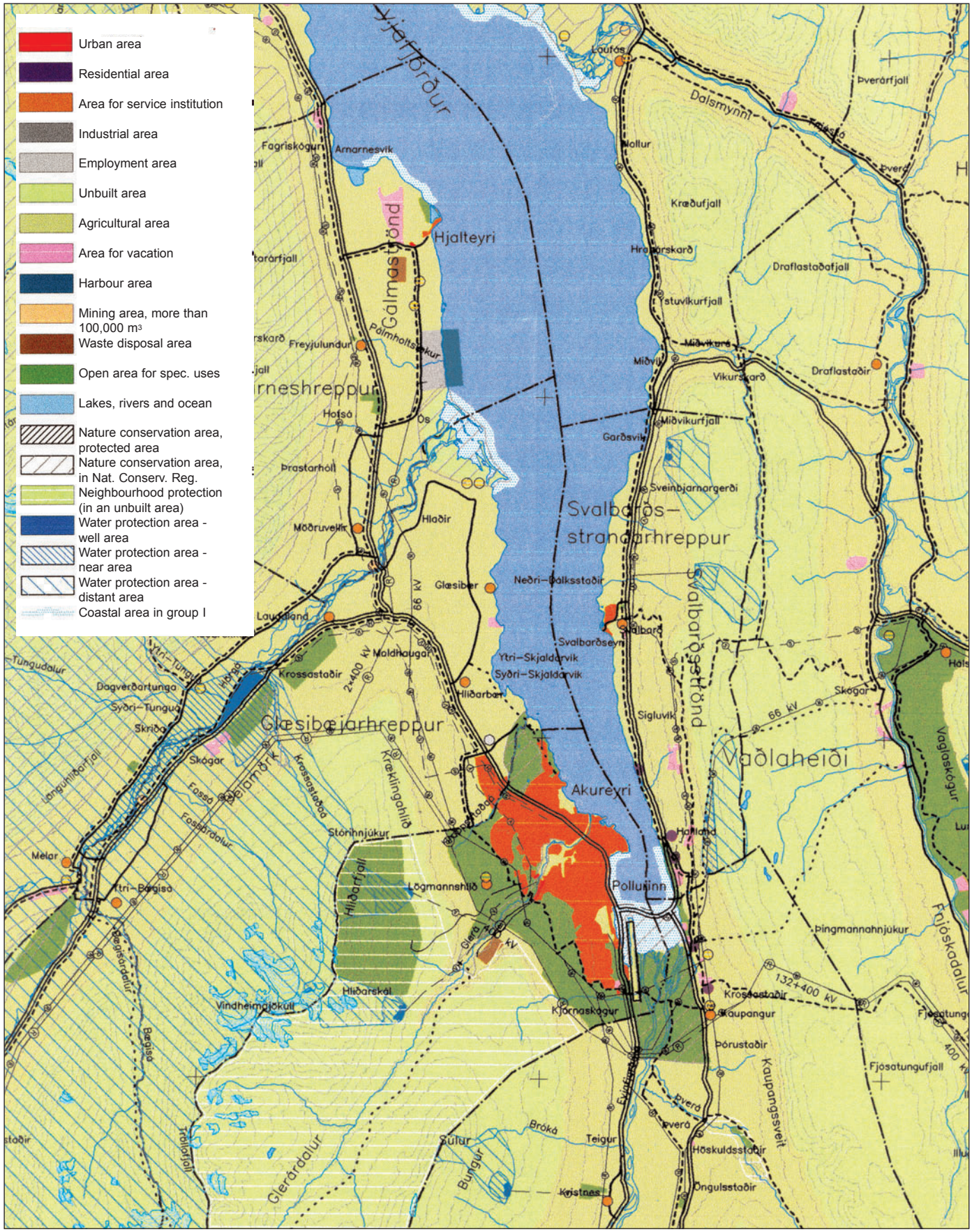
Hallsson shows how the possibility of strengthening the countryside is very much dependent on strengthening the country's infrastructure – roads, bus services and harbours. He puts forth several demands, for example, that the electric power supply system should be strengthened and that the higher charges for electricity in most rural areas be levelled out. Furthermore, he makes the demand that the whole country become one telephone zone.

Many of the policy issues that were postulated and demanded in this work have helped the countryside, but not everything. What is the most remarkable about this work is that it makes very clear that a regional plan can be used to sharpen the focus in regional development matters and to present ideas that can evolve into clearly formulated demands to the state and state-run institutions.

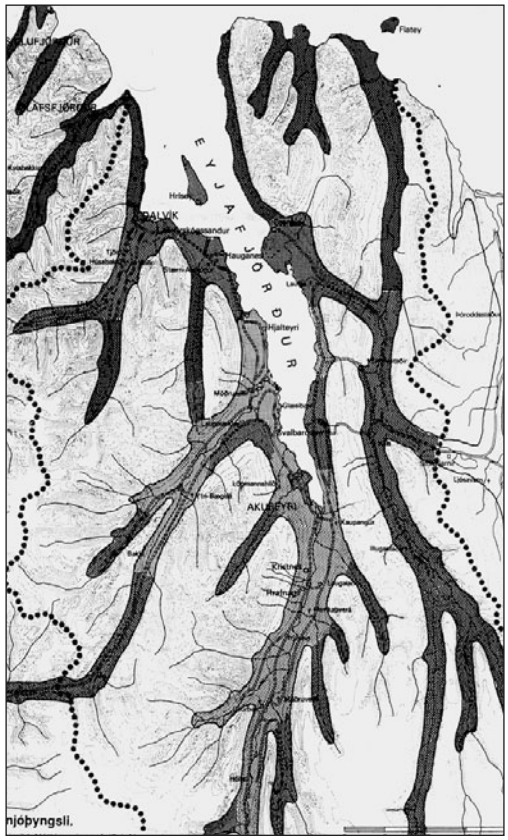
In a special chapter on the nature of regional planning and the possibilities that such a project can provide, Hallsson mentioned aspects that have been published in a new regulation on planning from about 1985, where directions are given on how to work on a regional plan. This regulation stated, for example, that one of the main goals of a regional plan is to co-ordinate land use. At the same time, however, it is obvious that a regional plan has to be guided by



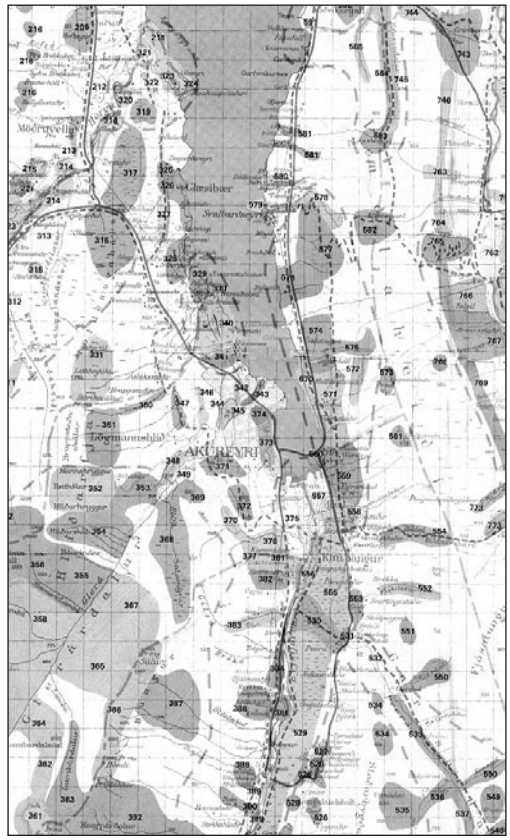
A report on minor changes in the plan of 1990.



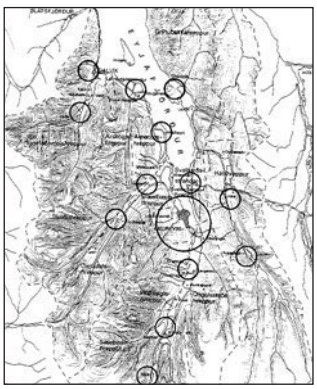
This is the second regional plan proposal for Eyjafjördur, dated May 22, 1999. It is valid for the period 1998–2010. It was confirmed by the minister of planning in 2002. Regional planning is very important for this area.



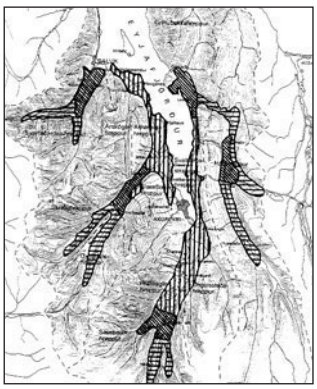
Some of the valleys in Eyjafjördur have very steep hills. Thus these avalanches dander zones.



A comprehensive proposal on conservation came along with the proposed plan, 1986–2006.



Suitable outdoor areas in the Eyjafjördur area.



Vertical: cows. Horizontal: sheep. Diagonal: both.

State plans for the country as a whole, among other things, settlement policy. In some cases, certain aspects of state sector plans need to be worked out in some more detail for the area in question. In connection with this, Hallsson pointed out that regional planning, up to that point in time, faced the difficulty that the state only had very preliminary drafts ready for many of the necessary long-term sector plans on a country scale. For instance, there was not yet a long-term plan for roads, harbours or airports.

Hallsson also pointed out the need for more defined ideas about the possible locations for heavy industry, which, however, had already appeared in a good report in 1983. Also, he pointed out that there was a lack of policy making by the state concerning future natural conservation areas as well as cultural heritage areas. As to the various preconditions of the plan within the Eyjafjördur area itself, the committee had various surveys carried out and worked at formulating policy.

Helgi Hallgrímsson, director of the *Natural Science Museum in Akureyri*, wrote a very important report which presented an important first proposal on what natural areas in the Eyjafördur region need to be preserved. A part of that map is shown in the column on the right. Many a council member became very surprised as they saw this map with the proposal for hundreds of conservation areas. It is only right to underline that starting by presenting detailed ideas to spark discussion is a good working method.

Hallgrímsson's work is similar to the *State Nature Conservation Index* in that these areas are most often small where certain natural aspects are considered to be unique, but with less stress on establishing continuous conservation areas. Hallgrímsson's report also included a proposal for a regional map, but as, some years later, that this map was completed, it too was rejected by the communities in question.

Other investigations that were worked out for the area were aspects connected to the inhabitants and migration patterns within this area in 1971-1982. Interestingly, 84.6% of those who moved from the Öxnadalur community moved to Akureyri, whereas 43.9% of those who moved out of the Svarfadardalur community moved to the nearby town of Dalvík and only 27% moved to Akureyri.

Based on this thorough work and a good prediction of how large the population would become on a country scale, the report predicts, rather accurately, that the migration from the countryside to the Capital Area would continue. Therefore the population estimates of the plan for the Eyjafjördur area for 2005 were rather accurate. The report also deals with physical aspects, like that of snow cover and hours of sunshine, but primarily it was the future condition of agriculture that was the main focus. The plan, for instance, proposed the planting of shelter belts to strengthen agriculture.

In 1989 the regional planning work was continued and brought up to date. Thus three years were added to the database so that the planning was aimed for the year 2009. A short report was published, along with the new regional plan proposal, and contained, among other things, the main policy decisions of the earlier work. Included was a policy for an overarching management of the harbours in the area, a necessary joint community project. The policy of planting a shelter belt was emphasized and forestry proposed as a future occupation.

Furthermore, proposals were made to connect those nature preservation areas that were close to each other to form larger reserves and finally it was proposed that the national hazards should be mapped by the *State Civil Defence*.

One of the things that the State Planning Office did to strengthen the planning in the countryside at that time was to establish a branch office in Akureyri. The architect Benedikt Björnsson was appointed as the first director, and when it was abolished a few years later, Björnsson overtook, privately, the next review of the regional plan for the Eyjafjördur area.

In the next revision of the regional plan a rather extensive study of natural hazards was added. The availability and protection of fresh water supplies from certain areas was given special protection and a great deal of work was put into the question of waste disposal. Specialists' studies showed that the Glerár Valley was one of the best locations for waste disposal. The alternative of transporting the waste to a good disposal site in Skagafjördur was also studied, but the added transportation cost was judged as too negative.

The plan also presented ideas about forestry areas, but in recent years the State has pursued the policy of making forestry an occupation and certain plans and programmes have been carried out in all parts of the country. One such programme has been drawn up as a special regional plan for forestry in the north; however, no maps accompany this plan. The planning law allows certain limited features to be taken out of the planning context and a *special regional plan process* allowed for various planning features because of their special nature. This has also been done so that those in charge of these special programmes need not wait until a plan has been approved for all the areas in question.

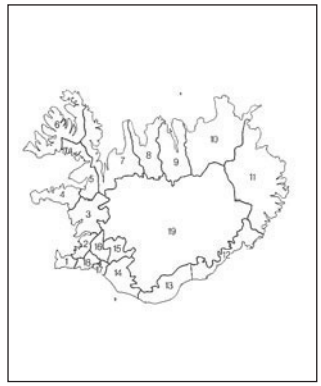
Another example of such a special plan in the Akureyri region is the laying of a fibre optic cable. However, this means that the communities where the cable is to be laid have only a limited possibility to influence the route selected.

As can be seen on the small map to the right, from the Planning Institute, the 1991 proposal was for four regional plans for the north: at Húnaflói Bay, Skagafjördur Fjord, in the northeast out to the Langanes Peninsula, and then of course the Eyjafjördur region.

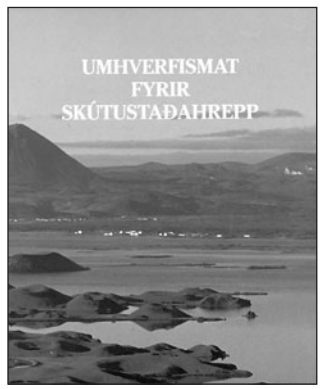
Except for Eyjafjördur, little work on regional planning has been done. On the policy making level, however, there has been some progress for Skagafjördur, and in 2001 a regional plan work for the East Húnavatn County was started, which meant that area no. 7 had been cut in two. In some ways, this planning work can be seen as a forerunner for the unification of the communities there. If unification goes through, the strange situation will develop that what was called a regional plan will then become a master plan.

West Húnavatns County has already become one community, so the start of a new master plan there is to be expected. This plan would then be similar to the small regional plans that have been the praxis.

As concerns the Thingeyjar Counties, a very interesting master plan has been made for the Skútustada District, a plan that covers a huge territory stretching all the way south to the Vatnajökull Glacier. The Lake Mývatn and Laxá River areas are very sensitive as concerns environmental features. As a preparation for the master plan of this area, in 1993 an environmental impact assessment for the community was issued. This is a pioneering work in terms of environmentally connected planning.



A proposal in 1991 for four regional plans in the north.



An assessment report made in preparation for planning.

3 Regional Planning in the East

In the proposal of the State Planning Agency for the division of the country into regional planning areas the whole central part of the east, i.e., both the Múlasýslur Counties, are shown as one regional planning area.

As was the case with other parts of the country, it could be expected that this area no. 11 would be subdivided into more regional planning areas. This also became the case as the first regional plan in the east was begun, covering the Hérad region.

This plan was worked on by the Landmótun consulting office and confirmed by the minister in charge of planning in August 2001. The necessity that drove the making of this regional plan was, among other things, ideas on construction of a hydropower plant and heavy industry in the East Fjords.

At the beginning of the regional plan work, the Planning Institute decided that the plan would not, in this first phase, change anything that already had been decided on in the central highlands plan. Therefore this plan for the lowlands started at the line that divides the highlands from the lowlands.

The author of the highland plan, the consulting office of Landmótun, was the same one that now worked on the lowlands plan, so co-ordination of the two halves of the areas, highlands and lowlands, was therefore easier.

In a later phase, considerable changes had to be made in the central highland plan because of new planning and design connected to the Kárahnjúkar power plant. This plan was worked on jointly by the National Power Company and Landmótun, according to authorization in the planning law to define certain areas that extend over many communities as a s*pecial regional plan.*

The area that this special regional plan was meant to embrace was delimited by the glacier. The reservoir was also included, as was the water catchment area.

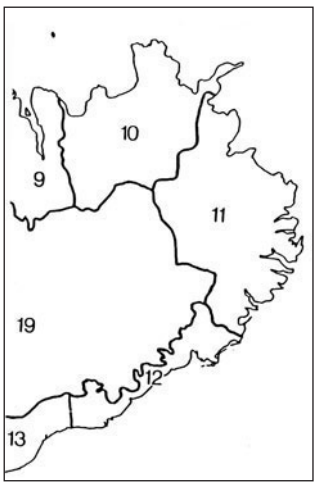
This planning area also extends all the way down to Héradsflói Bay because of the power lines, the generator plant, and also because of the environmental impact of the runoff from the power plant. This plan is described on page 252.

In fact there is a lot of overlap between the Hérad regional plan and this special regional plan but, as Landmótun worked on both plans, co-ordination was facilitated.

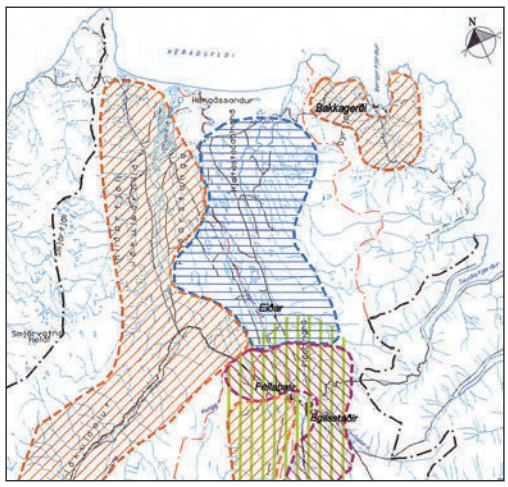
During the time when the plan for Hérad was being drawn up, people decided on the unification of the communities in the region. Nevertheless, it was decided to allow the Planning Committee members of the old communities to finish their work.

It is right to point out that this area is so small that there is little difference between this regional plan and the master plans for the separate communities, in fact that the minor difference between these two types of plans is merely a flaw.

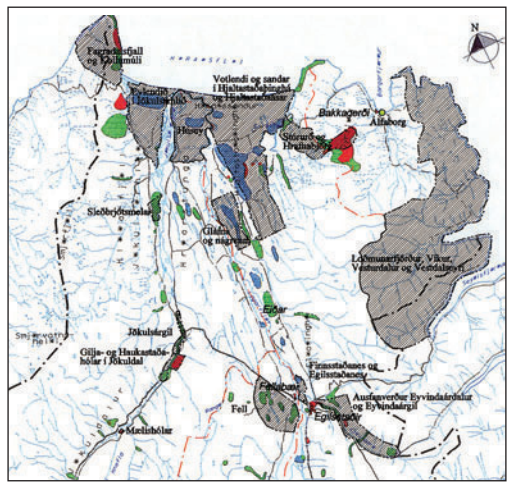
In future, regional plans have to embrace larger areas and, at the same time, be more schematic. By doing so, they would only deal with the main lines of the plan, lines that would be worked out in more detail later at the master plan level.



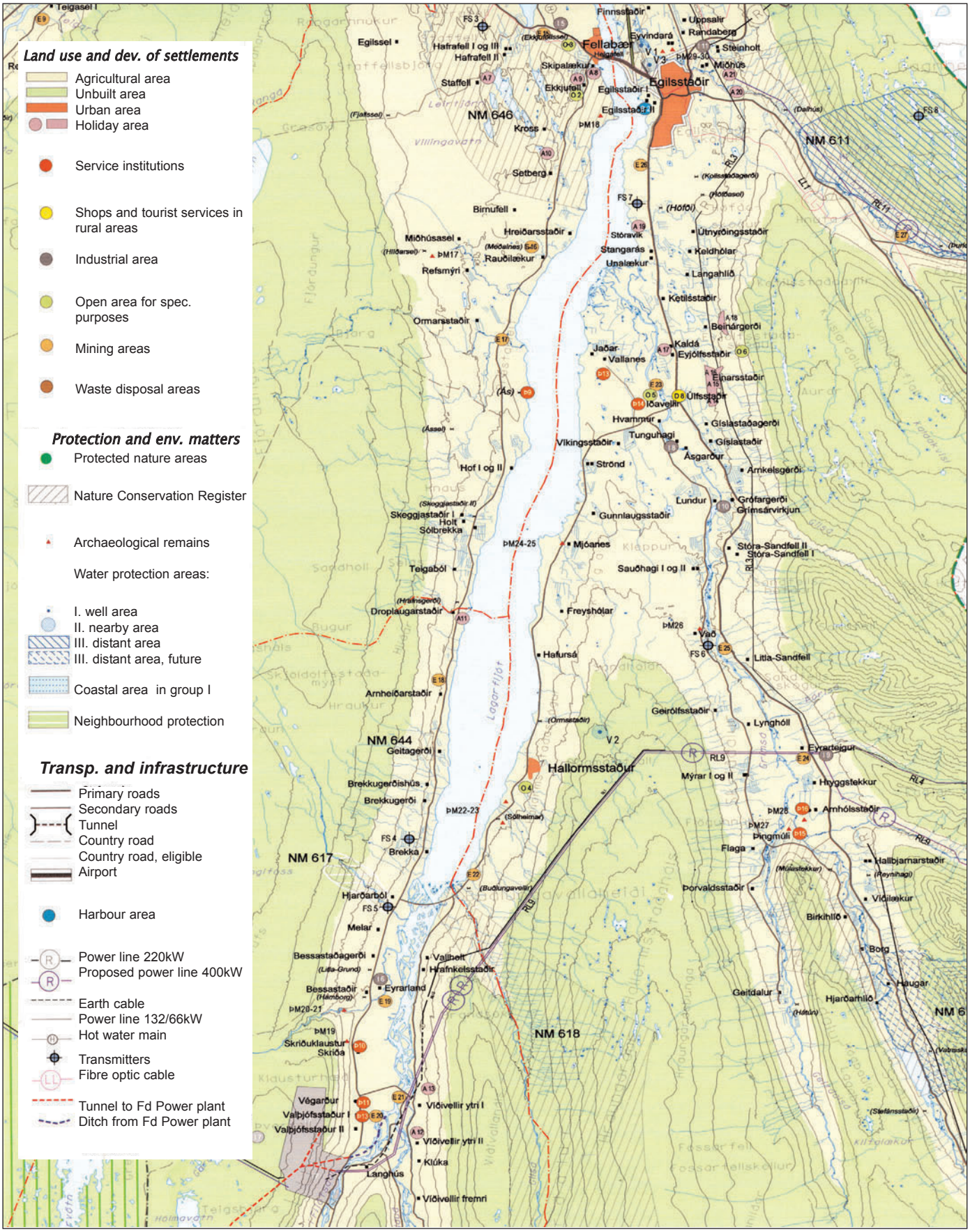
The SPA proposed one large planning area in east Iceland.



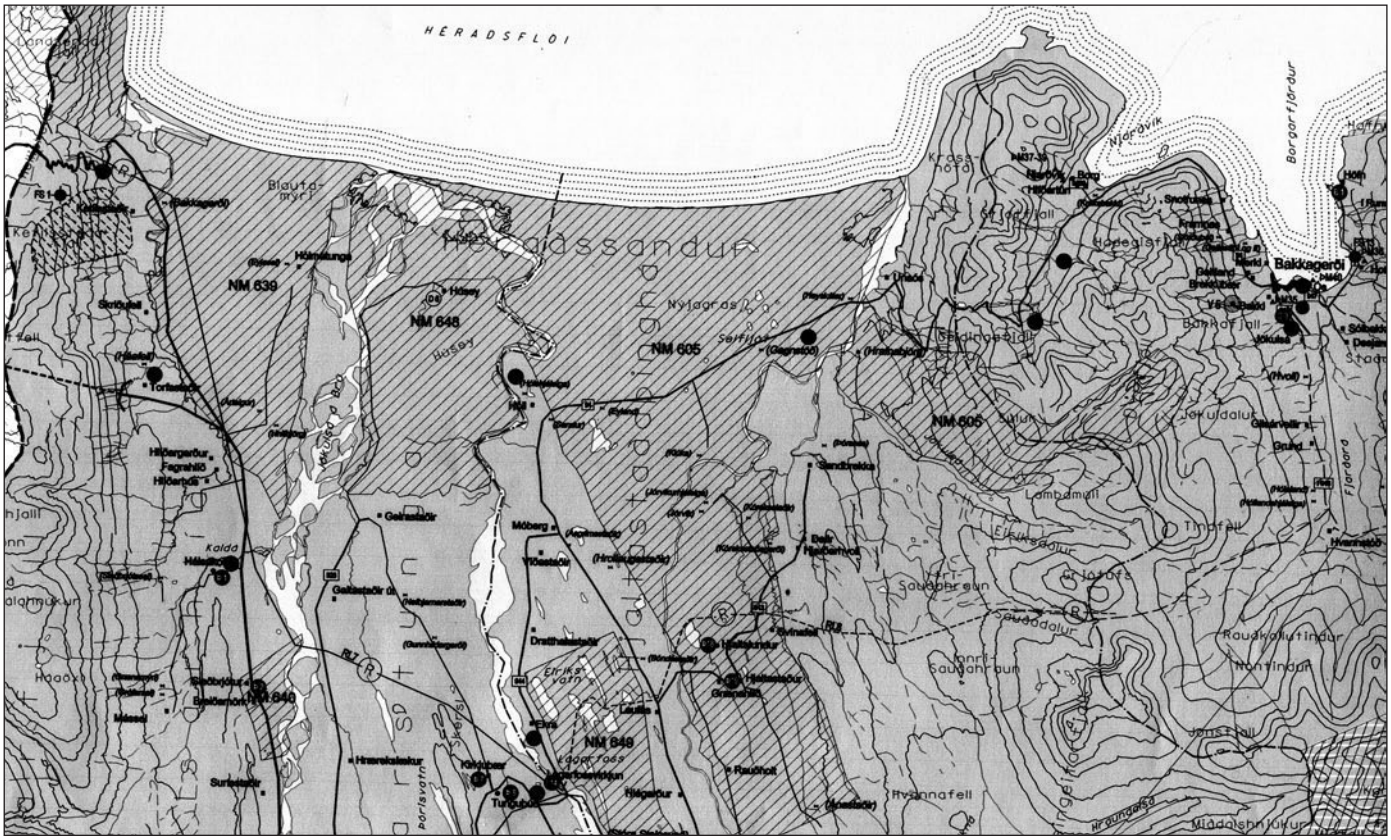
Diagonal: sheep. Horizontal: mixed. Vertical: forest area stretching inland.



Dark: Nature Conservation Register, red/green: special nature features, blue: wetlands.



The central part of the regional plan of Hérad, 1998–2010. Lake Lögur in the centre. Egilsstadir is at the north end and the Kárahnjúkar power plant at the south end. The most outstanding features are roads and power lines.



The northern part of the regional plan of Hérad. Here the River Jökulsá á Brú has entered the ocean for millions of years, filling up the fjord, as can be seen in its square form. Less sediment carried to the bay because of reservoirs will mean that the ocean will start to erode the coast.

The five communities that were a part of the regional plan.

Various things stand in the way of drawing up regional plans for larger areas, and in a more schematic way. First is the lack of a social or governmental unit that could direct the work. Regional committees could perhaps enter the picture, as in the regional planning of the central highlands.

In the beginning of the Hérad plan project there was an idea of seeking co-ordination of the plan with a regional development plan that was then underway, a plan that embraced the central East Fjords. However, this sensible co-ordination did not materialize as the branch of the regional institute in the east was closed.

To start with, the idea was also to connect this regional plan work, to some extent, to an *environmental impact assessment* (EIA) as was done in the preparation of the plan for the Skútustadir community. Though this did not happen, some environmental investigations were carried out for the environmental impact report on the Kárahnjúkur power plant that, among other things, assessed the changes in the water courses of the Lagarfljót and the Jökulsá á Brú rivers.

If these hydropower plants had not been in preparation and therefore it had not been necessary to plan the area around the generator plant, the choice of corridors for power lines, and roads, etc. in the regional plan for the Hérad would not have been difficult.

The only thing that would have been necessary in this planning would have been the development of the urban area at the south end of Lake Lögur for the towns of Egilsstadir and Fellabaer. The planning tasks in this area could, however, have been resolved on the master plan level.

In general it can be said that if no large undertakings are in sight there is not much need for making a regional plan, as was originally the case in the east.

4 Regional Planning in the South

On the map of the Planning Institute the area from the Lón Lagoon in the east to the demarcation between the two Skaftafell Counties in the west has the number 12. A recent unification of the communities in this area, however, means that this area has become one long community called Hornafjördur. The plan of this area is called a master plan even though the area is very big.

The next area in the map is area no. 13 that extends to the west from area no. 12 to the Jökulsá River on Sólheimasandur. The communities in this area, to a large extent, have been unified so that here a regional plan is not needed because the master plans have become large enough to resolve most of the joint projects in this area.

Area no. 14 is Rangárvalla County; area no. 15 the upper part of Árnes County; area no. 16 Thingvellir, Grafningur and Grímsnes; area no. 17 Flói; and finally area no. 18 consists of Ölfus, Hveragerdi and Selfoss. These are the regional planning areas that the map of the Planning Institute presented in 1991 for the southern part of Iceland. A regional plan had been made for three of these areas.

The first regional planning worked on in the south was for Ölfus, Hveragerdi and Selfoss. In 1980, a regional plan was advertised, a plan intended for the period 1978-1998. None of these three communities were, however, ready to agree on the planning proposal but they made an announcement that they would be guided by it.

The report was printed and published as a manuscript. In 1999, a revision of this proposal was suggested but this project has never been completed. The regional plan for Flói was worked on around 1990, extending to 2011, but was never approved.

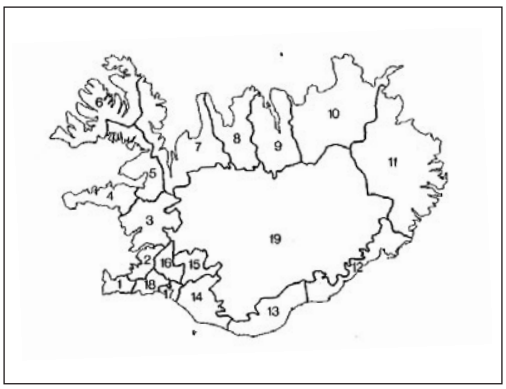
A proposal for a regional plan of Thingvellir, Grafningur and Grímsnes for 1993-2013 was worked on shortly after 1990 but was not approved. The work was continued somewhat later, for the period 1995-2015. This plan was confirmed by the minister of planning on 17th December 1996. This plan has been printed and published.

Some years later an unexpected thing occurred for the first time: The communities in the areas requested and were granted nullification of the plan. The reason given was that this plan put limits on a new work at the master plan level by the communities, which had now merged. This shows that the regional plan level is in trouble in more than one way.

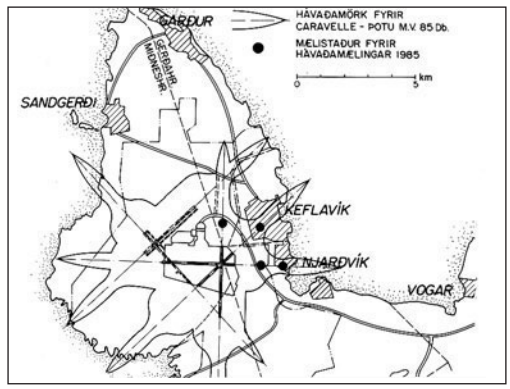
For some time, work was under way on the regional plan of the upper half of Árnes County, but the unification of some communities in this region derailed this work, as in many other places. One of the connected problems is that the communities that are merging are not always congruent with the areas that the proposal for a regional plan division suggests.

Today it is necessary to ask whether, in these communities in the south as well as in Rangárvalla County, the small proposed regional plans have become obsolete. It seems that there is developing consensus on that.

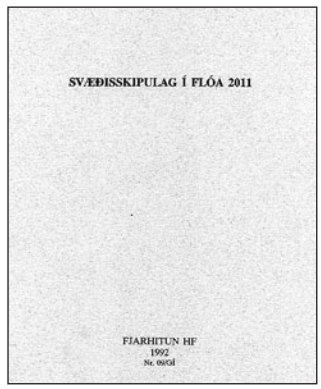
The Reykjanes Peninsula was added to the south as the new electoral districts were created in 2003. This, together with a plan on building a south coast road to connect two areas, makes it logical to start looking at the planning of these areas together.



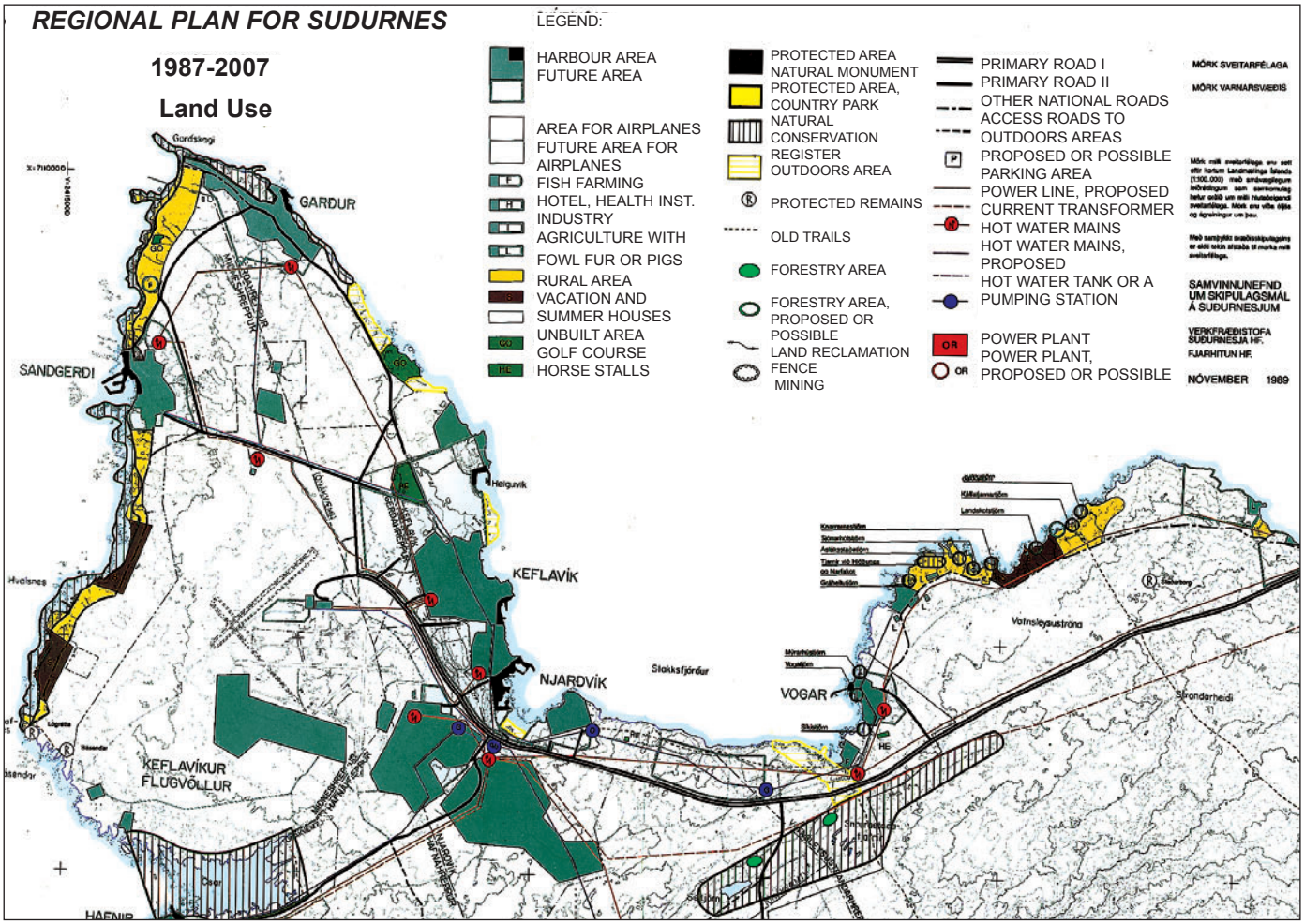
The first idea on regional planning areas. A substantial change has occurred in the south.



Landing approaches and military activities make planning difficult in the Keflavík area.



Regional plan of Flói; Infrastructure was the main issue.

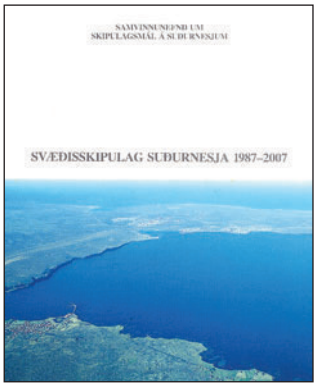


Regional plan of Sudurnes, 1987–2007. The picture shows NW part of the area, the area that is most densely populated. The main incentive of the plan was the necessity for water protection because of fish farming and pollution in this area of volcanic fissures.

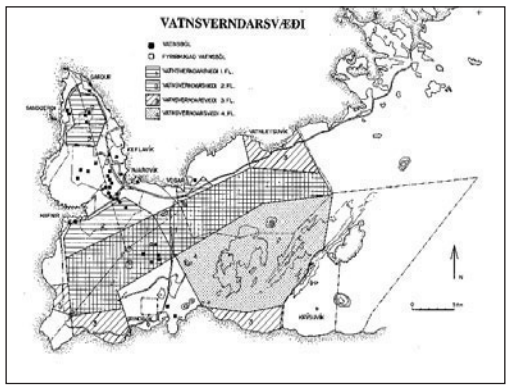
Regional plan work started rather early in the Sudurnes region on the Reykjanes Peninsula. The main impetus for this was plans for the construction of many fish farms in this area around 1986 and the milirary base. In haste a regional plan for the whole of Sudurnes was conceived, extending from 1987-2007, a plan that, however, never got approved.

In the Sudurnes area there is a planning tradition because of the necessity to resolve matters concerning the Keflavík airport as well as the military defence areas. This led to the making of a special plan to encompass the airport, the defence areas and vicinity.

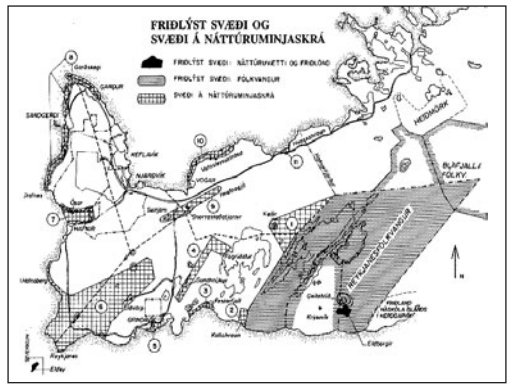
The planning committee in charge of this task worked under the auspices of the Icelandic Min-



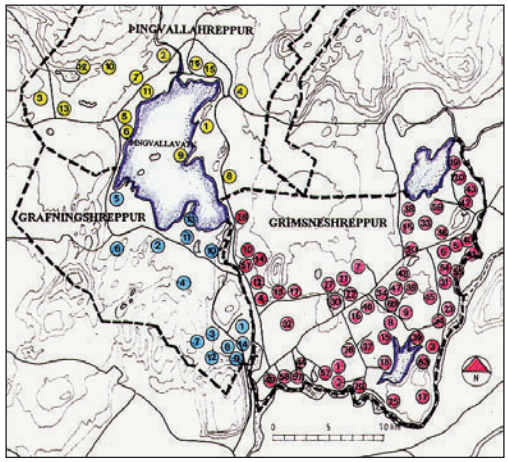
This well executed plan was published in 1989.



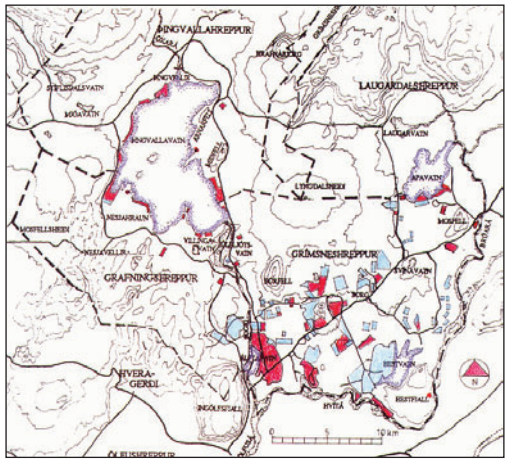
The shape of the water protection area derives from the fissures and the direction of ground water flow.



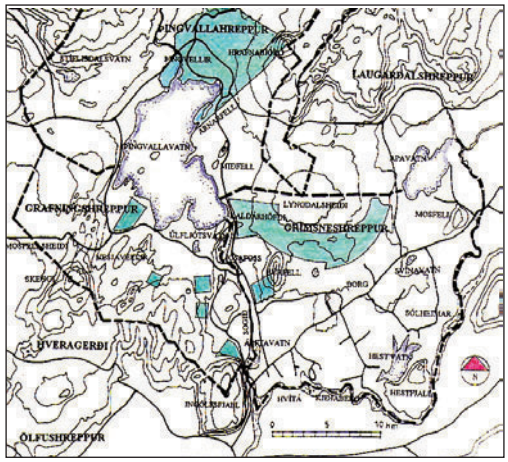
The largerst protection areas are at the SW tip and in the area around lake Kleifarvatn.



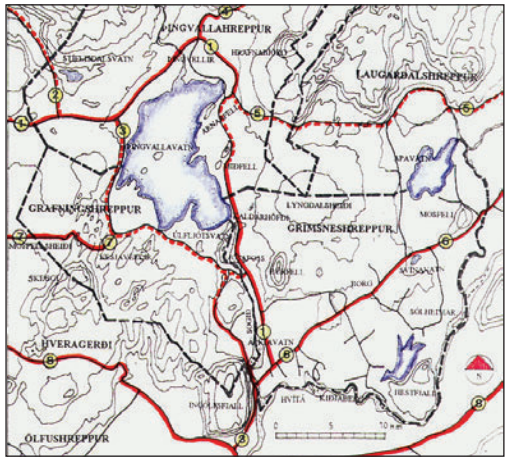
The many farms and 1000 summerhouses mean the area should be seen as urban.



Red: current summerhouse areas, Blue: new additions. Cracks jeapordize groundwater.



Thingvellir is the richest water area in Iceland, a natural resource not to be jeopardized.



It is difficult to inprove the road system which is both unsystematic and sinuous.

itry of Foreign Affairs because it was not only the interests of the US military that had to be taken care of, but also of the inhabitants in the area.

Something similar can be said about the planning area of Thingvellir, Grafningur and Grímsnes. There, the interest of many more than the locals had to be respected and therefore it was no surprise that the regional plan for that region was abolished.

The reasons for the general interest in the Lake Thingvellir area include the important fact that this area contains the largest amount of fresh water in Iceland. This resource calls for a water protection plan, a plan that conceivably can go against the temporary interests of the landowners in the area.

A second point is that in this area, thousands of urbanites have a second home in their summerhouses – in fact, a use of the land that is constantly growing and that is year-round. It is therefore necessary to plan this area as an urban area where, for example, the road system provides safe access, even in winter snow, and allows distribution of newspapers.

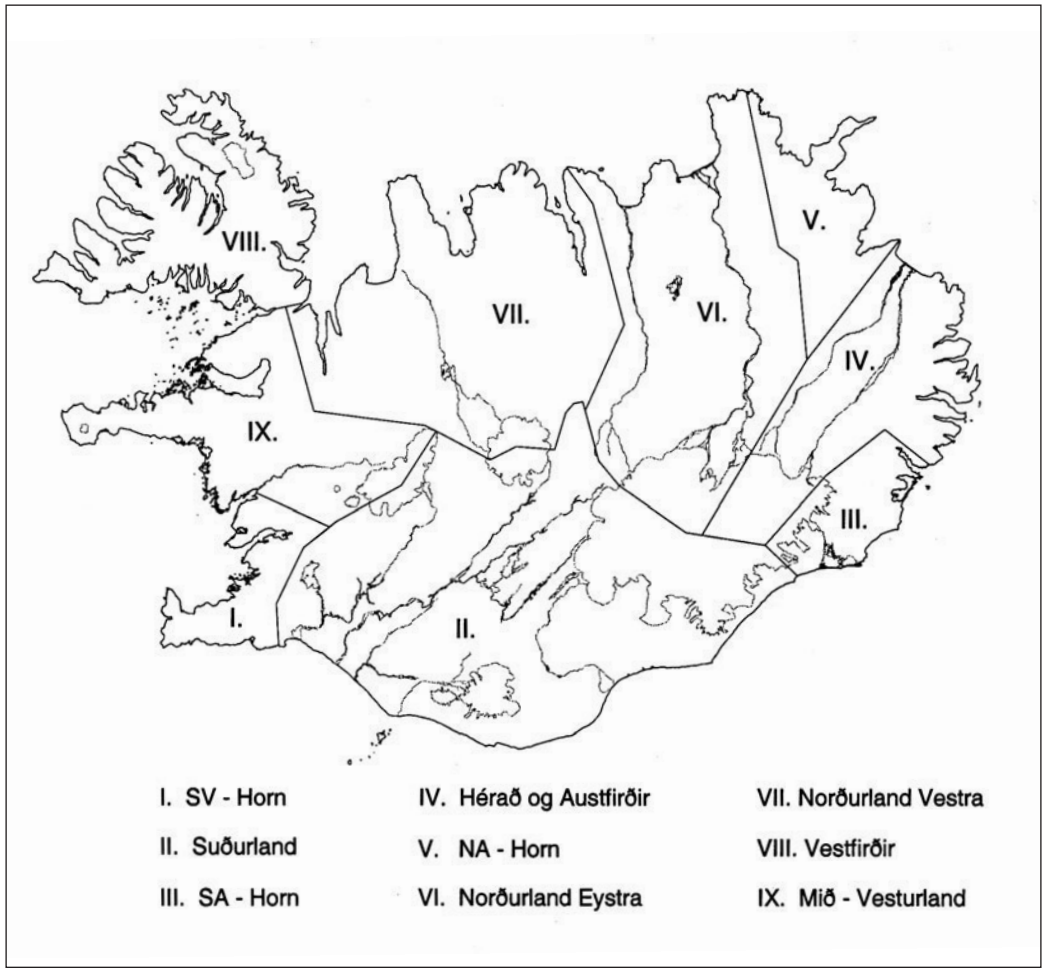
The new planning law includes a paragraph that requires that natural hazards should be accounted for in a plan. Some types of natural hazards, for example avalanches, landslides and ocean or river floods, are easy to account for within the boundaries of small communities.

As we approach natural hazards that affect a far larger area, such as earthquakes, lava flows, and volcanic ash and pumice, it is not enough to look at the terrain in patches. Because of this, separate communities have not been able to take account of these types of hazards in their planning.

If it is actually the intent of the lawgivers to account for natural hazards and carry out the planning process in such a way that planning can help avoid or mitigate hazards, another planning level is required beyond the master plan of the communities.

In 2002, a graduate student at the *Environmental and Civil Engineering Department of the*

This regional plan is no longer valid.



An idea on a new regional plan division of Iceland for. The demarcations are chosen to create logical units as concerns natural hazards in each part of the country.

University of Iceland, Hallgrímur M. Hallgrímsson, wrote a fine MS thesis about this problem and demonstrated a path that could be taken to fulfil the needed objectives.

The basic idea of his thesis is to create *a new type of regional plan* for Iceland where a division into regions can be shaped in such a way that they become logical units in terms of the impact of natural hazards (see the map above). Of course other are also taken into account.

The thesis drafts the methodology needed for the making of a regional plan mainly focused on hazards and illustrates the use of this method for the large watersheds of the Lower Thjórsá, Tungnaá and Köldukvísl rivers.

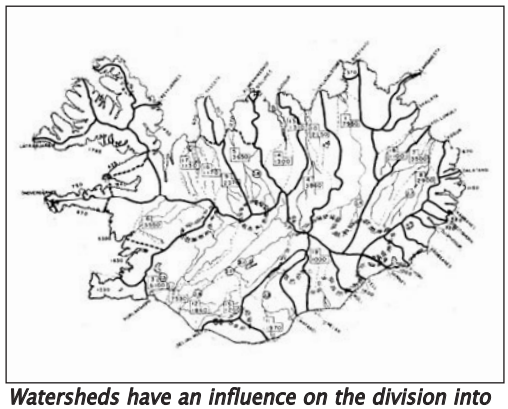

NÁTTÚRUVÁR
Í NÝRRI GERÐ SVÆÐISSKIPULAGS

Hallgrímur Már Hallgrímsson

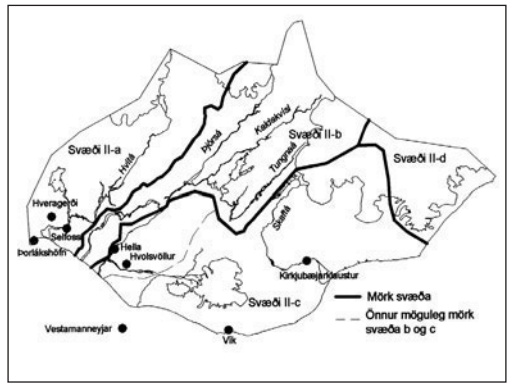
M.Sc. ritgerð

Október 2002
Umhverfis- og byggingarverkfræðiskor
Háskóli Íslands

The M.S. essay with a proposal of a new type of plan.



Watersheds have an influence on the division into regions in the large map above.



The south was divided into four areas.The M.S. thesis mainly covered area II b.

XI Steps Towards Super-Regional Plans

1 Larger Electoral Districts in 1959 and Regional Associations

With the re-establishment of the Althing (parliament) in 1845, a directive was issued on electoral districts in Iceland. These electoral districts were the 19 counties plus Reykjavík. Each of these electoral districts had one member in parliament and, in addition, there were 6 members appointed by the king.

This division into districts underwent several changes with the passing of time. MP's were added in some electoral districts as the population increased. But for most of the time there were parliamentary districts represented by one or two MP's, except that the number of MPs for Reykjavík was increased. Gradually towns became districts with one representative. Later extra seats were added in order to level out differences among political parties.

This old scheme was drastically altered in 1959 as eight large electoral districts were established. They were the West, the West Fjords, the North-west and the North-east, the East Fjords, the South, Reykjanes and Reykjavík. One advantage of these new and larger districts was that a co-ordination of ideas about the development of large regions was achieved.

These new districts gave wings to the idea of an intermediate governmental level but failed to lead to the establishing of governmental regions. One of the reasons, often cited, is that the people in the countryside would lose their direct contact with their MPs because, according to the new scheme, they would mostly be in contact with the representatives of the regional governments instead.

What surfaces here is the narrow understanding of the role of an MP, i.e., that he or she should primarily be the spokesperson of the electorate but, to a much lesser degree, work for the common interest of their region or even the interest of the country as a whole.

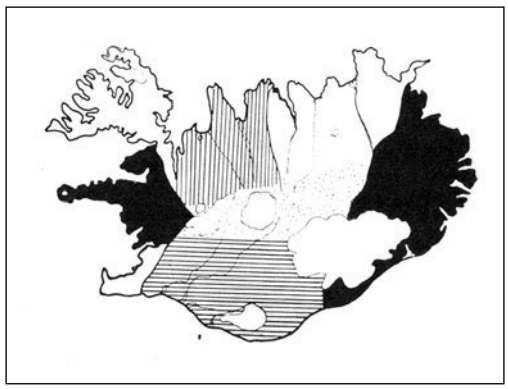
Even though this intermediate governmental level was never instrumented, the new electoral districts gave the impetus for some kind of regional management. *Regional associations* were established in each of the new electoral districts except that a special association was created for the communities in the Capital Region, which actually occurred later than in other parts of the country, or in 1976.

These regional associations were given various tasks as, for example, to create suggestions on a transportation and power policy for their regions. As the two electoral districts of the north, in combination, made up the old north quarter, the east electoral district covered the east, and the south electoral district the south, the division of the country into four governmental districts was strengthened.

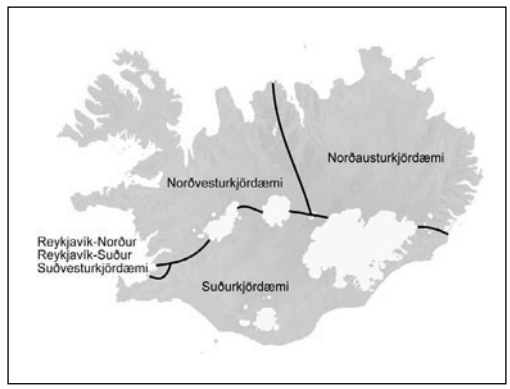
To start with, there was one unified quarter district in the north, but later it became divided into two associations. The custom developed of calling a meeting of these regional associations a *quarter assembly*.

As the unification of communities progressed at the end of the twentieth century the importance of these regional associations was reduced because the need for them as a platform was largely based on the fact that within each electoral district there was a great number of small communities. The associations had therefore created platforms for bringing the individual communities together.

As these regional associations followed, for the largest part, the new electoral districts they provided a common voice for the locals for formulating ideas on issues such as



The conversion to eight electoral districts in 1959 became the foundation of regional unions.



The electoral districts of 2003 evensed the imbalance of votes but also broke up regional unions.

The guardian spirits were an inspiration in the regions.

Because of the great number of small communities, there was a great need for regional associations to see common interests. Unification reduces the need for such associations.

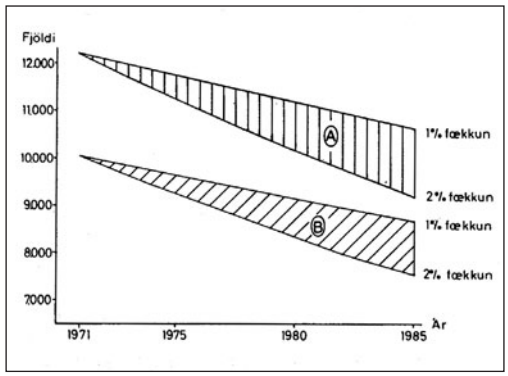
tranportation and also created a means of presenting their views more strongly to the parliamentary committees.

The regional associations also had the goal of promoting the idea that programs for regional development should be formulated for various areas in the country.

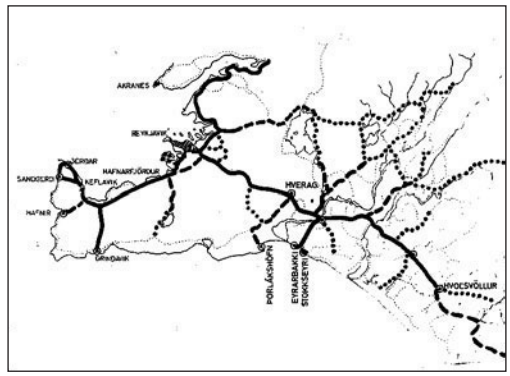
The division of Iceland into new electoral districts in 2003 – even if it has some positive features – means an end to the regional associations in their original form because some of the older districts were split up and others merged into new units.

It seems odd that the new electoral districts take little account of the history of governmental divisions of the country and even, in some cases, break up logical social units.

A south development plan was started, but not finished.



The south country plan predicted a sharp drop in agriculture, which needed addressing.



Width of roads is a precondition planners have to know as they are working on plans.

2 Drafts for Regional Development Plans

In the first Icelandic planning law in 1921 only villages and towns with 500 or more inhabitants were obliged to have a plan made. At that time it was judged as not being necessary to plan for rural areas or for settlement areas.

Since this seemed inconsistent, in 1931 three MP's, Hédinn Valdimarsson, Haraldur Gudmundsson and Vilmundur Jónsson, presented a bill to the Althing which deals with: "…in what way planning for rural areas could be introduced to present the best way for their utilization and easy access to profitable ventures within agriculture for all Icelanders who wish to work in this field.

"Special consideration shall be given to markets for agricultural produce and to processing the produce, increasing productivity, building of permanent housing, improvements in transportation, providing rural areas with electricity, and also the creation of clusters for co-operative farming or farms in joint ownership."

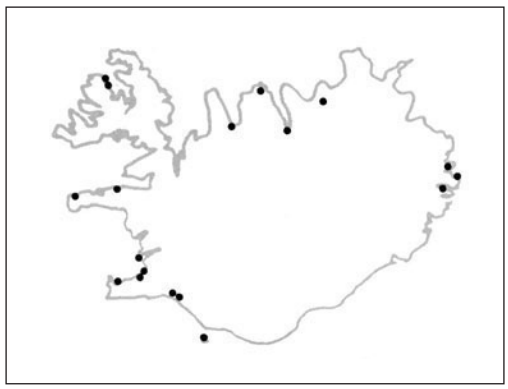
Thirty years later, in 1960, another bill was introduced in the Althing proposing that planning of rural areas should be undertaken. This bill especially dealt with the need for a general plan for the whole of the southern lowland. The report accompanying the bill states: "The nation cannot offer to let settlement and occupations develop in such a haphazard way as up till now…. Thorough investigations need to be carried out to ascertain the possible utilization of the country's resources so that broader plans can be made than those of today, reaching further into the future, and especially drawn up for larger regions, settlements or parts of the country."

The establishment of the *Development Bank of Iceland* in 1953 can probably be seen as the first step towards regional development plans in Iceland. The first area that was the subject of an investigation by the bank was the West Fjords. This work was continued and *the first regional development plan* that was drawn up was the *West Fjord plan* in the 1960's, undertaken, among other things, with the assistance of Norwegian specialists.

The structure of the government responsible for economic planning on behalf of the State at that time was rather complicated. The *Economic Institute* and the *Development Fund* were merged in 1972 to form a new institute, the *Development Institute*. The name of this institute was changed to the *Regional Development Institute* in 1985, an institute that has to this day been in charge of planning for settlement development. The first steps in this direction will be described in a section on the activities of the Development Institute on page 263.

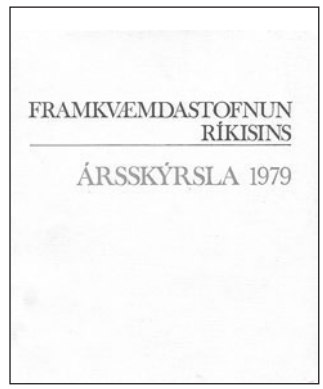
There were various reasons why the regional development plans did not get as good a foothold as they should have. One reason was the lack of an overview of the basic infra-structure of the country that a regional development plan could take its bearings from.

There is one good exception to this, a 1200 page report by the Danish *Kampsax* Company compiled in the 1960's on the future structure of *the transportation system in Iceland*. This report starts with an evaluation of the main parameters of the transportation system and judgements are made about what are their positive and negative features. This turned out to be too big a bite for the politicians to swallow, for example, as the report pointed out that the number of harbours and airports was far too high. The report proposes a very radical decrease in their number and proposes that the forces available

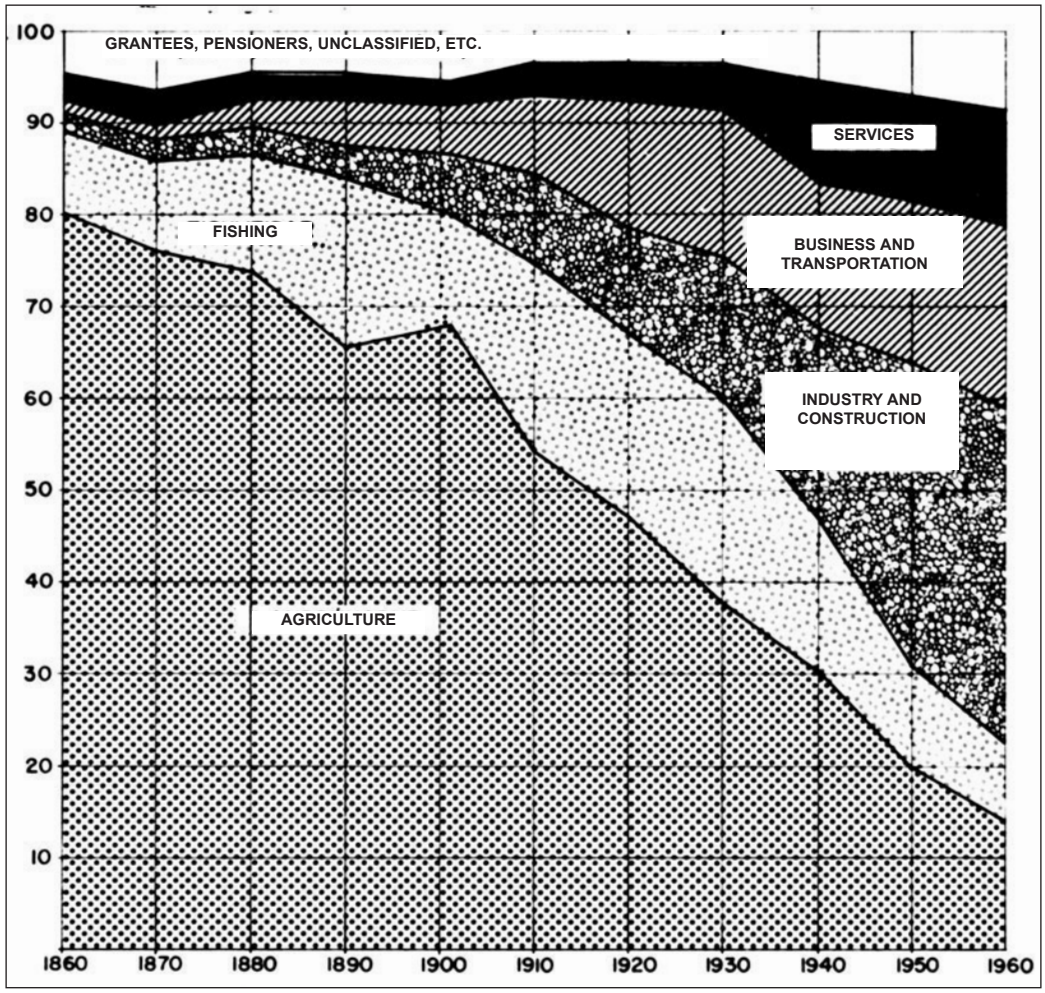


These 18 places were obliged to be planned in the first planning law of 1921.

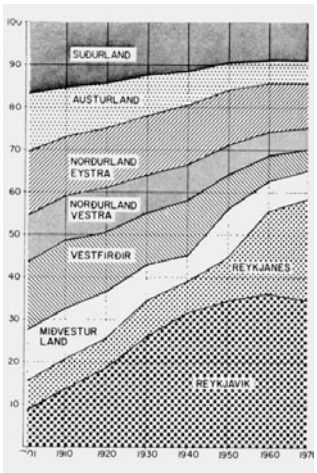
Roads built according to the West Fjord plan are shown dotted on the map.



Yearly reports were issued by the Development Institute.



This diagram shows the occupational division of the nation in 1860–1960. The biggest decline was in trades in rural areas, which caused great concern for those involved.



Large population decline in rural areas in the 20th cent.

should be gathered to strengthen the larger towns. This reorganization could also mean large savings in the development of the harbour and airport systems. The report also points out that the development of the road system was already so well under way that within a short period many of the harbours and airports would no longer be necessary.

This report – written in English, about 1200 pages – was not translated into Icelandic, not even an abstract. This shows that there was little interest on the part of the politicians to engage in development projects even though the need was already evident.

Quite soon after work on the regional development plans started a general opinion developed in the countryside that this involved too much paper work. Commonly such a report began with a documentation of the development of occupations and official services. This first part of the plan for the South is almost 400 pages long.

Icelanders have had little fondness for paperwork. Throughout their history they did not become used to spending much time thinking about planning, as bureaucrats do, but instead they have a tendency to venture into things impulsively. For many a local politician, reading all these reports was too much and required too much advance thinking for the preparation of projects. Many even thought that the plans would cause a delay, a view that has some truth to it.

How poorly the regional development plan documents were received meant that the officials resorted to reducing the scale of them and started to look at rather limited spaces. An example is the Dalir County development plan that was made in 1980. A project outline of this type seemed very realistic to people, and as a matter of fact, this type of development plan is very similar to the regional plans that had already, at that time, started to develop.

3 An Idea for a Super-Regional Plan for South-West Iceland

As we have learned from the previous sections, it has been very difficult to instrument plans that embrace large parts or super-regions of the country. In the 1980's the regional development plans were only undertaken for small areas and not at all for areas that can be seen as large settlement areas of the country.

Previous sections have described how the basic idea of regional planning is to cover large areas and even whole parts of the country and is in this way meant to create a policy for regions, i.e., collectively for a number of communities. The regional plans were, as it turns out, mostly drawn up on a small scale so this primary objective was not attained.

Many explanations have been sought as to why this happened, one of them being that the communities were too small and too numerous at this time, which made it very hard to gather them together in one platform for joint decisions about a regional plan for a large area.

As the idea of a plan for south-west Iceland was formed around 1990, it had already become very necessary to start to look at this region as one planning and development area. In this process a proposal surfaced that a question should be put to the regional associations in the area and that a working group should be created to work on the development of future ideas for the region.

In the first step of the conceptualization it was decided that it would be sensible to define the area so that it would embrace the Borgarfjördur area, the south lowlands, the Reykjanes Peninsula and the Capital Area. A draft containing this proposal was sent to the Regional Associations in these four areas. Fortunately, their boards agreed to take part in this work and appointed their directors as members of the work group.

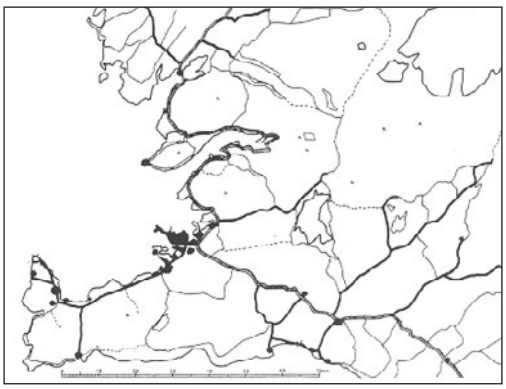
It is right to point out that for this area, i.e., from Hvítársída in the west to the Markarfljót River in the east, there was a suggestion of making eight regional plans on the map of the Planning Institute – areas that in some cases have been divided into more regional plan areas as time passed.

One of the main incentives for this push for planning of south-west Iceland was because of recent improvements of the roads in this area; people were starting to see that this whole area could develop into a single occupational and service area.

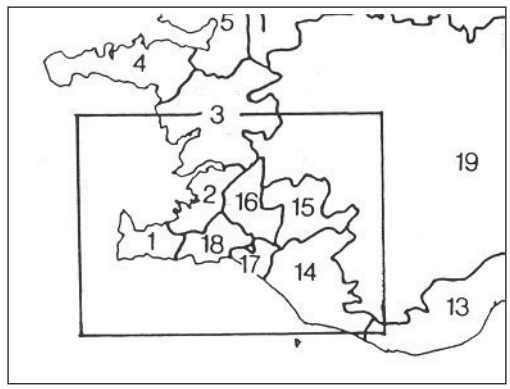
What follows from this is that planning for the whole area would become the common interest of everybody, as concerns the development of settlements and infrastructure. Therefore, it would be logical that a draft on ideas for the structure of this area as a whole should be created.

The group worked from the autumn of 1992 to the autumn of 1993. As this work came to an end a book of 108 pages, with all of the most important data and proposals, was published. During the process, several institutions and key figures were contacted, including the Regional Development Institute and the Prime Minister, who at that time was the Minister of Regional Development. A conference on the project was held at Thingvellir, where the Minister gave the opening speech.

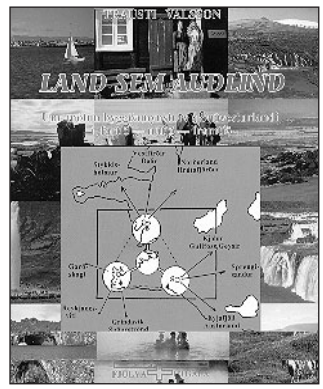
One of the things that was of special importance in this draft for a superregional plan was that now the land itself should again be seen as a valuable resource because people from the urban areas were increasingly getting out



This is the main future development area of Iceland. Today's transportation net is presented.



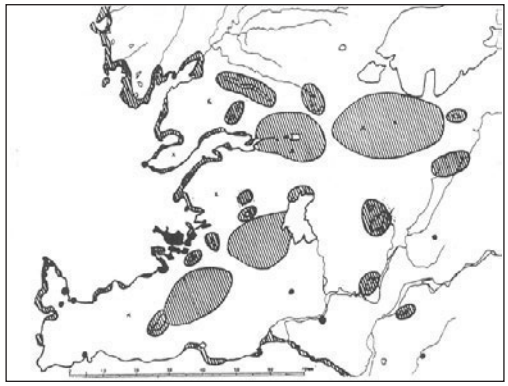
SW Iceland is divided into 8 regional plans, but optimally there should only be one plan.



Cover of a book published at the conference.

Natural wonders in SW Iceland are primarily linked to volcanic zones and to the coasts.

The most picturesque areas are ,e.g., Krýsuvík, Thingvellir, Botnsdalur and Laugarvatn to Gullfoss.



Outdoor life in winter is best near the coast – and on the heaths where there is snow.

Outdoor life in summer is best in or close to areas of sports, culture and natural wonders.

into the countryside, seeking outdoor pursuits and creating second homes there. In addition, the whole region is actually one continuous market as concerns tourism – an industry that is highly dependent on the prior improvement of, for example, roads.

A group of students at the *University of Iceland* took part in some preparation work for the group, including working on theme maps on the various types of land resources in the south-west.

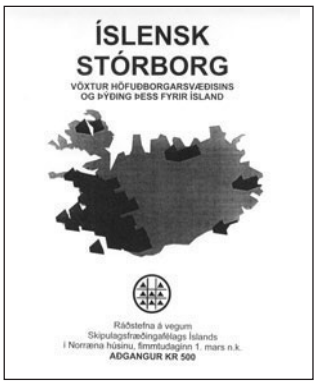
The students also drew theme maps for the various aspects that limit land use, such as areas that need to be preserved for protection of water purity, areas of natural hazards, and reserve areas for a probable increase in agricultural production if the weather on earth turns warmer because of the Greenhouse Effect.

A special part of the book – written in preparation for a general structure proposal for the area – covers the development of settlement patterns in south-west Iceland all the way from the time of the original settlement in the late ninth century to the present. Certain patterns of how settlement had developed and changed were found, and based on this a prediction was made on how the settlement structure was likely to change in the future.

A special study was made on what new traffic connections were needed. Another theme was the creation of circular routes for tourism. The Directory of Roads took a part in this and had some investigations carried out.

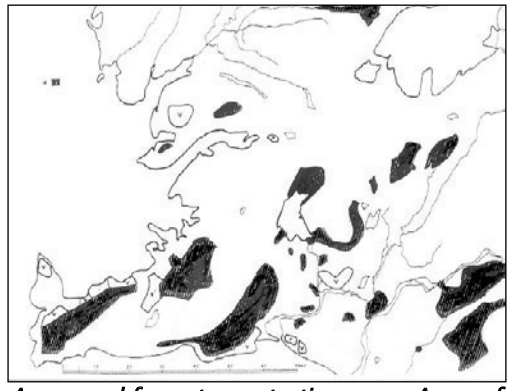
The special studies carried out with the collaboration of the group and the Directory of Roads included ideas about building a south coast road in order to connect the Reykjanes Peninsula to the southern lowland. Another idea was to build a road over Leggjabrjótur from Hvalfjördur to Thingvellir and also to build a road from Borgarfjördur over Uxahryggir in order to connect the West with the southern lowland.

Many of the ideas that were put forth and studied in this work have since then entered general discussion with increased intensity. Now the south coast road is already in the planning stage and a special investigation is to be made concerning a route for the Uxahryggir Road.



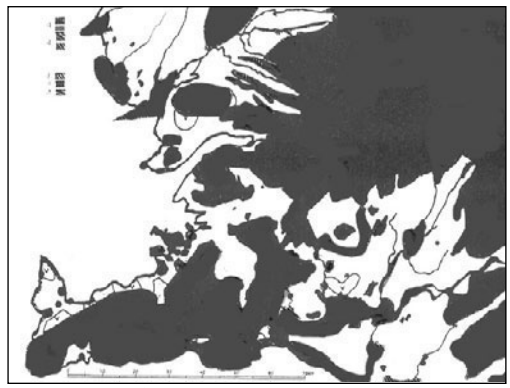
A convention on the south-west in the spring of 2000.

The map shows flooding areas at the coast and along rivers. Avalanche areas have diagonal shading.



A proposal for water protection areas. Areas of disappearing protection are marked V.

Areas most suitable for large-scale farming are few. They should be taken into account in planning.



Overlapping of constraints transparencies. Most areas are not usable because of height above sea level.

As described in a report, this work was seen as a pilot study of how comparable planning work could be carried out for other parts of the country. Even though this was a part of the goal, some of the representatives of regions farther away from the Capital Area were wary of these ideas. They worried that politicians in the region could possibly aim to join forces, meaning even more strengthening of power in this area.

A table showing the number of inhabitants in all the regions in this area was an important news item in 1992 because what this table graphically presents is that there were already 200,000 people living in this area, i.e., about 76% of the inhabitants of the country.

This number was such a surprise because the database of the Regional Development Institute treats the Capital Region in a narrow sense. This means that some parts of the Capital Region were defined as rural areas, which gives a totally wrong picture of how Iceland is actually settled at the present.

Ten years later these numbers had increased significantly and people have thus realized that most of the population will in fact live in this area in the future. This supports still further the idea that this region needs to be planned as a single superregion, a region we could even call the *New Iceland* or *City State Iceland.*

This plan work, however, has not developed very much since then, even though sporadically proposals have been made, such as in the fall of 1999, when the alternate MP, Helga Gudrún Jónasdóttir, presented a bill for an overarching regional plan for this area.

In 2000 the *Association of Icelandic Planners* approached the matter and organised a conference held in the Nordic House in Reykjavík. This conference was called *An Icelandic Metropolis.* It was of special interest that these ideas, which had been discussed ten years previously and were thought unusual at the time, had then become widely accepted.

The mayor of Reykjanesbaer, Ellert Eiríksson, said for example that the Reykjanes, the South and the West could be taken together as border area no.1 of the capital, and the rest of the country as border area no.2. Earlier a similar idea had been explained in the book *Land as*

Inhabitants in SW Iceland 1992

Reykjavík	*100,850*
Reykjanes elect. district	*66,416*
Borgarfjördur county	*1,373*
Borgarnes town	*1,788*
Akranes town	*5,272*
Mýrar county	*799*
Árnes county	*5,642*
Selfoss town	*3,977*
Hveragerdi town	*1,669*
Thorlákshöfn town	*1,269*
Stokkseyri/Eytarbakki	*989*
Westman Islands town	*4,870*
Rangárvellir county	*2,045*
Hella village	*592*
Hvolsvöllur village	*657*
Total	*198,208*

...that was in 1992, 76% of Iceland's total population

This table was considered to be big news in 1992.

A structure plan that was created for SW Iceland. It makes use of the map series described in this section. This map shows planning schemes for roads, tourism and outdoor activity.

Resource (see map to the left). In this map the first circle shows a one hour drive out of Reykjavík and the second circle shows how this oNE hour area could be expanded if all road improvements were made. This map was made before the Hvalfjördur Tunnel shortened the distances to the west.

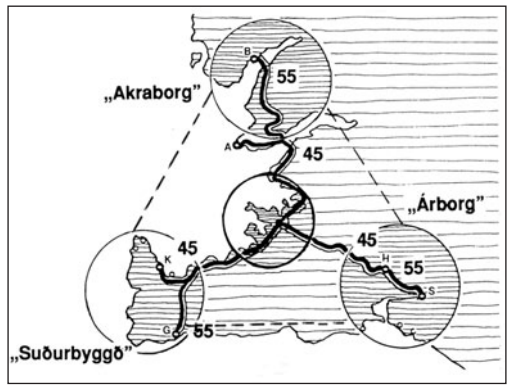
Many speakers at the conference of the Planners Association described how Iceland would, in the future, be engaged in much tougher competition with foreign nations in terms of getting young people and businesses to stay in the Capital Region. Because of this, it would be sensible to join hands and create a marketing image for the area as a whole – because the area, as a very varied whole, could appear very strongly in marketing drives for the area abroad.

This is indeed very important because even though people are dealing with arousing the interest of some businessmen, they look not only at the labour market but also at the living standards and the various other possibilities that an area has.

In the work on the new regional plan for the capital area in 1999-2001, this unfortunately was only done to a small extent. The narrow frame of the plan was rarely surpassed, and a negative aspect was that only the communities in the capital area were allowed to take part in the work.

It should, however, be mentioned that the harbour areas were studied for the whole south-west, so that the harbours in Thorlákshöfn and Akranes were made a part of a study. This regional plan work will be described in the section on page 408.

Areas where interaction is developing rapidly.



Settlement structure of SW Iceland is regular. Side connections in this triangle are missing.

XII Regional Plan for the Central Highlands

1 A Wrestle for the Authority of the Highlands

One of the most serious disputes within the area of planning that has ever occurred in Iceland is the dispute about the *Regional Plan for the Central Highlands*, instigated in the spring of 1997 when the first official proposal for the regional plan was advertised.

At the end of the advertising process, in the autumn of that year, much criticism had surfaced. Various bills regarding the matter of the highlands were presented to the Althing in the spring of 1998 and then the dispute erupted again.

The clause in the planning law that required that two representatives from each community have a seat on the planning committee for the area in question was clearly impractical when it came to planning of the highlands. There was therefore a search for other ideas as to who should be the members of the first regional planning committee for the central highlands.

In response, a special clause was added to the planning law in 1993 that directed that the Minister of the Environment could decide a joint committee could be composed of representatives of the district committees that are adjacent to the highlands, but not by representatives from the non-adjacent communities. Each of the seven regional committees then appointed members of the joint committee and the Minister appointed the chairperson.

This law was preceded by a series of disputes that will be examined later, but before we start a study into the complexity of these matters, we should review the historical development of the highlands.

In the centuries when Iceland was being settled, there was a period of warm climate that meant that the livestock had not yet increased over the limits of what the grazing areas could handle and the vegetative cover was good, even far up into the highlands.

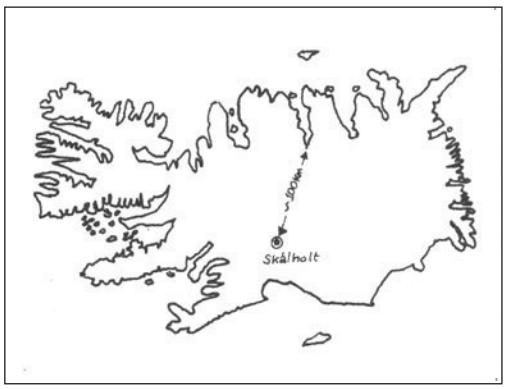
Because of this situation there were settlements high up and travels across the highlands are mentioned in many of the old manuscripts, including in *Sturlungar Saga* and the *Sagas of the Bishops*.

As time progressed, two things happened. Icelanders built up a large stock of sheep that were driven up to the highlands for grazing in the summer, and secondly the climate started to get colder. Because of these two things, large-scale erosion started to take place in the highlands and in a rather short period most of it had almost become a desert.

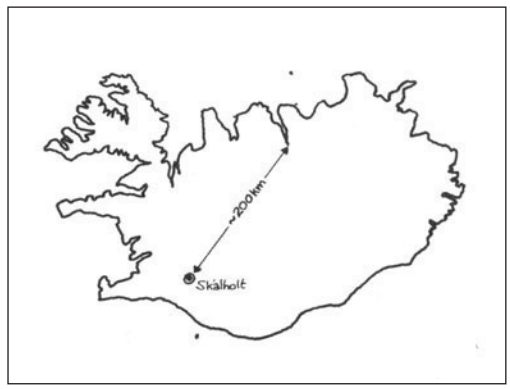
This, among other things, led during the Middle Ages to the highlands becoming a world of spooky horror stories, with the result that people did not dare enter the highlands. Because of this, knowledge about the highlands and this vast territory was lost, so on old Icelandic maps the country is shown as if deflated because the mapmakers had so little feeling for its true breadth.

In the first half of the nineteenth century topographical points on the coast line of the country had been surveyed so that when Björn Gunnlaugsson drew his territorial maps in 1844 and then his first complete map of Iceland in 1849 the outline of the country was already correct.

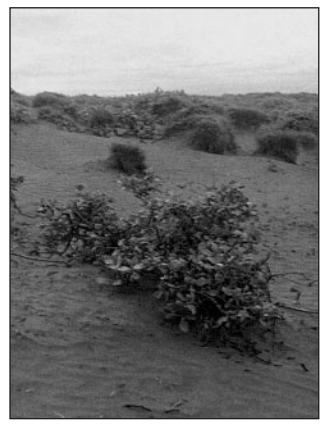
Showing the outline of the land correctly made people realize that the settlements lay almost like a collar around the country. In the middle of it, however, there appears in these new maps a little-known, but vast territory. Because of the lack of information this territory had the feeling of being a hole that needed to be



When people did not know the size of the highlands, the shape of the country was askew.



The difference can be seen in the distance between Akureyri and Skálholt.



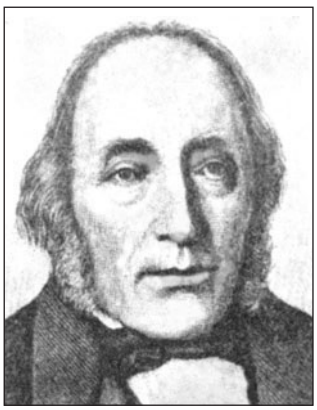
Erosion destroyed grazing land and woodland.

filled in the process of mapping. Because of the fear of what lay there, the scientists were reluctant to go into the highlands to carry out their studies.

In view of this atmosphere it is considered to be one of Gunnlaugsson's greatest feats that he faced the fear and went into the highlands in order to list and draw the main characteristics. In order to be able to draft the shape of the terrain, Gunnlaugsson often rode up to the top of the highest mountains and hills to draw the landscape free hand. The data collected in these drawings he later used to fill in the gap in his map.

Today people are quite surprised how good an idea this map gives about the various features of the central highlands. This map became the first map of Iceland of approximately the right proportions and is considered to be one of the greatest accomplishments in the history of the natural science of Iceland.

The other scientist who contributed the most to fill in information about the central highlands was Thorvaldur Thoroddsen. Thoroddsen travelled the highlands extensively and corrected Gunnlaugsson's map at many points. Based on his corrections, Thoroddsen issued the first geological map of Iceland in 1901.



Björn Gunnlaugsson drew the first good Iceland map.

Thorvaldur Thoroddsen drew the first geological map.

The methods employed in the very early map-making in Iceland were very simple, but the question all map makers faced was: where did the settlements end and where did the highlands start. In his map, Thórdur Thorláksson, in the late seventeenth century, drew a dotted line between the settlements and the highlands. This was the first map that gives some idea about the size and outer boundaries of the highlands.

Early in the eighteenth century Knob made maps of separate parts of the country and the counties. There the demarcations of the communal districts are drawn above the farms highest up and the highlands thus shown outside of the communal districts.

The legal position of the highlands is that the highland pasture areas are common land – those spaces open to the general public for use of resources. Later associations for sheep grazing were created, which meant that certain areas above the settlements were common lands. In many cases communal districts that were located far away from the edge of the highlands had the same right to drive their sheep up there for summer grazing.

In some areas in the highlands other rights to resources were accorded, such as collecting brushwood for fuel, trout fishing and hunting geese. A common feature of all these rights was that they were only very loosely defined and thus could be others than those living directy at the edge of the highlands.

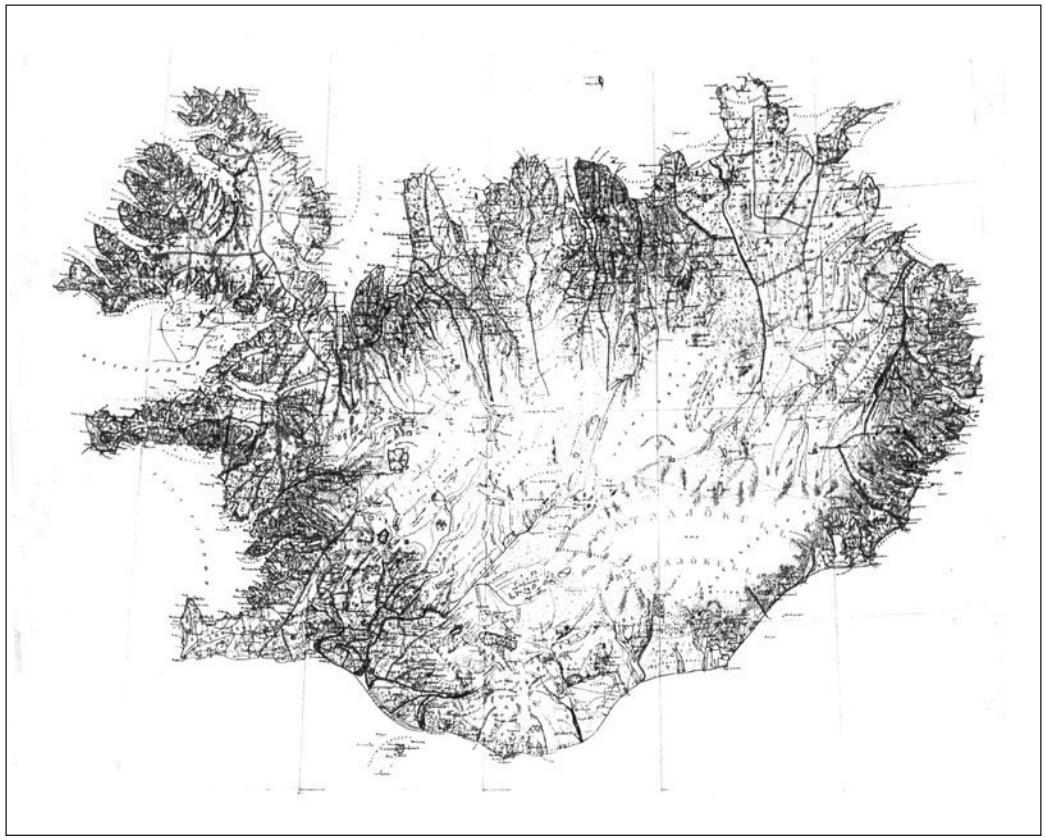
Many cases were presented to the court in the twentieth century where there was disagreement about certain rights in the highlands. In two findings of the Supreme Court in the spring of 1997, concerning rights in the Blanda area, both rulings rejected the claims of the communal districts in that area as concerns energy resources. This could possibly be defined as meaning that the rights of the districts abutting the highlands as the most natural caretakers of most matters concerning the highland area in question is weaker than expected.

The ruling of the Supreme Court on this matter states: "Act no.50/1907 that was referred to in the assignment by the Minister of Iceland of Audkúla Heath, from July 5, 1918 did not grant further property rights than those belonging to the church farms. This deed cannot grant more extensive property to the plaintiffs than that rightfully covered by the conveyor of the deed. In view of this and of the utilization of the country's mountain pastures, the plaintiffs have not acquired the tradition of ownership of the Audkúla Heath."

The other ruling, in the spring of 1997, was dealt with *waterfall rights*, which is actually the resource that is being tapped by hydropower plants. The claim of the locals was that they should be accorded the waterfall rights, which means that the National Power Company would have to pay a fee for the hydropower utilized. The ruling of the Supreme Court was that the right of grazing that had been granted to communal districts could not be seen as a wider-reaching property right and therefore the waterfalls usufruct could not be included.

The question of hunting rights has been in dispute of late, for example, the right to hunt geese. In Dalir County a verdict was passed in the last part of the twentieth century wherein the judge stated that the heath adjacent to the farm in question is not rightfully owned by that farm. The farmer therefore has no right to prevent others from using this area for hunting, even though he himself had used it as grazing land.

Because of the great uncertainty about ownership and other things relevant to legal authority in the central highlands, two bills were presented at the Althing in 1997-1998 that tried to bring some order. The bills were passed as law in the spring. The one law deals with ownership and the use of resources in the earth, primarily meaning geothermal resources and



Mapping of the ocean areas at the coast brought outlines of the country into shape. Then people discovered that the highlands were larger than expected. The feat of Gunnlaugsson was to draw the interior of the country.

minerals. This law embraces all land and also all areas within the distance over lakes and sea where the owners can cast their fishing nets.

The second law on ownership of the highlands dealt with the so-called *national lands*. This new law says that ground resources in the highlands shall be the property of the Icelandic State unless others can prove their right to them. Quite a dispute took place in the Althing about the definition of a right to a property. These disputes have to some degree an old history because the People's Party has for a long time presented bills to the parliament declaring that all the main resources of Iceland should be owned by the nation as a whole.

In a way, the idea that these "national lands" should be established in the highlands coincides with the view that the nation should own the highlands, as it is not to be expected that the farmers on the adjacent farms can prove their ownership of areas within the highlands, except perhaps for grazing rights.

The legislation on the national lands deals with various types of rights concerning the highlands, or as stated in the second paragraph: "The Icelandic State is the owner of the land and every kind of land right and resource in the national lands that is not subject to private ownership."

The Prime Minister is in charge of the national lands except for land that has been delegated by law to other ministries. This part of the law, concerning state ownership, is parallel to the law in many other countries.

In Norway the law is phrased in such a way that if somebody cannot prove his property right in an area, the area becomes the property of the king. In the case of Iceland it is not a king but the state that becomes the owner of these properties.

This bill was presented to the Althing at a similar time as a proposal for the regional plan for the highland was put up for approval and at the same time as the discussion about the jurisdictional rights took place.

Because of this, the discussion became very complicated and many perceived the national lands bill to be a compensation for what had been lost by dividing the jurisdiction of the central highlands between the adjacent communities, a decision that also gave these communities the planning rights.

"In the law no. 50/1907, that was referred to in the deed of the Icelandic Minister for the Audkúla heath, July 5th 1918, no more rights ceded than those that pertained to the church farms"

From the supreme court ruling on property law 1997.

"A permit issued by the Prime Minister is needed for the utilization of water and geothermal rights and other mining and...(and) negotiation of fees is allowed". From paragraphs of the law

The PM will have big tasks in the national lands.

Since the law was passed the *Highland Commission* has been at work formulating and filing claims on behalf of the state for ownership of the central highlands.

The owners of the farms in question have to file claims against the tate. The proposals of the Highland Commission about what should be the demarcation between the homelands and the highlands have caused difficult disputes. It is expensive for the farm owners to engage in these court battles. As a solution it was proposed that the State should pay the legal costs.

The bottom line here is that a process has been started to decide who the rightful owner is and who holds usufruct right to the highlands, whether it is a question of government or jurisdiction, or whether it is a question of property rights of different kinds.

It is quite clear that it would have been more appropriate and easier to wait with the planning for the highlands until these basic legal questions had been answered because planning is necessarily always based on the legal and governmental position of the areas in question.

Many people took part in the official debate, in the newspapers and in other forums, as the bills and the planning proposals were being presented. One of the central questions was whether it was right for the Althing in 1993 to amend the planning law to allow the Minister of the Environment to appoint a committee to make a plan for the central highlands. In this bill it was decided to give the regional committees the right of appointing the committee members. This decision was based on a proposal – that had not been presented to the Althing – that jurisdiction over the whole central highlands as well as the glaciers should be divided among the adjacent communities.

In an article that Páll Thórólfsson wrote in *Morgunbladid* in December, 1995, he said: "It perhaps would have been better to wait until the jurisdictional lines, as well as the national lands procedure, had been completed.

Most of the time the jurisdictions of the communities follow the present boundary lines of the farms. Because of this, it might well have been better to complete the national lands process first in order to decide how far the farms and mountain pastures extend into the highlands. Then the boundaries of the communities would have followed automatically."

A critical underlying issue in the entire highlands dispute was that it was decided by some public authorities to make a proposal for the division of the highlands among the communities before the disputes on the farm boundaries, and therefore of the communities, had been resolved. This was one of the things that was so heavily criticized in the debate in 1997 and 1998.

As the planning proposal for the central highlands was presented in the spring of 1997, it came as a big surprise to many that the work on it had been carried out as for regional plans in general, i.e., it was only worked on by a committee of "locals".

The committee had their meetings almost only in their home territory. This planning process and the shaping of this planning proposal had therefore taken place almost wholly in the countryside but not in the capital area, in Reykjanes or in the West Fjords, because these parts of the country had no representatives on the planning committee.

When the population of the communities adjacent to the highlands was totalled, it appeared that on December 1, 1996, only 15,500 inhabitants lived there or ca. 3.9% of the whole population. Since other communities in the country on that date totalled about 254,000 inhabitants, they represented 96.1% of the total population.

Nevertheless, the appointment of the committee members was formulated in such a way that they were representatives of the regional committees that are a modern version of the ancient county committees. If the number of inhabitants in these regions is calculated, the result is a higher number than the committee members were to represent. But to base representation on the population of the adjacent communal districts is more logical because the highlands were being divided among them and they were later given the jurisdictional rights there except for the regional planning right, a jurisdictional right that means the right to draw up a master plan for their highland district. In some cases these highland districts are like narrow strips that extend up into the middle of glaciers.

When it was realized that the precondition for giving the adjacent areas the right of planning, people started to enquire how the decision had been made to divide the central highlands between adjacent communities.

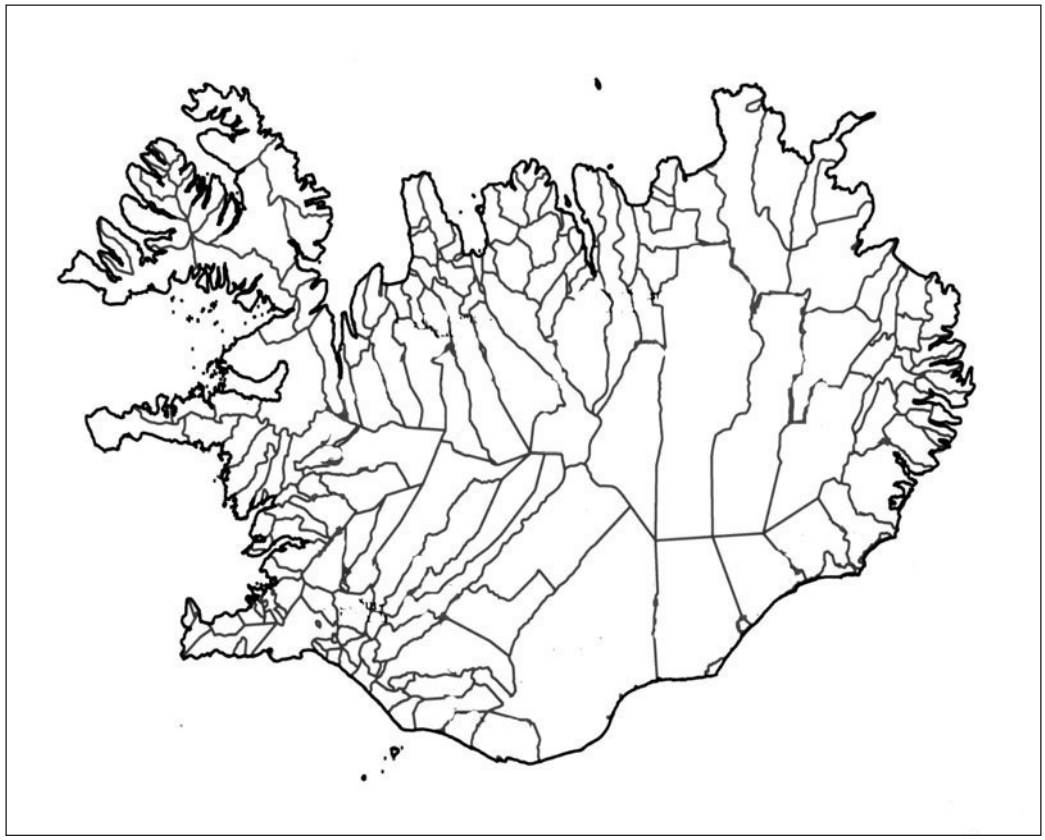
It seemed natural that the State Planning Institute should have had a part in this, but political views are always involved, as will be traced later. In an article about the regional plan in May, 1998, Stefán Thors, Planning Director of Iceland, wrote: "As concerns the responsibility

a....decide what should be national lands and what should be their demarcations... b....demarcation... of national land used as grazing land c....decide on property rights

The tasks of the Highland Commission according to law.

"It perhaps would have been better to wait until the jurisdictional lines...had been completed... Then the boundaries of the communities would have followed automatically."

From Páll Thórólfsson's article in Morgunbladid.



The highlands were unaffected by planning for 1100 years. When the building of structures there began, the government designed this unpopular division.

It was clearly necessary to introduce a governmental authority in the highlands. These were two alternatives: division among the adjacent communities or creation of a special state-run unit. The first alternative was chosen.

for the proposal for dividing the central highlands among communities, it is right that the office of the State Planning Director had some initiative in this work as a continuation of the wishes of the Icelandic Nature Conserva-tion Council in 1988, which stated the difficulties of working with cases such as the building of mountain huts and questions concerning the conservation areas in the highlands as long as there was an uncertainty what community was jurisdictionally in charge of the case – and only a district community is allowed to grant building rights."

In these years, when the *Ministry of Social Affairs* was still also the Ministry of Planning, it had an investigation carried out on the standing of the mountain pasture rights of all the communities concerned. According to the law on local governments of 1996, a mountain pasture that has not been brought under the jurisdiction of a certain community, but where the inhabitants have the rights to drive livestock to pasture, should be seen as a part of that community.

This paragraph was put into the law at that time because of the various construction projects that were taking place in the highlands, for example in connection with power plants. It was also a related concern that a decision was needed as to which community should receive the taxes that these projects produced. In some cases the communities close to the highlands agreed among themselves which community belonging to the union of farmers enjoying the rights to mountain pastures would get this right; but if such an agreement had not been reached, the Ministry of Social Affairs should decide on the matter.

Some people argued that with this, a step had already been taken towards dividing the central highlands, but others pointed out that this had only been done in order to resolve certain governmental problems, otherwise later it would have been totally unclear how far the mountain pastures extended into the highlands and also in many cases where the actual boundaries were. When the investigation of the Ministry of Social Affairs had been conducted, the State Planning Institute received the results and used them as the basis for a proposal on how to divide the central highlands among the adjacent communities.

NW Iceland: 1600 inhabitants in 11 communities
NE Iceland: 1600 inhabitants in 4 communities
East Iceland: 5400 inhabitants in 11 communities
South Iceland: 6300 inhabitants in 17 communities

In the highland communities lived 3,9% 1996.

A refuge hut, the first type of a highland house.

When the *Ministry of the Environment* was established in 1990 the first minister, *Júlíus Sólnes*, appointed a committee on highland matters. This committee wrote a report as preparation for writing a law on governmental arrangements in the central highlands regarding planning and construction.

Members of all parties, certain communities and the union of local governments had representatives on this committee. The main point in the committee's proposal – reached unanimously – was that the central highlands should become one jurisdiction under the state and under one common law.

This committee had employed people to draw up the boundaries of the highlands, which meant drawing a line separating the homelands and the mountain pastures from the central highlands, on a map of Iceland.

In mid-year 1991 a new coalition of the Conservatives and the People's Party took over the government. The joint policy agreement of the parties read: "The highlands boundaries will be set and rules on planning and building matters will be issued."

Based on this agreement the new Minister of the Environment, *Eidur Gudnason*, started to prepare a bill on how to govern planning and building in the highlands, based on the earlier report.

MP *Hjörleifur Guttormsson* traced this story in a newspaper article, where he says among other things: "Even though this was a bill presented by the government, right away there arose fierce resistance from some MP's from the Conservative Party and also the Progressive Party, but the People's Union were in favour of the matter."

Let us continue this story: "In November, 1992, the Minister of the Environment, Eidur Gudnason, called for a conference with the representatives of the communities that have a jurisdiction adjacent to the central highlands.

A report from the meeting says that the local governments said that they were fully capable of taking care of the planning and building concerns of the highlands. These heavily emphasied their desire not to see this bill put before the Althing again."

Because of the pressure of the representatives, Gudnason pre-sented a new bill which proposed that a new temporary clause be added to the planning law that would allow the appointment of a joint committee with representatives from regional committees of the adjacent areas to make a proposal for a regional plan for the central highlands.

Now the situation had developed that the earlier proposal that the highlands should be a single, undivided governmental entity, not cut up into strips for the adjacent communities, was no longer possible.

What probably mainly caused this unfortunate development was the idea incorporated in Gudnason's bill that a special government for the central highlands should be primarily appointed by the Minister of the Environment. This meant that the Minister should appoint half of the committee members, i.e., three, and in addition both the chairperson and vice-chairperson. This was bound to induce dissatisfaction

This proposal would have meant, given the size of the highlands, that almost half of Iceland would have been directly governed by the Minister of the Environment. Because of this the highlands were at that time jokingly called *Gudnason's District*.

This proposal on how the government of the highlands should be appointed was so unwise that it was bound to spur opposition, both within the power industry sector as well as by farmers who knew that the Ministry of the Environment could cause them great trouble, for example in connection with grazing rights. Because of this it was absolutely clear that this proposal was bound to destroy the possibility of creating some kind of a national government of the highlands.

Because of Gudnason's very unfortunate bill, the dividing of the highlands into jurisdictions by adding to the length of the communities adjacent to the highlands, was the only solution left. Therefore, the proposal to let only the regional committees appoint members to the planning committee was approved unanimously by the Althing.

It is, however, not certain that the MP's would have voted that way if they had been shown the map that had been drafted for cutting the highlands, as well as the glaciers, into jurisdictional strips to be given to the adjacent communities.

The Althing decision had the form of a temporary amendment of the planning law. It was, however, assumed that in the future, planning of the central highlands would be decided on by a new planning and building law that was then in preparation.

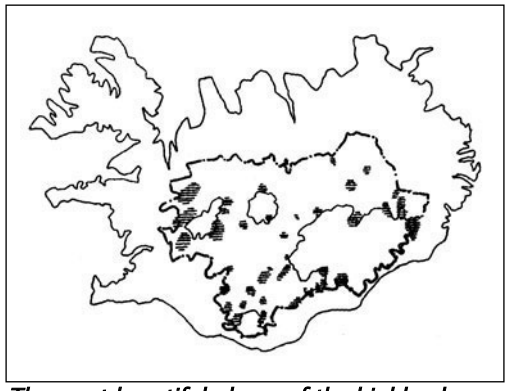
As this bill was presented to the Althing in the winter of 1996-1997 the earlier authorization allowing the joint committee was retained but as the law was passed in the spring this part had been deleted.

"The only realistic method to bring the building and the planning of the highlands into order seems to be to bring these matters under the juridiction of one central committee."

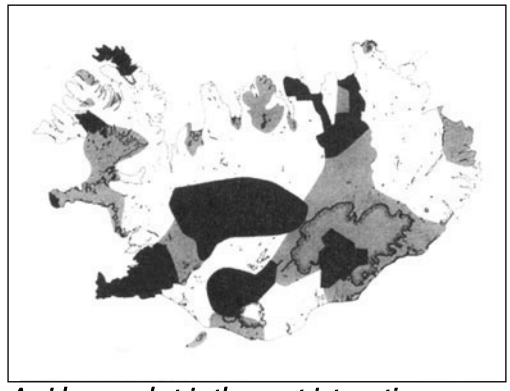
From a report to Minister Sólnes on a system of governance.

First Gudnason proposed the highlands should be governed by the Ministry, which caused a storm. He then gave in and gave the planning rights to the regional committees

Two unfortunate decisions of Minister Gudnason.



The most beautiful places of the highlands are marked with shading.



An idea on what is the most interesting areas in Iceland.

The deletion left many interpreting the will of the Althing as that the path created earlier for planning would not be continued. This left the possible confirmation of the regional plan and the jurisdictional foundation that in an informal way had been its foundation seeming to be in jeopardy.

Now the question as to whether the new law on local government would legalize division of the highlands was actually in the hands of the Minister of Social Affairs, *Páll Pétursson*. The Minister decided to excerpt four paragraphs from that long bill and speed it before the Althing.

The last paragraph dealt with the dividing of the central highlands. This para-graph was, in a footnote, supported by the law on local government of 1986, where it was indicated that all mountain pastures should be a part of the jurisdictions of the communities closest to them.

What Pétursson's new bill added was that the boundaries of jurisdictional lines should be extended further into the highlands, all the way up to the middle of the glaciers. These four paragraphs of the bill were rejected the first time but somewhat later the Minister brought the entire bill on local governments before the Althing and this time the clauses dealing with the highlands question were passed.

A heavy fight took place in the Althing over the highland question, with the opposition using a filibuster to try to stop passage of the clauses in the bill. The editorials of both *DV* and *Morgunbladid* took a very strong position against the bill, but the Minister of the Environment tried to soften the case with a proposal that non-contiguous areas, i.e., Reykjavík, Reykjanes and the West Fjords, would be accorded members on the planning committee.

The editorial in *Morgunbladid* in May, 1998, says: "In the past few weeks a marathon debate on the highlands and its future has been taking place.…As a matter of fact it is clear from the responses from people outside of the Althing that here we have a matter that has touched the heart and soul of the whole nation."

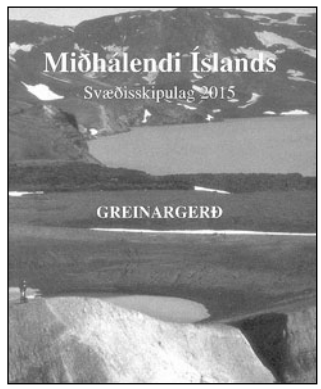
When the bill had been passed, an editorial in *DV* in July stated: "When the fathers of the country make a decision where common interests and special interests are at stake they usually opt with the latter….The latest example of this kind is that of the government of the highlands. The MP's want to give the government of the highlands to the 40 communities with few inhabitants, giving them 40 jurisdictional strips, even though a wave of protests has engulfed the nation. This wave has hit the deaf ear of the country's fathers and their toy soldiers in the Althing."

The final result was that people were not able to avert these plans to divide the highlands among the adjacent communities, which also means that the approval of the regional planning proposal could not be stopped. The proposal was therefore well advertised and provoked a great many comments.

After that the proposal was scrutinized by the Planning Institute and the Ministry of the Environment. The Minister, *Gudmundur Bjarnason*, finally confirmed this plan, with the changes that had been made, in one of his last days in office on May 10, 1999.

This planning proposal will be described in section 3, but before that research and ideas on transportation lines and power plants – that were already in the works within the governmental framework before the regional plan work was started, will be described in the next section.

The highland plan was widely debated.



The cover page of a report on the highland plan.

2 Research, Transportation and Power Plants

When planning is to be started in an area many types of information need to be available, as well as decisions on some of the goals of the work. The last section explained how important it is to know who owns the property rights in the area, who has the planning rights and what is meant to be the position of the area within Icelandic society.

In addition it is vital to have good information about the terrain in question: good topological maps, thematic maps, and information on the geology, hydrology, flora, cultural remains, etc.

All of this is currently far from being researched thoroughly enough in the highlands and as the highlands area is so huge the approach usually taken in preparation for such planning, i.e., to start many types of special studies in order to strengthen the database, is not possible.

The joint committee for the planning of the central highlands did not receive enough funds to carry out the necessary research and produce the data, so the only option available was simply to gather together the findings of some previous studies. In a meeting it was declared, in response to a question, that the committee did not even have enough funds to purchase all of the data that were in fact available.

Because the database is such an important aspect in shaping planning ideas for the highlands a short review of the history of scientific research in the highlands is essential.. The last section recounted how Björn Gunnlaugsson and Thorvaldur Thoroddsen drew the first modern maps of Iceland.

At the end of the nineteenth century several Danes also surveyed the highlands. One of them, Daniel Bruun, who besides studying the development of settlements in the country, researched and traced the old mountain paths and ultimately described them in his writings.

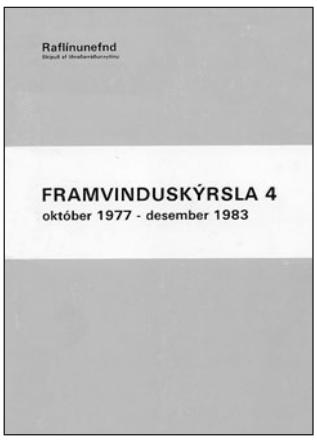
Bruun's travels can be seen as the pioneering effort that led to the expeditions on the behalf of the Danish General Staff, primarily between 1902 and 1940, that resulted in good maps for the whole country. These maps, with alterations, are still the most sold maps to the general public today. After these pioneering ventures, many other scientists, foreign and Icelandic, followed in their footsteps.

Passage of the law on electricity and the establishing of the Office of the Director of Electricity in 1947 was the watershed that sparked practical research of the highlands. The first director, Jakob Gíslason (later Energy Director), played a great part in creating the policy of increasing research in the highlands.

These studies, on behalf of the energy sector, resulted in accurate geophysical maps, hydrological measurements, geological and ground water research, and other natural science research on a broader scale that included the mapping of the flora and fauna in some of the watersheds. All this research has added very much to the knowledge of the natural history of Iceland. Most of this research resulted in written reports or maps, largely paid for by the energy sector.

It is first and foremost the geological and hydrological maps that are directly applied in the energy sector because they are used to estimate conditions in the area and later for the designing of hydro and geothermal power plants. The quality of this research is good.

The idea behind making maps of the vegetative cover is to provide a scientific foundation for the efficient utilisation of the highlands vegetation for grazing. If people had succeeded



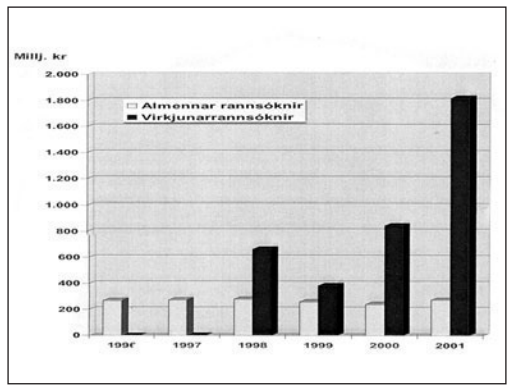
A large number of research reports are being published.

Research duties

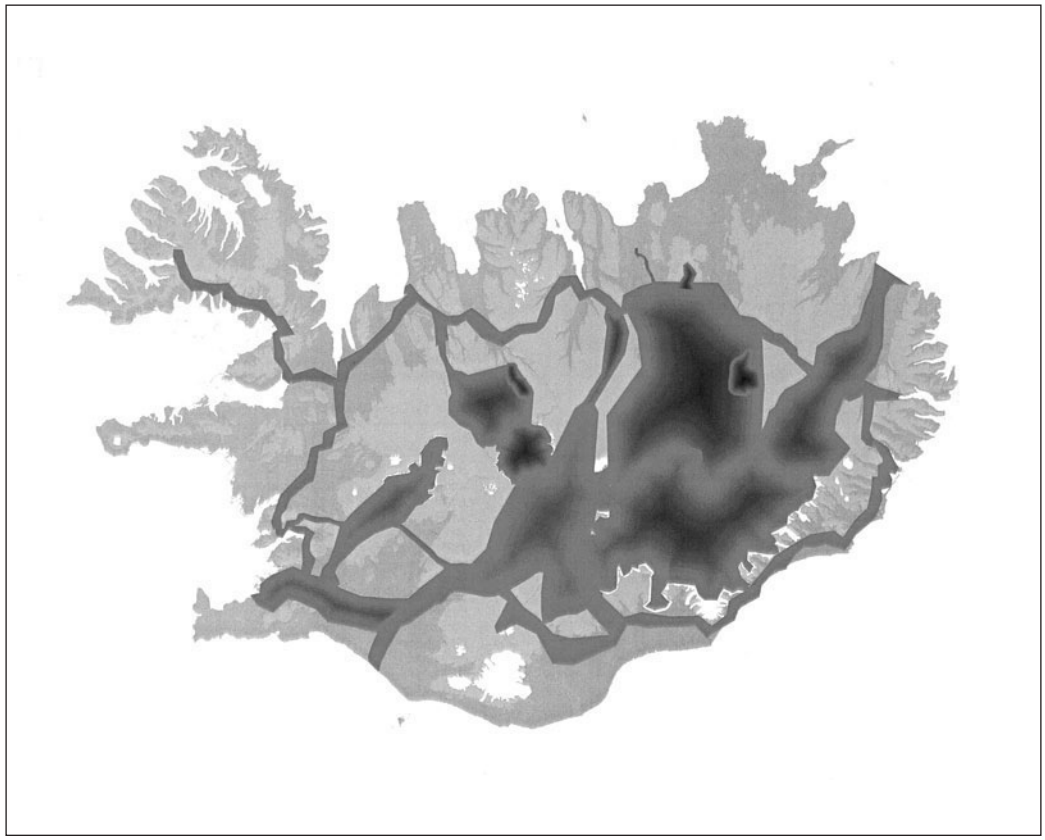
Role and duties of National Power Institute:
-Overview of and registration of power sources
-Plans for utilization
-Conditions for utilization

Main goals of Natural Science Institute:
Research for:
-Guidance on resonable utilization of resources
-Estimating protection value -
determine value standards
-Estimating effects of land use on nature

The contribution of two state agencies to the Frame Plan was 3 million euros in five years.



The research cost of the NPC increased from 3.2 to 24.7 million euros in only 6 years.



Areas where the National Power Company has supported or conducted research. The areas are glaciers and the watersheds of the largest rivers, geothermal areas and corridors where power lines are built.

in achieving this goal, erosion in the highlands would not be as much of a problem as it currently is. Additionally, rather accurate methods have been employed to prepare proposals for nature protection areas in limited spaces in the highlands.

As the first regional planning proposal was made it was decided to extend these preservation areas to such a degree that the scientific foundation behind these proposals was weakened. A subjective evaluation was used as well as "general opinion", which in fact is rather hard to define.

But it is not enough that basic natural science research is carried out for the planning area in question. It is important that these data are interpreted and formed in such a way that they are applicable to the planning process.

The author of this book started in 1979 to work on such maps, maps that interpret various factors concerning natural features in Iceland. These maps were drawn with the idea that planners could know from them which are the positive features and, on the other hand, which are the negative features, i.e., those features that need to be avoided.

These maps were drawn on transparencies using the overlay method where the areas that are best suited for certain functions get the darkest shading. As the suitability transparencies are laid over each other the shades add up so that those areas appear darkest where the best situation is for certain types of functions. Examples include maps that interpret the beauty of the land or the availability of geothermal hot water.

The other group of transparencies deals with the negative aspects of the country, in this case mostly the various types of natural hazards. Examples are maps that show areas where there is the most danger of avalanches, landslides, lava flows, floods from beneath the glaciers and river floods.

These sets of maps were produced for the whole country and thus also cover the highlands. The maps therefore have a great deal of value as a database for ideas on planning for the central highlands. How these maps were created as well as the ideas of the author of this book in the first plan for Iceland in 1986 will be described in the section on page 353. The present section will now describe the aspect of

Report from NPC on its research in 2002.

this map project that has a connection with the scientific foundation for the planning of the highlands.

When the author of this book started to teach planning in the Faculty of Engineering of the University of Iceland in 1988 these series of maps proved to be a good foundation for various exercises and projects. One of the projects was an idea in the autumn of 1991 for a first regional plan for the central highlands.

The instructor and the students worked together to create a map base with the scale 1:250,000, using the overlay method. These maps were about 1 x 2 metres in size. One of these transparencies was used for collecting all information on energy resources in the highlands, as well as all ideas that had been presented by the Energy Institute, the National Power Company and engineering companies as to possible power plant sites.

The second transparency was used for presenting all ideas that the Nature Conservation Council has put forth in terms of nature protection in the highlands, and the third transparency assembled ideas on what were the best areas for travel in the highlands.

As these large transparencies were laid over each other conflicting ideas became visually evident, for example between ideas on conservation and on power plants. On the other hand it became apparent that in certain areas ideas about conservation and tourism fitted very well.

It should be noted here that in general it is wise – as people make decisions on what areas shall be designated for conservation – that at the same time these areas are accessible as national parks or recreational spots.

The overlay technique, using the set of hazard transparencies, warned against use of those areas subject to various types of hazards. As the findings were summarized in a map, an important guide had been created as to what areas should be avoided in planning, for example, power plants or roads.

The work group felt that areas where there was the greatest accumulation of hazards should first and foremost be used as conservation areas. What makes this logical is that hazard areas are usually also interesting in terms of geology or landscape and thus of interest for tourists. Based on this work, ideas on large continuous nature protection areas were created.

The group also felt that, because the utilisation of hydropower in the Thjórsá and Tungnaá Rivers area was already so far developed despite the considerable number of natural hazards in this area, it would be wise to continue the energy utilisation there to make better use of the investment already made in terms of reservoirs, generating plants, roads and power lines.

If these data were implemented as a policy it would be easier to spare the Kjölur area completely, i.e., that there would be no electrical power utilisation in the Hvítá River area so that this area would remain to a larger extent natural. The instructor presented his ideas about a road system to the work group, ideas that he had been developing for many years. In this road system the main road runs over Sprengisandur.

Because of the Kvíslaveitur reservoirs a road has already been built almost all the way to the Hofsjökull Glacier. By selecting Sprengisandur rather than Kjölur as a route for the main road, a possible future road connection to Lake Mývatn and to the east would be much easier.

In 1988 the Minister of Transportation, Matthías Matthiesen, had appointed the author as well as representatives of the National Power Company and the Public Roads Administration to a work group that was given the task of exploring possibilities of connecting parts of the country with highland roads. The first phase was to investigate road alternatives from Sprengisandur at Kvíslarveitur to the north.

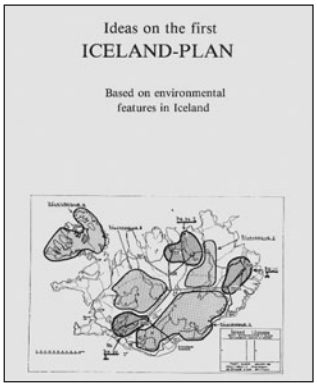
The group studied three alternatives in continuing the road from the middle of Sprengisandur: to let it go down into the Eyjafjördur Valley; through the Bleiksmýrar Valley east of the Eyjafjördur Valley; and thirdly into the Bárdardalur Valley, that is further east and connected to the Ring Road close to the Godafoss Waterfall.

Based on this first study the Bleikmýrar Valley option proved to be the best route, but later as Gudlaugur Thórarinsson made highland roads the subject of his thesis in the Engineering Faculty of the University of Iceland the road question was looked at in a wider framework by applying the overlay technique.

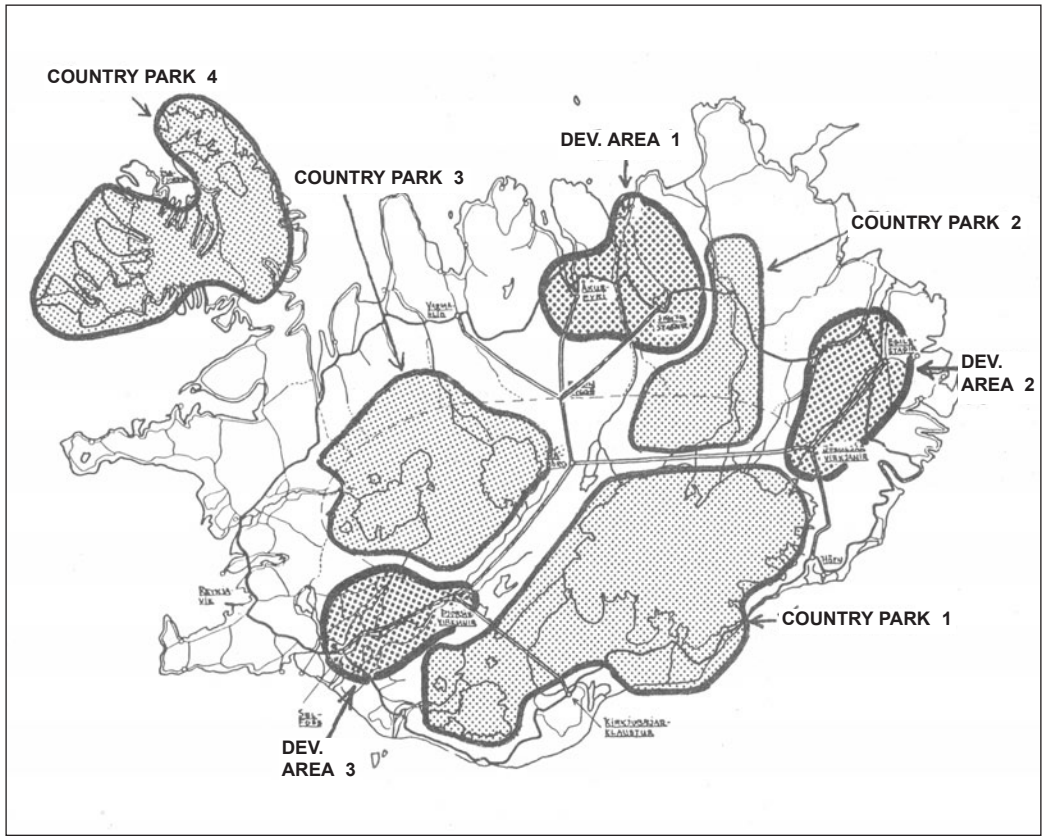
Thórarinsson found that the logical answer was that a road should go into the Eyjafjördur Valley in spite of the steepness at the bottom of the valley because this would be the shortest distance from the highlands down to Akureyri. He also found that a road connection farther to the west, into the Skagafjördur Fjord, as well as to the east to Bárdardalur Valley, would be sensible.

The main finding of Thórarinsson's investigation, using the overlay technique and conducted in collaboration with his instructor, was that the best route to the north from the

Darkest spots show where natural hazards concentrate.



A book that discusses the 1st holistic plan for Iceland.



This idea for an Iceland Plan was created based on a study of environmental features. It shows three development areas, four wilderness areas and a system of highland roads.

highlands was on the east side of the Skjálfandafljót River. In this case the road would be placed close to the edge of the Ódádahraun Lava going towards Lake Mývatn. Heading directly to the lake saved an additional 80 km compared to the option of going through Bárdardalur Valley onto the Ring Road and then on to the Lake Mývatn area.

An additional advantage of this route was revealed in an examination of satellite photos, namely, that this area has the least snow in the northern part of the highlands.

Thórarinsson's thesis was also designed to study the best route for a road along the northern side of the Vatnajökull Glacier towards the eastern part of the country. The maps created for studying these roads are shown on page 242.

Surprisingly, the regional planning committee considered it unnecessary to look at this study on transportation in the highlands, and also ignored the research that had been conducted on behalf of the Ministry of Transportation and at the University of Iceland

When the regional planning proposal was published people realized that the planning committee had not undertaken any re-conceptualisation of a potential road system in the highlands. The plan's road system was simply the paths that had been formed haphazardly as time passed.

Two basic attitudes become apparent as the plan was produced, on the one hand, the ideology of preventing any further changes in the highlands and on the other hand, to present radical new ideas, for example in terms of transportation in the country.

As to power plants, the possibility of Fljótsdalsvirkjun with a huge reservoir at Eyjabakkar was the one most discussed at the time. However, this idea had already been met with much criticism, mostly for two reasons. For one thing, the flat area of Eyjabakkar was well covered with vegetation because of the water that comes from beneath the glaciers.

Secondly, the earlier idea that the Fljótsdalur Power Plant should serve heavy industry in the south-west meant that the electricity would have to be transported by power lines over long stretches of the highlands. This power line idea was met by fierce opposition, which most likely influenced the government to decide that the


UM HÁLENDISVEGI

og könnun á því hvort valkostur finnist á lúkningu vegar norður Sprengisand sem Vegagerð og Landsvirkjun gætu sameinast um að leggja

Samning skýrslunnar: Trausti Valsson Ph. D. Skipulagsfræðingur

Unnið í samvinnu við Samgönguráðuneyti, Landsvirkjun og Vegagerð ríkisins

A 1988 study on routes from Sprengisandur to the north.

The expedition group for the Sprengisandur study.

energy in the east should be used for an aluminium smelter in Reydarfjördur.

At this time the National Power Company – which is owned by the State, Reykjavík and Akureyri and is thus actually an official company that complies with the decisions of the State and its two other owners – had already been granted a permit by the Althing for building a reservoir in Eyjabakkar. Additionally, the Power Company had therefore already invested largely in this area. It came as a big surprise that the regional plan disputed the idea of building a reservoir in the area and pointed as a matter of fact towards a power plant and reservoir at Kárahnjúkar as a better alternative.

One of the things that caused the protests about Eyjabakkar was that the power plant permit had been issued before the law on environmental impact assessment was adopted. An assessment had of course been made on the impact, but the protests were caused by the fact that it did not follow the legal procedure then required. Governmental agencies felt they already had authorization and no assessment would be needed for this project. It is almost certain that an environmental impact assessment would not have reduced the level of protest.

Another reservoir that had already been more or less accepted was the reservoir at Nordingaalda. In spite of this the planning committee made critical remarks about it and reduced its size. The earlier proposal suggested that the reservoir water would reach into the lower part of the Thjórsárver, which together with Eyjabakkar is a large and important breeding ground for geese in the highlands.

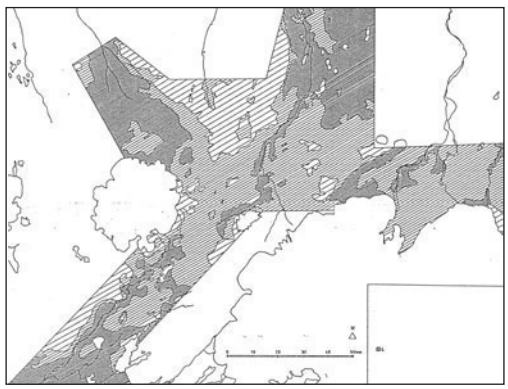
The National Power Company had earlier, before environmental awareness was as well developed as now, presented a still bolder idea for a reservoir in the Thjórsárver. The dispute that was sparked by that proposal was resolved with an official agreement between the Power Company and the Nature Conservation Council.

The argument behind this agreement was that these two areas, the Thjórsárver and Eyjabakkar, were so similar in nature that it would be enough, as a preservation measure, to spare one of them. The agreement was that it should be the Thjórsárver that would be spared, but the Power Company, instead, would be given the profitable alternative of creating a reservoir at Eyjabakkar.

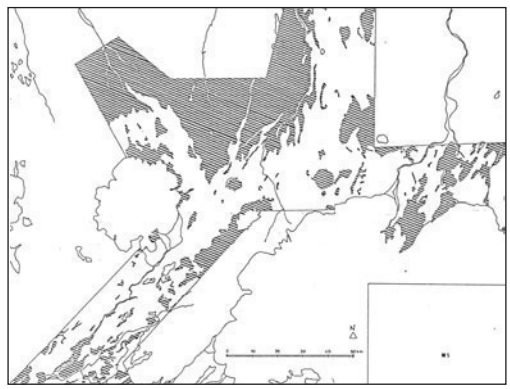
In 2001 the earlier debate about the Nordlingaalda Reservoir continued. The Power Company presented new proposals with the

Good terrain for roads
Areas with least snow
Closeness to tourist spots
Moraines
Low-laying terrain
Bad weather areas
Areas of fog
Uneven terrain
Protection areas

Positive and negative features that were mapped.

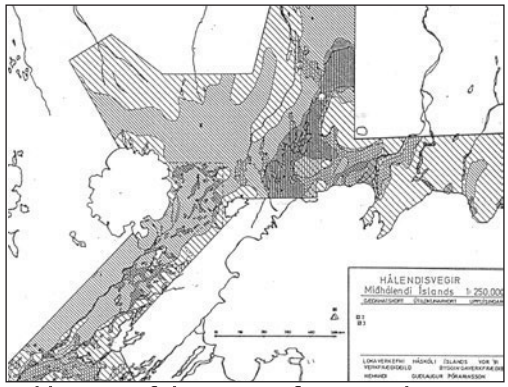


Areas with least snow are the darkest. The route east of the river Skjálfandi has least snow.

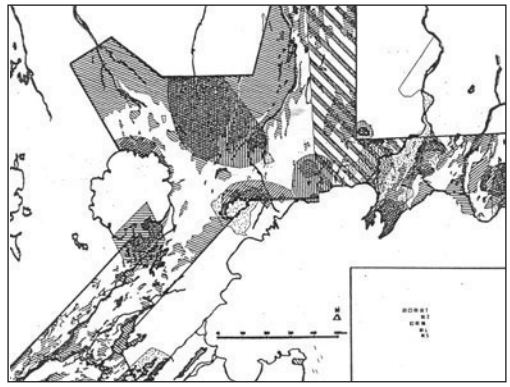


Dark areas define areas that fit badly for road building because of steep or uneven terrain.

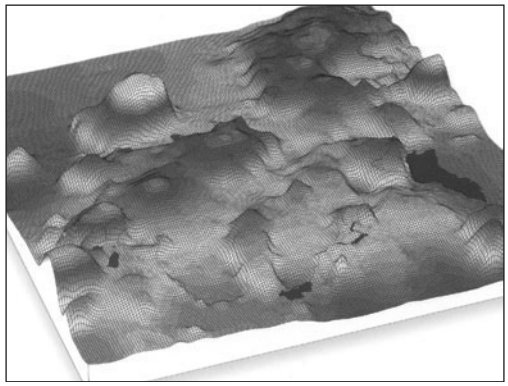
The cover of a thesis on highland roads.



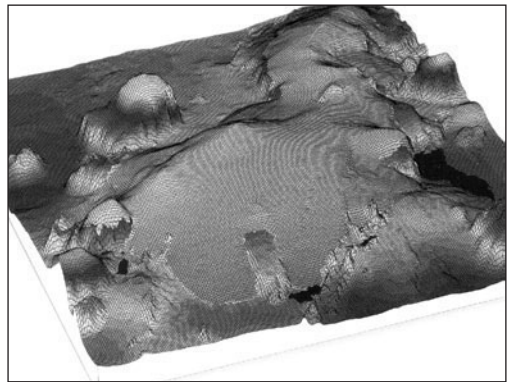
Adding up of the positive features. The darkest areas fit best for road making.



Adding up of negative features. The darkest areas are the worst for the building of roads.



The subglacial landscape under today's Langijökull glacier.



Langijökull glacier is located north of the Thjórsárver area.

water level lowered to the point that only the end of the reservoir would flow into the Thjórsárver.

This, however, would mean that the water in the reservoir would need to be pumped about two metres higher so that it can flow into the system of reservoirs along the Thjórsá River and in this way can be made use of in most of the reservoirs and generating plants in the Thjórsá area.

In the winter of 2002-2003 there again erupted protests about this lower reservoir. A special study led by Minister Jón Kristjánsson was conducted to try to find a solution, a study that proposed a still lower and smaller reservoir at Nordlingaalda.

These examples make clear that, even though many have criticised the planning committee for rejecting official policy agreements, the committee certainly was pointing at alternatives that most people later agreed would be more appropriate. The conservation policy that is the basis of the proposal has led to some good results.

Many institutions were in great doubt as to whether the Kárahnjúkar Plant and its reservoir would be acceptable. As the Icelandic Nature Conservation Council received the proposals for comments in 2001 it decided against this power plant idea. The same thing happened in the verdict of the State Planning Agency about the findings of the environmental impact assessment.

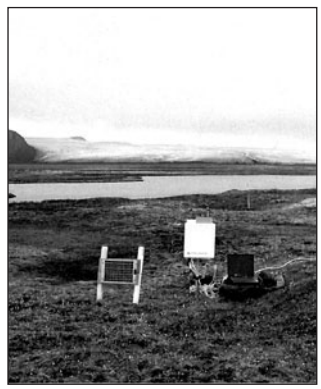
The agency concluded that the power plant idea as it was designed and presented at that time was not acceptable. Because of this verdict it came as a surprise in the summer of 2002 that the Planning Agency had changed to a positive verdict on the earlier idea of the Nordlingaalda reservoir.

At the same time as the Kárahnjúkar plan was presented, the politicians had developed the idea of an aluminium smelter in the East Fjords, which was meant to counteract the decline in population in the area. Therefore the negative verdict of the State Planning Agency against the Kárahnjúkar plan took the politicians by surprise. A comment of the Prime Minister became famous as he said that it was strange that some bureaucrats that had not been given any authority by the public thought they could deny approval of a power plant so important for the area.

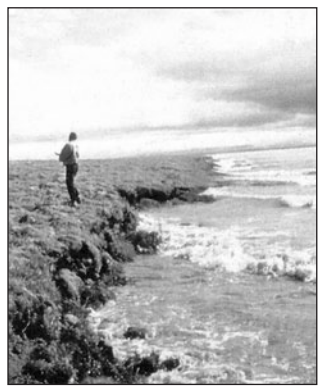
People assume that this case led to a change in the law on environmental assessment, and perhaps other laws, in order to weaken the authority of the institutions involved in projects of this type.

The Ministry of the Environment, which is the authority over the Planning Agency, had the Kárahnjúkar plans re-investigated. This produced several proposals for remedying or reducing some of the impacts judged negative in the Planning Agency report. Shortly before Christmas 2001 the Minister issued a permit for the Kárahnjúkar plant, provided that these new proposals were integrated into the plans.

The next step in this saga was that various nature conservation associations filed a complaint against the decision of the Minister. Their main argument was that the extensive changes made in the plans should mean that a second environmental impact assessment was needed. This claim by the associations was denied by the courts in early 2003.



An altered water level height brings many changes.



Wind and erosion in reservoirs is of great concern.

3 The Regional Plan of 1999

As explained above, the Althing decided in 1993, with a temporary amendment to the planning law, that work on the regional planning on the central highlands should be started. This clause specified that the members of the planning committee should be appointed by the twelve regional committees that are adjacent to the highlands and that the Minister of the Environment would appoint the chairman.

The State Planning Agency and the State Purchasing Agency produced an outline of the project that was then offered for tender. The description of the project was, in the opinion of the author of this book, not extensive enough, primarily because it covers an area about 40% of the country. Therefore this project is almost on a country planning scale. Because of the size of the area, obviously, in many cases, the planners need to take a view of the whole country as well as of country-wide parameters. It would therefore have been logical to have let the ministries and various institutes of the state, as well as other stakeholders, take part in the necessary policy making.

In this connection the Ministry of Transport and the Public Roads Administration are obviously knowledgeable about road systems and the Tourism Council as concerns inquiries and policy making about tourism in the central highlands. Within the area of nature conservation many agencies should have taken part in the policy making, including the Nature Conservation Council, the Ministry of the Environment, and various other associations.

This policy making actually should have been a part of a general discussion for several years on social and national matters, before taking the step of making of a single planning proposal for the highlands.

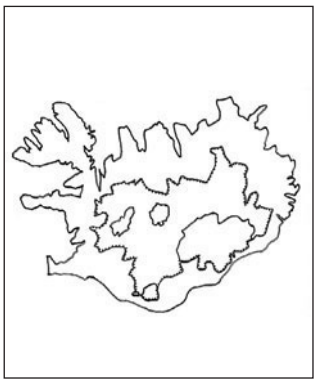
Another alternative would have been to announce an open competition on the highlands. Still another alternative would have been to contract several planners to outline alternatives so that the elected representatives of the nation, and the nation as a whole, could have taken part in assessing what was the preferred policy for planning for this almost half of the country.

None of this was done so that the planning committee alone was more or less given the task of deciding what should be the basic parameters on a country scale. This it did, for example, as concerns policy on transportation, tourism, power utilisation, nature conservation, etc.

None of the members of the committee were professionals so it was still more urgent that the planning councillors would have a broad spectrum of professional knowledge. Because of this it should have been a part of the requirements of the bid tender that those who bid for the project should be a multidisciplinary group consisting of specialists in various fields – engineering, planning, natural science, transportation and roads, etc. This was not done.

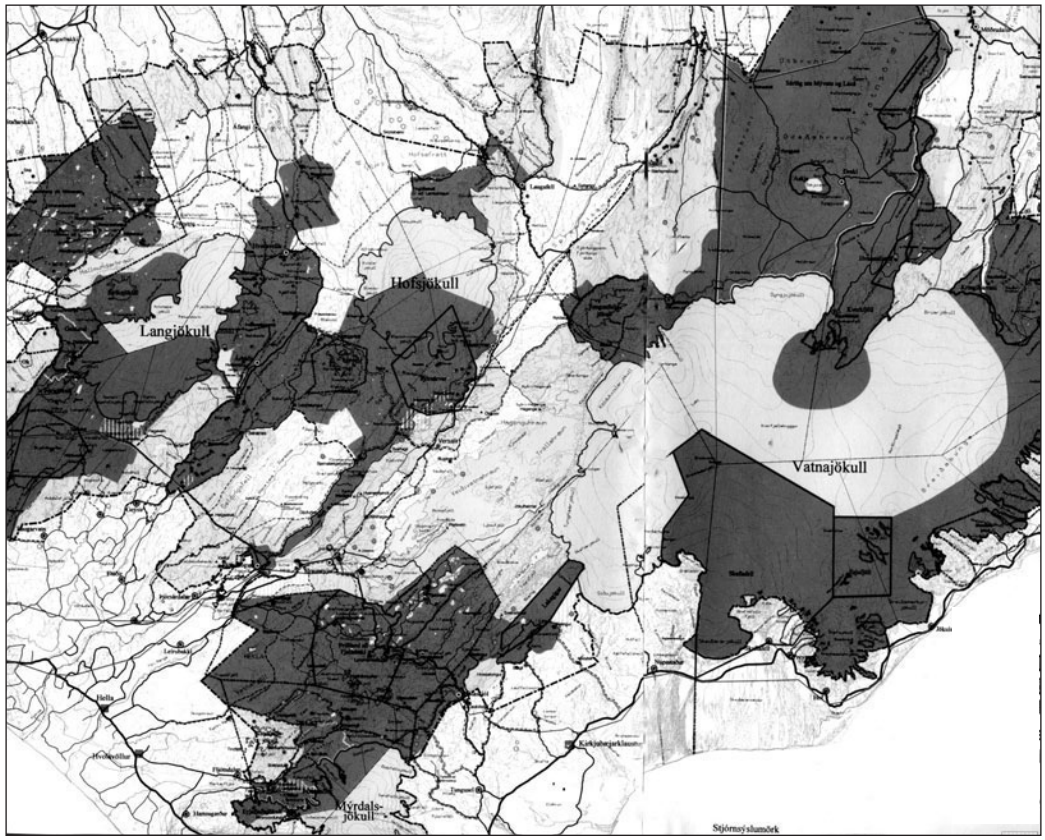
In 1994, as the bids were opened, it came to light that they covered a wide spectrum of costs. The reason for this was that the consultants that made the offers proposed to see to the planning in very different and detailed ways. The lowest bid was for about 250,000 euros, the highest for about 2,000,000 euros. After studying the bids the newly appointed planning committee and the Planning Agency decided to accept the Landmótun bid, which was the second lowest.

It can be seen as a fault that all the owners of Landmótun have a similar education, being landscape architects, with the exception of Gísli Gíslason, who was also a geologist and a former



The highland planning area is about 40% of the country.

The joint committee of the Regional Plan of the Central Highlands in 1997. The committee was composed of representatives from the twelve regional committees that border the highlands.



The plan proposal of May 1997 was widely criticized. Minor changes were made, and the regional plan was confirmed by the minister in charge of planning in May 1999.

director of the Nature Conservation Council. All of the owners – Gísli Gíslason, Einar E Sæmundsen and Yngvi Thór Loftsson – are well known nature conservationists.

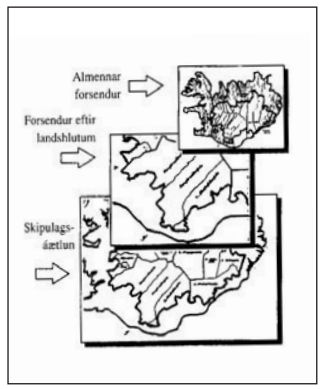
The planning committee and the Planning Agency, in selecting these consultants, would seem to have already decided to put a heavy emphasis on the nature conservation aspect. People may differ as to whether it was the right decision, but the right of the committee to decide how this task should be approached and what the emphasis should be is indisputable and in conformity with the temporary amendment to the planning law that the committee worked under.

As usual, the work started with an introductory meeting. A schedule for the steps to be taken had been worked out by Landmótun and called for a series of meetings on various aspects of the plan in the regions that were considered to have a stake in the planning of the central highlands.

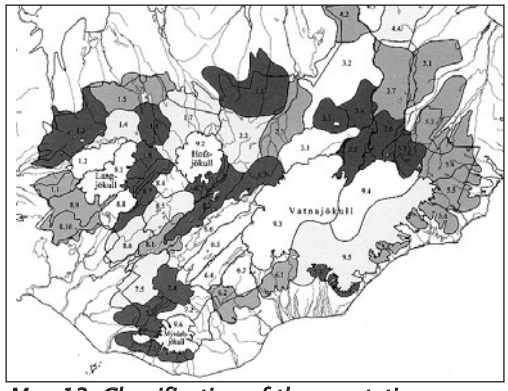
Most of these meetings were closed but some were open to a wider audience. To give an example, the representatives of the Tourist Council were the guests at the third meeting of the joint committee, and at this meeting held at Jöklasel at the Skálafellsjökull Glacier the Director of Tourism gave a speech. The members of the Environmental Committee of the Althing went on one journey of exploration with the committee in the autumn of 1996. Other institutes that worked for the committee or were called to its meetings included the State Land Reclamation Service, the National Power Company, the Nature Conservation Council, the Energy Institute and the Public Roads Administration.

In the first months of 1996 the preliminary drafts of the planning ideas were presented in conferences open to the public. Thus, for example, a meeting with the tourism sector took place in March in Hotel Saga and Gíslason gave a talk on the plan at the Planning Assembly and in a conference of the Tourism Association of Iceland in November. In January 1997 a seminar on the plan proposals finally took place at the University of Iceland.

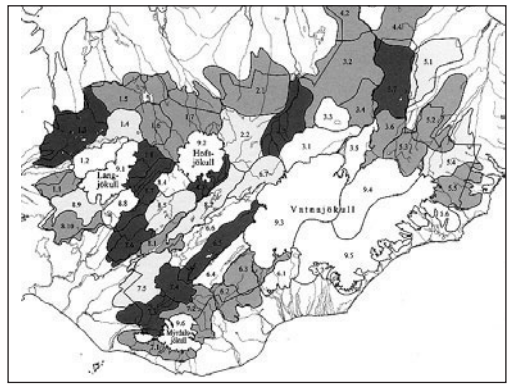
It should be remembered that the central highlands are a little researched region, except in specific areas where hydropower plants have been in preparation or under construction. Therefore the committee had to use rather large resolution in its theme maps.



Three chapters of a planning report, from top to bottom.



Map 13: Classification of the vegetation. Dark: Most important areas.



Map 14: Archaeological heritage. Dark: Most important areas.

A division of the highlands according to natural features was made based on a Scandinavian proposal that the areas in question are typical landscape units. This pattern was used as a base for some of the maps. The units of this pattern were so big that the data did not need to be very accurate as the aim was only to produce an overview classification of the highlands.

A rather good vegetation map for the highlands did already exist, which was of help in preparing a classification vegetation. Furthermore, there also existed erosion maps that helped decide which units of the area needed to be considered in terms of the danger of erosion.

Data from the Energy Institute on the hydrology of the highlands was used for preparing an overview of surface and groundwater where location of aquifers and catchment areas, providing them with water was stressed. Finally a classification of lakes and rivers was conducted based on data from the Institute of Freshwater Fisheries.

Let us now review some of the main theme maps. In map 8 the pattern units were used for dividing the highlands into four categories in terms of the geological formations. On map 9 the availability of landscape is assessed, on map 10 the birdlife, on map 11 lakes and rivers were categorised according to how much fishing there is, and on map 12 there is an assessment of the conservation value of lakes.

Map 13 gives a classification of the vegetation, map 14 shows the importance of areas because of archaeological heritage. Map 15 shows the importance of areas in terms of potential waterpower, and map 15A shows, accurately, the location of these power utilisation alternatives. Map 16 shows a classification of utilizable geothermal heat, and map 16A shows more accurately the location of possible power plants.

Map 17 shows where tourists go to visit the highlands. Map 18 shows jeep traffic in winter and map 19 in summer. Map 20 shows the value of the natural environment in general.

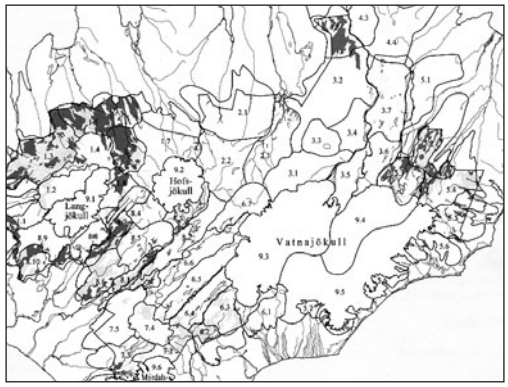
Map 21 shows research on the vegetation and map 21A shows the result of mapping the vegetative cover as of 1998. Map 22 shows limitations to grazing because of erosion and map 23 finally shows areas where there conflicts of interest between the power sector and the nature conservation sector.

When the mapping project had been completed and the prerequisites decided on, the work proceeded to the first steps in making the planning proposal. The maps created for these steps were six theme maps and then finally there came the planning map itself, which contains a compilation of the information in the theme maps.

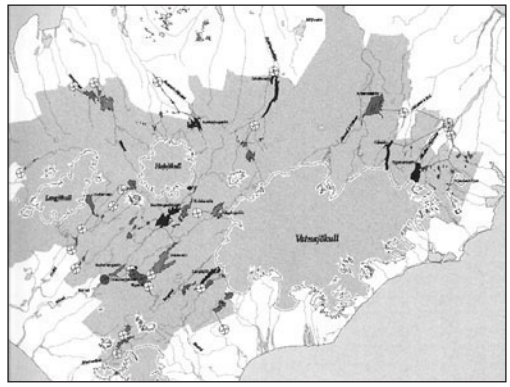
The first theme map presents the "division of land use into belts". This phrasing has been criticized as misleading because to talk about the conservation areas of the plan as belts is strange since the whole highlands is divided into only three conservation sections. These are the Langjökull Glacier and vicinity, the Hofsjökull Glacier and vicinity, and finally the eastern part of the highlands all the way from Mýrdalsjökull Glacier in the south and toward the northeast over the Vatnajökull Glacier and the eastern highlands.

The map shows construction belts which run on each side of the main roads: Kaldidalur Road, Kjölur Road and Sprengisandsvegur Road. Some other roads branch out off these main roads as they come down from the central part of the highlands. A construction belt is also shown along the power lines, for example, the power lines going from Hrauneyjar to the southwest to Kirkjubaejarklaustur and the power line going west, south of Langjökull Glacier into

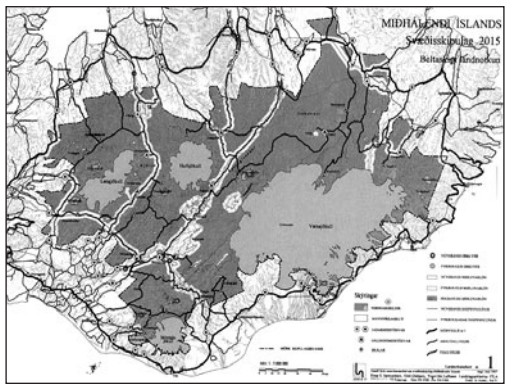
Clearly visible high voltage power lines are a problem.



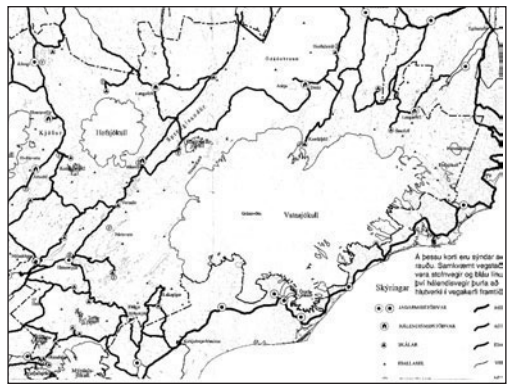
Map 1: Vegetation. The best vegetation areas are shown darkest.



Map 15a: Practical hydroelectric power plants. Circles are buildings, dark areas are lagoons.



Dividing land use into belts is the underlying theme of the plan.



A theme map on tourism and transportation. The maps shown here are all greatly reduced.

Hvalfjördur. The idea behind these construction belts is that most of the construction needed in the highlands, such as hydropower plants and power lines, should be placed within these areas.

The next theme map shows two types of conservation areas: in dark green the *nature conservation areas* and in light green the *general conservation areas*. This theme map also shows land reclamation areas with red vertical hatched lines; these are mainly to the north of Biskupstungur, around Hrauneyjar, and on both sides of the Lakagígar craters.

The third theme map is a proposal for power utilisation areas. Existing reservoirs are shown in blue, proposed reservoirs in brownish red, and in yellow reservoirs that have been proposed with certain reservations.

The fourth theme map shows transportation and tourism. The *main roads* are shown, as described above, as well as a secondary category of roads termed mountain roads.

This map also shows four types of centres. The main centres are the so-called *centres at the edge* whereas most of them are in fact located in the lowlands. Within the planning area itself there are only three edge centres. Next come the *highland centres*: two in the Kjölur area at Hveravellir and Árbúdir, two on Sprengisandur at Háumýrar at the Hofsjökull Glacier, and then Laugafell south of the Eyjafjördur Valley. In the south there is the Hólaskjól centre, and in the east the existing centre at Dreki is shown.

The third group contains centres with sleeping facilities, called *huts*. These are mostly huts that have already been built by the Icelandic Touring Club, by the Útivist Outdoor Life and Touring Club, and other associations. Finally there is the fourth category: *mountain huts*. The plan contains certain rules on what facilities are provided in each type of these centres or huts and what kind of traffic links they are to be provided with.

The fifth theme map of the planning proposal is a map of the *main hiking and pony trekking trails*. Then finally in the last theme map of the planning proposal the *links of the construction belts to the main land-use types* are shown. This map shows how certain power utilization areas are connected to these belts, for example, work camps, roads, power lines, etc.

The Minister of the Environment confirms the plan on 10/5/99.

4 A Dispute over Highland Planning Ideas

As already described serious disputes took place over the various aspects of issues regarding the highlands and related legislation during 1997 – 1999. These disputes reflected political views that are fundamentally different from those that were dominant in the forming of the planning of the highlands, especially the decision to divide the highlands up among the adjacent communities.

In conformity with the law, the regional plan proposal was advertised as the planning committee had finished its work on it. For this advertising purpose a preliminary report and maps were issued.

A longer time than usual was allowed for others to comment. Various institutions in society, for example ministries and state institutions, began to take a closer look at this project. Some now realized this plan presented very decisive policy decisions – on the behalf of the Icelandic State – on the future utilization of about half of the country. A great number of comments, many quite detailed, were received. About 95 people and institutions sent in formal comments or claims, totalling about 320 pages. Many of the comments were positive towards what was proposed in the plan, whereas others were critical. Here a brief review will be given of the comments, divided into three categories.

The first category contains comments that claim that the plan was based on faulty policy and that there had been insufficient contact with various policy makers in various fields.

The second category contains comments from various scientific institutions in the country in which many of them said that not enough consideration had been given to scientific research and data on the central highlands that already existed.

And finally the third category contains some comments that express doubts that the planning and the operation of the committee have a strong enough legal foundation.

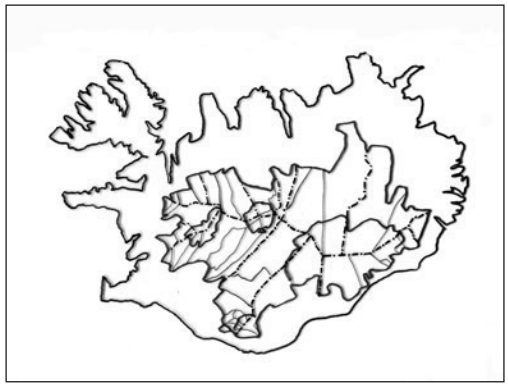
A few examples will be given, first an excerpt from the comments of the National Power Company: "In a conference on the regional plan of the central highlands on September 20, recently, the State Planning Director, Stefán Thors, said, among other things: 'Of course it could be said that before the making of a regional plan for the central highlands was ventured a five year plan should have been made based on extensive research in the area. After this was finished the government should have created a policy on land use and land utilization within the various categories.

' When this policy had been completed there should have been a plan made that covered the whole country in which policy and binding decisions on important matters would have been decided upon.'"

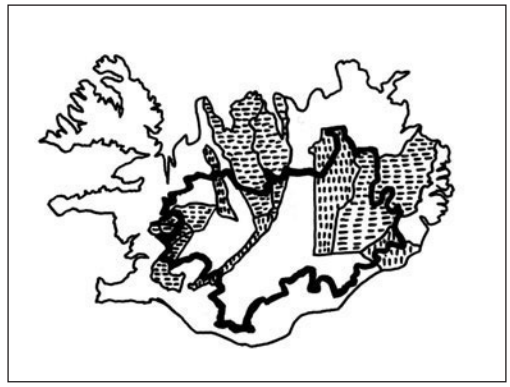
The Ministry of Manufacturing Industries and Power made many comments and it appears that the Ministry had expected that the planning committee should have co-operated with the Ministry in deciding policy concerning power utilisation in the highlands. The commission for the regional planning committee, however, says nothing about this and therefore the committee was given a totally free hand as to which people or institutions it would contact.

In an appendix to the planning report called *General Premises on a Country Scale* some aspects of the power policy of the State are mentioned. In its comments the Ministry says: "The ministry likes to draw attention to the fact that no co-operation has been ventured as concerns the work of the planning committee. It is also a

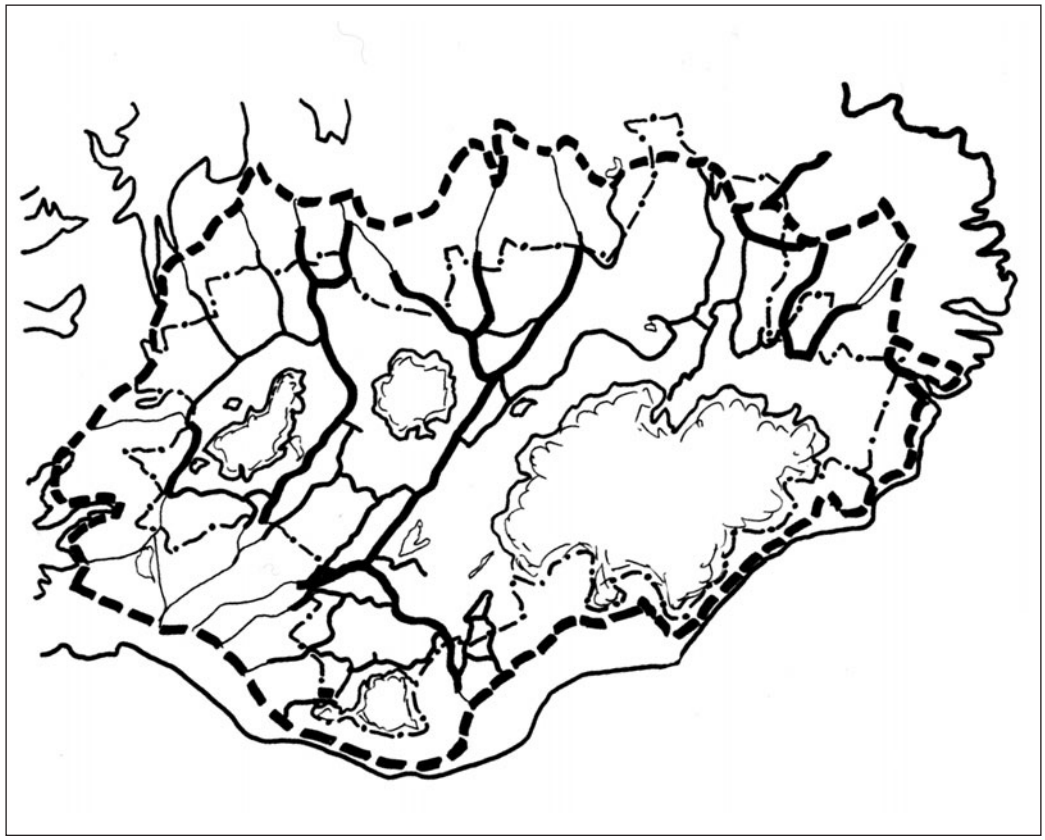
95 organizations sent in criticisms of the plan.



The division of the highlands between the neighbouring districts, was most criticized.



It is bad how the planning areas of communities and the highlands overlap.



The highland plan assumes that roads will mainly follow current trails that are divided into two catagories: main mountain roads (thick lines) and mountain roads (thin lines).

surprise to the Ministry that no contact was made with the Ministry of Agriculture or the Ministry of Transport and Communication."

The Icelandic Tourist Board made a similar comment: "The Tourist Board considers that the plan proposal for the central highlands, titled as *The Central Highlands of Iceland – Regional Plan 2015*, does not take into account the formulation of policy regarding tourism that has already been worked on. Therefore the Board strongly emphazises that the approval of the proposal should be delayed until the planning issues can be considered in the light of the interests of the tourism industry."

As to the second category, *comments of scientific institutions and scientists in the country,* complaints most often find that not enough consideration had been given to the scientific data available or that the necessary basic research on various aspects of nature had not been conducted before the planning proposal was made.

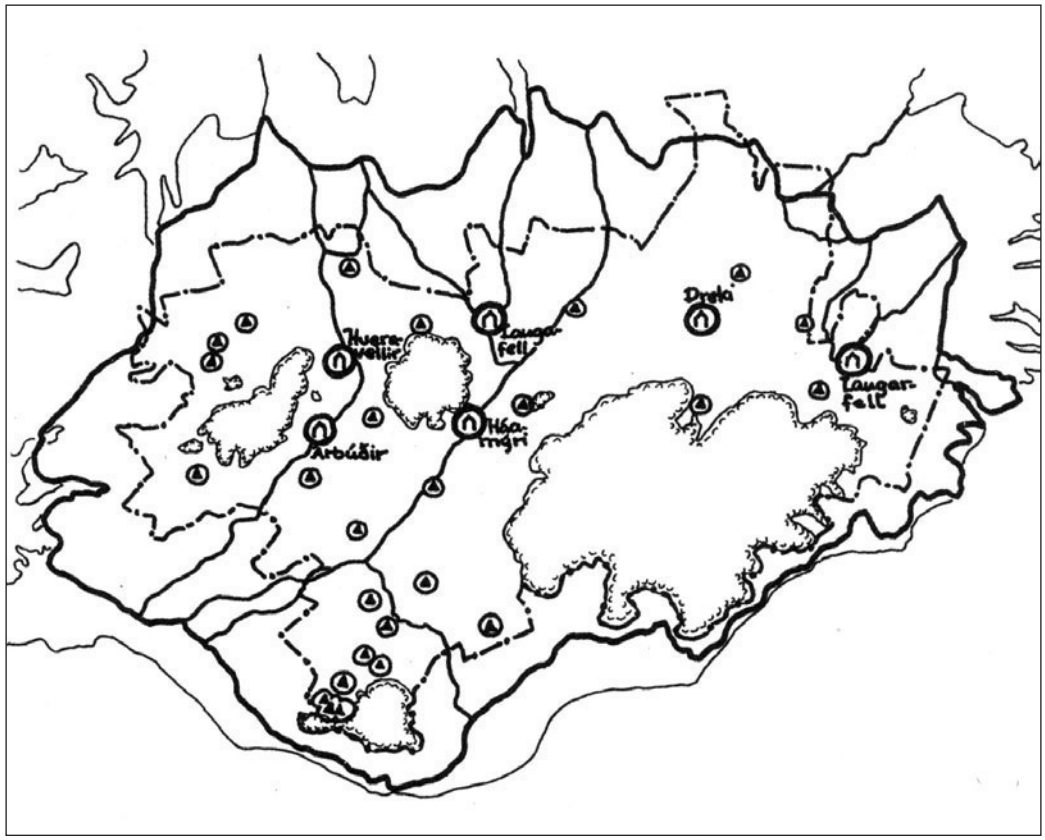
The Icelandic Museum of Natural History therefore said: "It cannot be understood how a plan for the highlands can be proposed without having first made an attempt at defining and categorizing geological features….The Museum feels that without any doubt the re-vegetation projects that are already underway in the area should be assessed."

The Icelandic Meteorological Office made the following comment: "First it should be greatly regretted that an opportunity was not given to better assess the climate in the central highlands as for most of the time there have not been enough measurements."

Ingvi Thorsteinsson, botanist, said: "In drawing up a plan of this nature all relevant data on the natural environment of the country should be sought out, the credibility of the data checked, and its applicability ascertained. If this has been done in terms of the botany of the highlands the result is strange, to say the least."

The third category, finally, contains comments on *whether the work of the committee and its connection to necessary legal authorization are at hand.* Thus, for example, the State Electric Power Works said: "Now the legal permit that the planning committee based its work on has been cancelled and a new planning and building law has been implemented. This new law does not mention the task of this committee nor the planning of the central highlands."

Critics point out that many studies were not made use of in the plan.



The main resorts in the highlands are by the main roads. Many of the smallest tourist huts can only be reached on foot or by jeep.

The Ministry of Social Affairs finally made this comment, which came as a great surprise: "The Ministry concludes that there is no reason to make material remarks on the planning proposal.

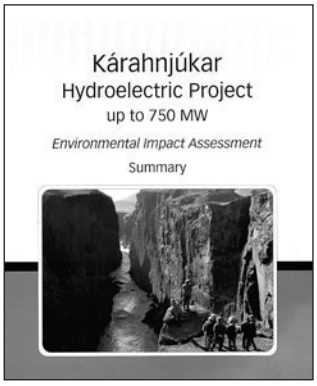
On the other hand, the Ministry wishes to make it clear that as yet it has not been decided in what way the jurisdiction of the central highlands of Iceland will be organized. A bill by the Minister of Social Affairs was presented to the Althing in the spring session, but was not acted on….."

The Minister of Social Affairs made a strong case before the Althing the following spring to have these changes added to the law on local government and the law was then passed – finally the jurisdictional prerequisite for the plan had been given, even if after the fact.

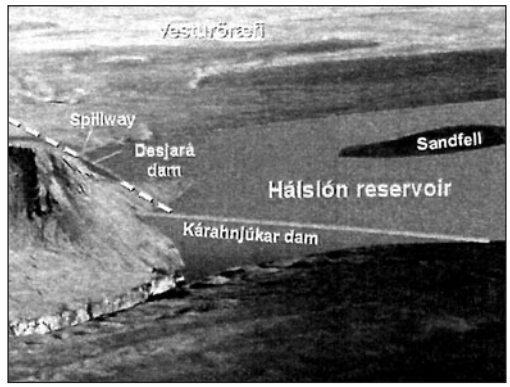
It was quite a task for the Regional Planning Committee to reply to these comments. It opted for summarizing the categories, with the main contents of the remarks stated.

As is often the case, the answers to the comments state – since governmental issues are involved – that the aspect commented on is not within the area of jurisdiction of the planning committee and therefore others should answer for it. Another reply given by the planning committee was that they were only given limited funds so that they cannot be criticised for not being able to widen the database used in the making of the planning proposal.

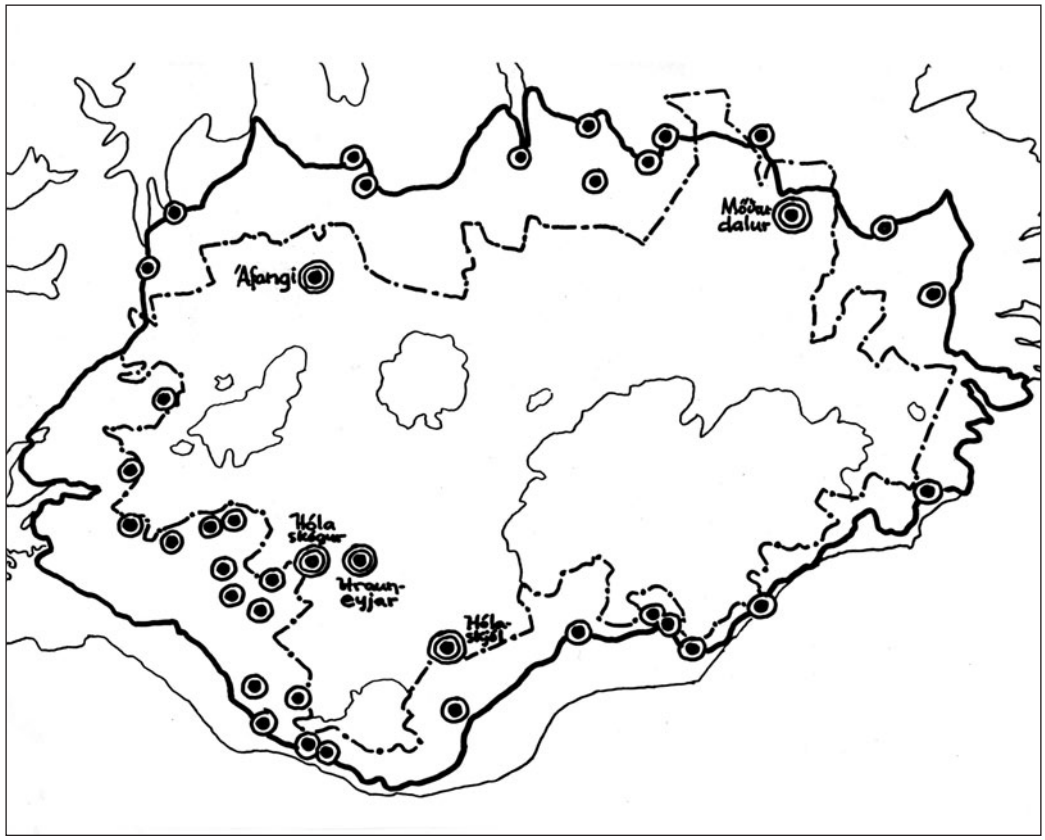
Often comments were that certain conservation areas were too large or too small. In this case the answers of the committee most often ran something like this: "We have reviewed your comments and have come to the



Assessing environmental impacts of the plants is hard.



The dam is built at the top of the canyon and the water fills up a large valley.

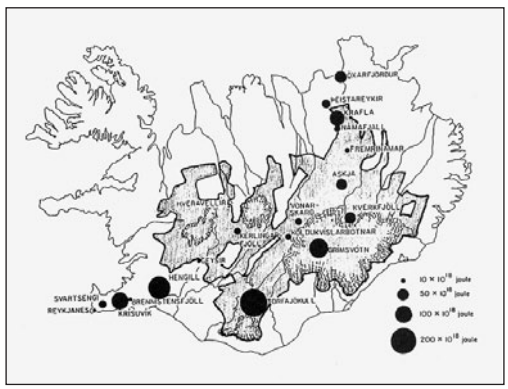


The map shows the Ring Road with a dark line and the outer boundaries of the highland plan with a dotted line. The proposed service stations are in fact outside of the planning area.

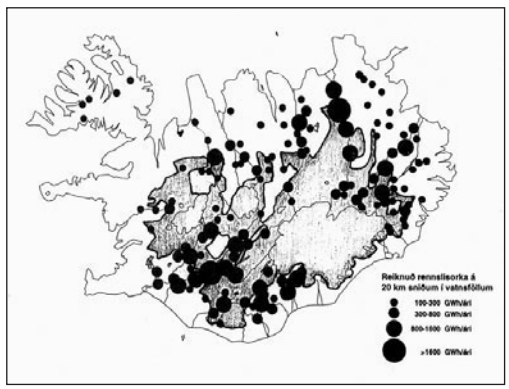
conclusion that the planning committee shall keep to the proposals made." When people commented directly on material concerns, the planning committee explained its position in only a very few words.

The crux of the matter is very simple: the committee has the power, people can make comments, but the committee themselves shall pass the verdict in their own case. The bottom line is: "It is our opinion that the matter should be the way we have proposed." The authority of a planning committee cannot be questioned when it comes to policy making. This applies equally to the Icelandic case for the central highlands as well as the planning proposal that was presented with a map and a report.

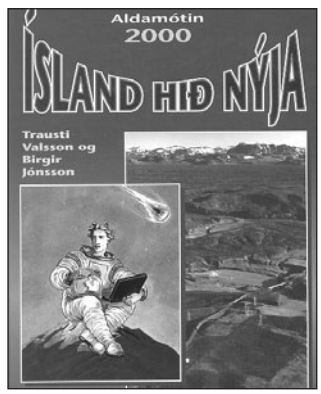
In the spring of 2003 a new planning committee for the review of the plan of the central highlands was established, its chair-man being Óskar Bergsson. According to the time schedule the review of the central highlands plan should be finished by the end of 2005.



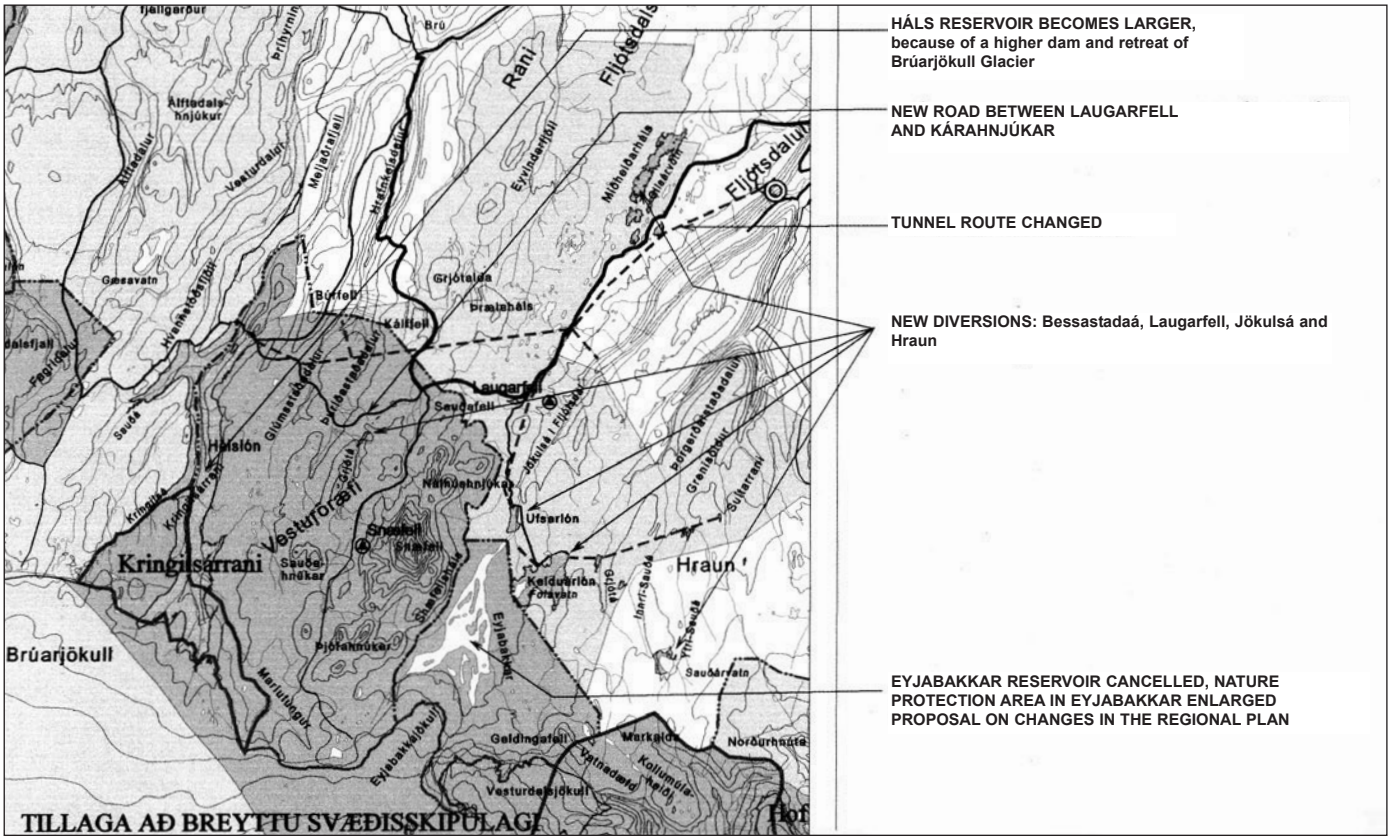
Dots indicate size of unharnessed geothermal energy in Iceland.



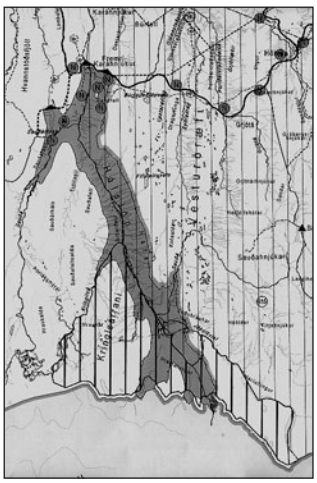
The size of the dots indicates hydropower potential at certain sections in the main rivers.



This book published a criticism of the highland plan.



As the Kárahnjúkar Power Plant was being designed, people at the same time worked on the EIA. The interaction constantly changed the design and planning ideas. The EIA report made the suggestions above on changes in the existing regional plan.



A part of the Kárahjnúkar plan approved on 15/8 /2002.

This new committee has an increased number of members, in conformity with the new planning law. The members that have been added are: one representative from Reykjanes, two from Reykjavík and one from the West Fjords.

In the time that has passed since the approval of the first highlands plan in 1999, new developments have mostly occurred in four areas. The first is that a 12-year plan for transportation in Iceland has been issued, proposing four highlands roads that shall become primary roads. Secondly, a great deal of work has been carried out on a frame plan for energy production, which will be described on page 312.

Thirdly, some work has been done on tourism questions in the highlands, among other things in connection with the frame plan, and lastly, a dispute that has taken place in society about several nature preservation areas in the highlands has demonstrated very clearly that the meaning of conservation has to be defined more thoroughly. All these four developments mean that a review of the regional plan of the highlsands is necessary.

Furthermore, the work of the new planning committee has been greatly affected by the Kárahnjúkar Plant that is now under construction and the regional plan for the eastern part of the highlands had to be changed considerably. These changes were described on page 216.

The legal claims regarding property rights that are under way will also affect the work of the committee. In 2003 the Minister of Finance decided to appeal the first verdict in this case to the Supreme Court. When the Supreme Court has given the final verdict, the handling of the other cases of disputes over property rights in the highlands will be clear.

Quite possibly the verdict will not be out early enough to have an influence on the planning, but the Minister of the Environment has decided that this work needs to be finished by the end of 2005 because in 2008 all communities are obliged to have finished their first master plans.

Many of the communities whose boundaries stretch into the highlands are among those that have not made their first master plan. For them it is very important that the regional plan will be finished early enough as they will need it for guidance in making their own plans.

Book Four

Development of Systems on a Country Scale

I Planning of Systems on a Country Scale

1 The Communal and Educational Systems

Book Four describes the building up of those systems or infrastructures that to an ever-increasing degree are covering the whole country.

Most of these systems started to be developed in the nineteenth century, though most have roots in ancient times, as was shown in the sections in Book Two that dealt with settlement structures on a country scale.

Book Three continued with a description of the early development of the various building blocks of today's settlement structure: towns, regions and sections of the country.

One of the things that we have discovered is that the different structural units at first develop independently but then gradually start to form clusters, as we observed on the regional plan level.

Systems that embrace the whole country have already been mentioned, primarily technical systems like those of roads, harbours and power lines. Book Four is intended to give an overview of how the various countrywide systems of today have been developed and how things stand as concerns their planning.

The reader may find it a little strange that the title of Book Four is Development of Systems on a Country Scale but then the titles of the chapters are connected to certain types of plans or programmes. The explanation for this is that all developments in society are – if viewed in context – the development of a system of some kind.

Sometimes these systems are originally only concepts that gradually are given form and shape in planning programmes of various types. In other cases these systems are, right from the beginning, physical systems that can be drawn and understood from maps.

Original incentives that give rise to concepts differ greatly. In some cases social ideas are at work but in others some kind of technical novelty has had the effect of opening up new possibilities.

Some theorists even go so far as to say that in many cases it is impossible to say what came first, the concept or the form, or to use the usual analogy: the hen or the egg.

A point in case is the origin of the industrial revolution which, with some right, can be said to have originated in the social and cultural renaissance that occurred in fifteenth century Italy. The renaissance was a mental awakening that made people interested in science but then, as a second step, science opened the road to discover new technological possibilities.

This cause/effect relationship can be turned around by saying that the technology of the city was the fundamental prerequisite for the development of urban areas. This interpretation means that the city, as a technological artefact, is the primary cause for the development of new ideas on society, culture and science.

For some reason technology is most often seen as the primary origin of the "advantages" of modern society. In the twentieth century this contributed greatly to the dominance of a technological approach, for example in the planning of cities and countries.

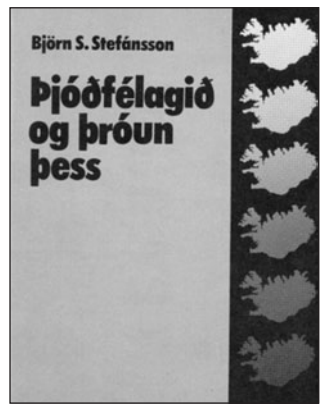
Social elements and functions that were ingrained in city planning had, in contrast, more the position of being called services, often seen almost as a bad necessity that accompanied urban development – services that called for immense expenditures and could not easily be understood as contributing to higher income and economic growth.

This view is based on a shallow type of thinking because many of the aspects created in the building up of societal systems have actually contributed to the efficiency and productivity of today's societies. A good health system, for example, means that the citizens are healthier and therefore can be more productive.

Services to the handicapped have, as another example, contributed to making the handicapped active members of society instead of being merely a burden, as they were earlier. And the existence of the school system means that the labour market can offer better skilled and more productive employees who can lift their job performance and therefore the whole society to a higher level of skill and productivity.

Because of this it is a little strange to read that around the mid-twentieth century many people had great worries about the development of these societal systems. In Iceland there was so much worry about the increase in the number of graduates from upper secondary schools that in the early twentieth century a limit was set on the number of students that were accepted.

This meant that the Reykjavík upper secondary school – that then was the only such school in the country – could only start one new class each year. Some socially minded teachers at this school therefore established a special secondary school to provide students with the



The history of Iceland is often told as a social story.

opportunity to take an examination that allowed them to enter the upper division in the old Reykjavík school, i.e., to enter in the third class.

Conservative views were still more common in the countryside than in Reykjavík. Thus for example primary schools were not established in many areas until around the mid-1950´s and in 1957 the mobile schools were still more numerous than school buildings in the countryside.

The politician Jónas Jónsson from Hrifla was a pioneer in establishing schools in the rural areas and had, as Minister of Education, a great deal of influence in establishing special "school villages" in some parts of the country. Jónsson's idea in creating these villages was to work against the urban development by the coast because one of the reasons why the young people in the countryside left their home territory was that they had to go the coast for education and most never returned.

These *héradsskólar* (district schools) taught applied education that met the needs of the rural areas. In addition to these schools, special schools were established that taught agricultural practices and home economics, and at Lake Laugarvatn an upper secondary school for people in the countryside was established.

The vision of Jónsson and those like him was to modernise Iceland's rural culture in this way. Jónsson's followers often claimed that by creating these centres they were creating a modern parallel to the regional culture that was dominant in the early centuries of the nation's existence.

Even though most of these district schools are no longer operating, the ideology did succeed to a considerable degree, but as an in-between step – because other urban spots like Selfoss and Egilsstadir proved, in most cases, to be the places of the future.

As a new law on basic schooling was enacted around 1970, people abandoned the district school idea and decided instead to create primary schools and comprehensive schools in the small urban areas that had developed in the countryside.

The home economics schools also came to an end, but for different reasons, and the importance of the farmers' schools was gradually reduced with the lessened role of agriculture in the national economy. However, they have recently been gathering some strength of late in part because of new types of occupations that have a connection to the use of land. The raising of horses for leisure and sport and tourism can be mentioned as examples.

A certain type of plan work that was a part of the re-organisation of the school system is quite interesting. This work has a unique position among most other social systems because the creators worked with maps and spatial ideas.

The theorists primarily in charge of this programme were Indridi H. Thorláksson, an economist, and Maggi Jónsson, an architect. One of the basic ideas of this work is that the school system should be divided into three steps or levels, each reaching to a different size area.

The primary school of the new system, with school buses, was meant to overtake the earlier children's schools and their dormitories. Therefore it was very important in the planning of the location of the schools that the school bus routes were not too long.

The two theorists calculated all the driving distances using a road map. In this way they could calculate rather exactly, from the cost per kilometre per student, how much cheaper this new system would be.

The second school level, introduced with the new law, was the comprehensive school, aimed at providing educational services to rather large areas. The idea was to make it possible for students in the countryside to have the opportunity, comparable to the urban areas, to take and pass the national co-ordinated examination in their home regions.

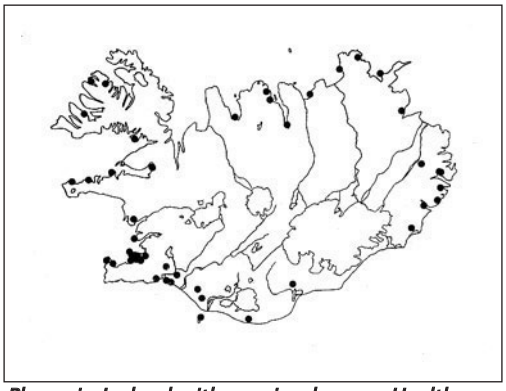
Comprehensive schools were also built in the Capital Region. Characteristically, the curriculum is organized into tracks and often has a more practical emphasis than the academic emphasis of the upper secondary schools. The tracks often differ from one school to another and can include tourism, visual arts, cooking, etc. Completion of a track prepares the student for admission to special schools in these fields.

It needs to be stressed heavily that this great advancement and restructuring of the school system could not have occurred in the countryside except that at this time a fairly good road system had already been developed.

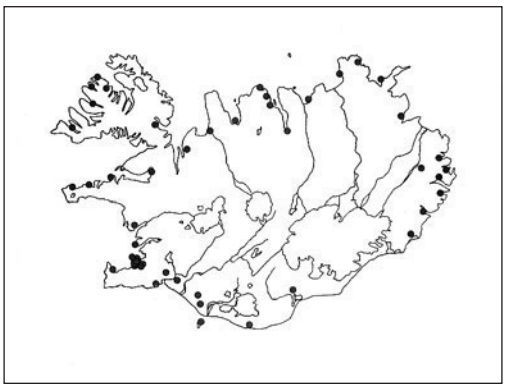
A study of the road system quickly reveals, however, that better results could have been reached in the planning of the school system if, rather than merely using the existing road system as a foundation, the planning had been carried out in step with planning of the country's future road system. People quickly discover that the building of several schools could have been spared if a new road or a new bridge had been built in order to shorten driving distances.

The division of the country into too many communities also meant that many strange

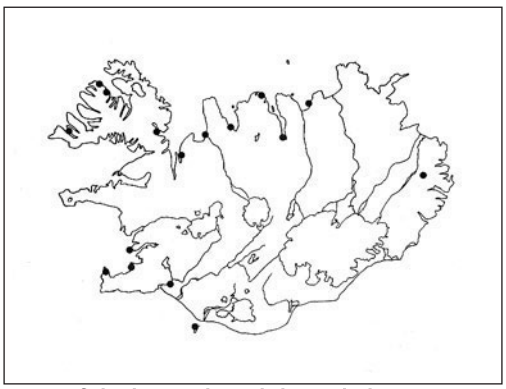
In rural areas children often pass towns on way to school.



Places in Iceland with nursing homes. Health services should be built in clusters.



Sites of health care centres in Iceland do not always coincide with other health services.



Most of the hospitals and the ambulatory facilities are in the largest towns.

decisions in the planning of the location of schools were made. In some cases this was because communities close to an urban core did not want to lose their country school, even though the school bus would have to drive the children through the urban area, with its own school, to get to the country school.

If the unification of urban areas and adjacent rural areas had been instrumented at these times, such wrong decisions never would have been made. Unfortunately, as this restructuring of the school system took place there was as yet no wide-spread understanding of the need to create larger communities.

In many cases, however, good sense had the upper hand in planning the schools and some politicians can be praised for the fact that in many cases they abandoned narrow views and supported the logical planning proposals of the specialists.

Let us now turn to examining how the re-strucuring and the strengthening of the health system in Iceland took place. The biggest step toward securing a public health service was the passage of the law on social security by the Althing in 1935, which guaranteed basic public health care service. Prior to this, several insurance associations for the ill had been in operation, primarily financed by individual contributions, but also by small grants from the state.

As in the case of the schools, the health services for a long time were much poorer in the countryside, primarily because the first hospitals were only built in the larger towns, but also because the countryside was only served by a few physicians working in "doctor's districts".

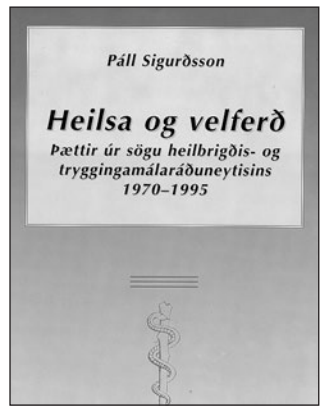
After World War II a new ideology arose of how best to provide health services. Its basic idea was preventive medicine, which meant that the main emphasis should be put on monitoring health and trying to prevent disease rather than, as earlier, to attend only to illness after it had appeared.

This ideology of prevention is also the basic idea in most planning work, where primary attention is given to what can cause problems. Decisions on changes are then made on the basis of prevention. In addition, there is constant, organized monitoring of any situation. Working in such a way keeps conditions from growing into big problems.

In this way of operating, preventive work – both within the field of health and city planning – is very similar. This mode of operating is fairly quiet and unobtrusive so that people are usually not very aware of it.

In some cases people even never see the proof of the protection afforded them from imminent danger because the danger was never allowed to surface. Therefore it may require some mental effort to recognize the value of this type of activity.

In the 1960's the state government started to make preparations for the new system of preventive medicine. One of the first steps was the establishment of a special Ministry of Health and Social Security in 1970. This new Ministry had a bill prepared to set up a general



The Department of Health was not founded until 1970.

plan for health care in Iceland, a bill that was approved by the Althing in 1973.

One of the primary characteristics of this new system is that health care centres were built up in Iceland. The country was divided into eight regions that were, for the most part, the same as the electoral districts. Some of these regions were divided into a few sub-regions. In each region there was a main health care centre, where at least two physicians worked, and then two other types of health care centres offering fewer services.

It is of great value to strive to attain ambitious goals, as has been done of late. But it is of course a fact that illness never can be fully exterminated and there will always be some people who are seriously ill, in spite of advanced preventive and monitoring systems.

Other societal systems that have been constructed in Iceland include the various independent associations, for example, art and sports clubs, trade unions, employers associations, political groups, etc. Similar in nature are the systems of general social services within the various communities.

A big growth has occurred in social services to the elderly. Social centres have been established that, in many ways, make caring for the elderly easier and also help improve the quality of their lives and health.

Finally the system of sports clubs or associations in the country should be mentioned. To a certain degree this system is connected to the schools, but there are also independent clubs. There are sports unions in various areas and regions that connect the sport systems of the various communities into larger units.

It was not until 1970 that people started to realize fully how much value sports had for the health of the nation. As this had become clear – for example, with medical and social research – sports that earlier were considered not very rewarding amusements became social structures which pay off economically for both the communities and the state, which support them.

It is a common characteristic of all the societal systems that their development has been slower in the countryside than in urban areas. This has been one of the problems connected to the difficulty of keeping people in the countryside.

Clearly the measures that have been taken to create good social systems in the countryside have certainly been productive in strengthening and maintaining life in the countryside.

In the light of the fact that the development of all societal systems has necessarily been very expensive it is strange to hear repeatedly that no regional policy has been undertaken in Iceland.

From what has been described it is easy to see that within the field of social services a tremendous job has been done, a job that was necessary so people can and want to live in Iceland, be it in urban or rural areas.

In spite of these huge undertakings the areas with the lowest population as well as border areas still have the lowest level of social services. It is a fact that the same degree of social service cannot be obtained in these areas as in the larger urban areas.

Today people have realized that social aspects often are the decisive factors in keeping people living in certain areas. As this fact has been recognised, people see better how wrong it is to try to keep all rural areas settled, a policy that even tried to keep the most dispersed rural areas and the smallest villages alive.

The low number of inhabitants in the most scarcely populated areas necessarily means that people in these areas will always have a lower standard of social services. In light of this, together with the constantly increasing demands for services as well as educational opportunities, it would have been much more sensible to aim for a more condensed building up of these services.

As we assess the situation in the countryside, we see that the need to create regional centres was not even recognised within some regions, centres where various types of services can be brought together, making them strong enough to be able to meet the increased demands of the future.

This dispersing of services is a problem common to the building up of most branches of public service. This has come to be because the locals have frequently put their narrow self-interest ahead of the public good and used their position to bring public services into their little communities, thereby reducing the possibility of creating a service centre in their region worthy of the name.

The history of developing social nets is manifold.

2 The Technological Infrastructures

This section will describe the most important technological infrastructures in Iceland, how they have developed, and what purposes they have served and will serve in the future. Later sections of the book will describe in more detail, the planning of individual technological structures. An account will be given, for example, of programmes within the transportation area and the work on co-ordinating the three modes of transportation that took place in 2000 and 2001.

The technological systems of the country are divided into six main areas: transportation, utilisation of hydropower, marine resources, utilisation of geothermal power, evolution of industries, and finally development of information and technology.

There are three transportation systems in Iceland: ocean, land and air. Modern transportation started to develop in the mid-nineteenth century with the introduction of steam ships for bay and coastal shipping. This was also the impetus for construction of various facilities that ocean transport needed.

The first step in this technical development was the making of navigational charts in order to increase the safety of seafarers. Then came the first sprouts in terms of creating harbours. Next came the construction of the country's lighthouse system, and finally the construction and development of harbour facilities, including techniques and equipment for landing cargo. Of late this has become ever more advanced and specialised and includes container technology.

At the end of the nineteenth century the building of roads and bridges in the country started as the short period of using carriages was introduced. At the end of the nineteenth century bridges had been built over all the main rivers in the Reykjavík area and in the south.

Originally regular shipping to Iceland developed as a mail service, and at the same time the country mail routes were created, namely, a system of delivering mail on horseback (pony express) and on foot. Between Reykjavík and the south this service developed into delivery with stagecoaches as in the US wild west. This service was, however, not only for mail in the narrow sense, but soon developed into transportation of lightweight goods as well as passengers.

The need to maintain postal service led to passage of a law that allowed the issuing of monopoly permits for postal service on special routes. On these routes the licence holder had to maintain regular service, regardless of the amount carried, in return for having a monopoly for that route.

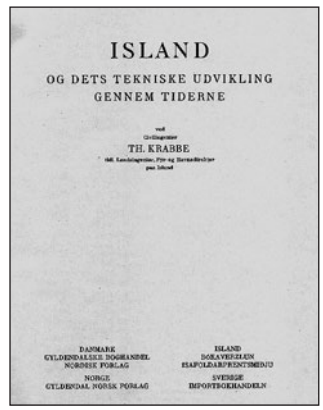
As time passed the percentage of goods transported over these specialised routes was reduced to the point that they gradually became used primarily for the transportation of people. The transport companies that served the countryside for goods transportation, were, on the other hand, given a freer hand.

The road system developed very slowly but surely in the first decades of the twentieth century, but it was not until after 1935 that the main areas in the country had road connections. Still some years passed until all towns in the country had been linked to the road system.

The occupation of Iceland by the Allies in World War II meant a push for improving the roads for use by the military but also because the Allies brought much of the necessary equipment needed for road building, such as scrapers, bulldozers, lorries and asphalt plants. In the post-war years road building took off, mainly in Reykjavík. In spite of this it was not until 1965 that the first paved road was laid in the countryside, namely the road to the Keflavík Airport for which the US military paid a considerable share of the cost. In 1970 the road east of Reykjavík over the Ellidaár hill was asphalted. Since then the building up of a system of paved roads with good carrying capacity has been continued.

The third transportation system is that of flying. It can be said that one of the main reasons why people started to build up a domestic air service in Iceland in the 1930's was that the coastal shipping, necessarily skirting around every peninsula, was so slow. At this time the road system was still in such poor shape that travelling by roads, especially for passenger traffic, was considered very slow. Before World War II it took two days to get from Akureyri to Reykjavík, a distance of some 500 km, and almost three days to get there by ship. Air service that covered the countryside in only three to five hours therefore meant a total revolution.

Regular domestic air services started in 1937, with 700 passengers carried that year. The number of passengers had swelled to ten times that number eight years later, in 1945. What facilitated the introduction of air travel was that small, economical airplanes had come on the market and furthermore that the planes at the time were very often seaplanes. This meant that


ISLAND

OG DETS TEKNISKE UDVIKLING GENNEM TIDERNE

TH. KRABBE

A basic work on the development of technical systems.

they did not need airport runways. As the towns and villages at that time were solely located along the coast and that in addition protected harbours had been built at most of them, it was easy to use these harbours for planes as well as ships.

The airplanes most often landed on the ocean outside the protected harbours and then taxied into the shelter of the breakwaters, where the passengers were transported ashore on boats. Later specially made seaplane harbours were constructed in a few places. Here the seaplanes could be taxied onshore onto an inclined pavement, often even directly into a hangar.

During the war the occupying armies built airports in Reykjavík, Melgerdismelar close to Akureyri, Selfoss and other places. In the narrow fjords of Iceland, there often is only one strong wind direction, i.e., in or out of the fjord. This meant that only one runway was needed at most of these fjords. This made it cheaper to build airports at the urban areas in the country. Airport construction took place mostly in 1960-1990.

Since then, the main thing that has happened in the development of transportation is that the road system has been improved to such a degree that going by car into the countryside has become much more convenient than before. The feasible service area of a car is usually taken to be an area with a radius that can be traversed in a four to five hour drive. This radius has constantly been extending, in kilometres, further into the countryside, as can be seen on the map on the following page.

Various technical service systems needed to be built for the air services, like the air meteorological service. An air navigational system with signal stations placed on certain air routes in the country has also been constructed. These radio signal stations are often placed on tops of mountains.

The next step in the development of air service was the construction of a flight and navigation system for international flights, where Iceland has reached such prowess that it is now in charge of international flights in one of the largest flight navigation areas in the world. The Icelandic flight service receives a considerable income from this.

Let us now turn to the technological infrastructures that are the foundation for the continuing development of industries in the country. It is logical to start with the ocean resources and their utilisation. A precondition for advancement in this area was the building up of a fleet of schooners in the nineteenth century. As soon as these schooners had arrived, certain basic facilities had to be created in the fishing towns in the country to handle the processing of fish and services to the fishing industry as a whole.

A big leap occurred at the turn of the century in 1900 as Icelanders started to motorize their boats and later to buy trawlers. The advent of the trawlers meant the necessity of building piers so that they could be outfitted with coal, water and onboard supplies and also, on the other hand, to be able to land the fish that were caught.

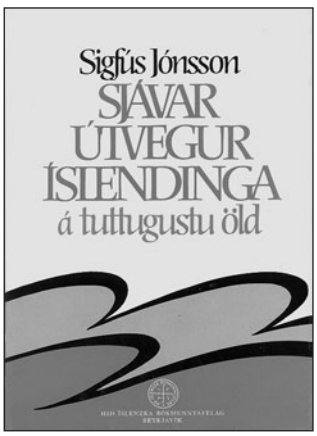
The first large pier for ocean-going ships in the Reykjavík area was built on the east end of Videy Island for the Th. Thorsteinsson Company shortly after 1900. Several other outfitters built their private piers in front of their headquarters, such as along the coast of Skuggahverfi in Reykjavík and further east all the way to Kirkjusandur. Finally the construction of a closed harbour was started in Reykjavík and formally opened in 1917.

At this point in time in the development of fishing technology, the necessary harbour constructions for these larger ships had become so expensive that the private companies could not afford the cost. And as a matter of fact only the strongest towns could construct closed harbours.

As it had become clear that this new technical development had to occur throughout the country, the state had to become involved. Since then it has been the rule that the State contributes a large percentage of the costs, with the exception of the harbour facilities in Reykjavík. The same is also the case with most of the roads and the airports.

In the building up of the harbour system the same thing happened as for so many other services in Iceland – because of the influence of the politicians, far too many harbours were built in far too many places. This necessarily meant that each of these harbours was very underused, and because the costs are mostly carried by the State people have little incentive in trying to be economical by building or operating only a few harbours in a given area.

If, on the other hand, there had been an intermediate governmental level in Iceland – for example if the Reykjanes Peninsula had levied taxes in common to pay for harbours and other expenses – it is quite clear that the locals would have not squandered so much money in constructing so many harbours in the same area, often with only a few kilometres between them. If the MP's and other politicians and those



A book on links between fishing and settlement.

working in technological institutions had better understood the advantages of planning, this squandering of resources could have been averted to a considerable degree.

The technological institutions most often have planning-minded people on their staff but the problem is that these institutions are too often subjected to too much influence from the politicians so that professional views are hard to put through.

Even the fine study by the Danish firm Kampsax, during the 1960's, was not able to open peoples' eyes. This study demonstrates clearly how much can be saved in terms of harbours, for example, by building better roads and thus being able to transport the work force and the fish between the villages by road instead of building a harbour in almost every village. This report was required because Iceland applied for foreign bank loans and was very professional and detailed. However, the report was largely ignored by the Icelandic government.

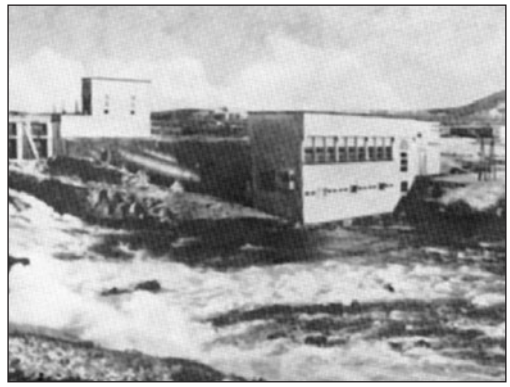
Let us now turn to the development of technology in connection with the utilization of the energy resources. In order to make Iceland able to develop as a modern society with an industry powered by electricity, as well as electricity for lighting, cooking and heating, people had to venture into building still more power plants. Already after the turn of the century in 1900 the first small hydropower station was built in Hafnarfjördur. In Reykjavík first hydropower station was built in Ellidaár Valley in 1921.

The town of Reykjavík took the initiative in building a power plant on the Sog River in the 1930s and Akureyri built the power plant on the Laxá River in the Thingeyjar Counties. Power plants were also built in other parts of the country, like the Andarkílsá Power Plant in the Borgarfjördur area and Smyrlabjarga Power Plant.

Each of these power plants had its own distribution system so that even though extra power could be produced, it was impossible to market it to other users because of the lack of a wider distribution system.

In 1947 the State Electric Power Works was established. It had, according to law, the task of continuing the development of power plants, as well as connecting the various electrical supply systems of the country. This increased the profitability of the power plants because excess energy could be marketed in a larger market.

Around 1960 serious talks were begun on the development of heavy industry in order to make better use of the country's hydropower resources. It became clear, right away, that the building of the large power plants that were needed for heavy industry would be one of the nation's biggest ventures. In order to be able to do this the state, the City of Reykjavík and the town of Akureyri joined forces and established the National Power Company in 1965.



Three power plants were built on the River Sog that runs from Lake Thingvallavatn.

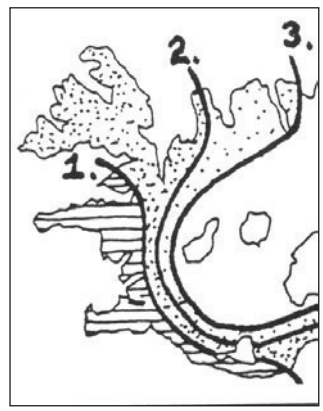
An agreement was reached with a Swiss aluminium company to build a smelter at Straumsvík, south of Hafnarfjördur. That provided the foundation for building the first large hydropower plant at Mt Búrfell in the Thjórsárdalur Valley.

After this first venture there was a five-year delay in constructing large power plants but in the meantime several smaller power plants were brought on stream to meet the needs of the general market. One of them was the first steam power plant at Krafla in the north.

As the preparation for this project was well under way, an unforeseen mishap occurred. A volcanically active period with earthquakes and small eruptions, started in the late ´70s in the area of steam drilling, which extended for some years and made it impossible to make use of some of the turbines that had already been imported.

The use of the geothermal resource started with the heating of buildings when the Laugaveita utility was constructed in Reykjavík around 1930. During World War II a single pipe was laid to carry hot water from Reykir in Mosfellssveit to Reykjavík, the beginning of a process that eventually led to the heating of the entire city.

In the countryside space heating occurred first in towns where geothermal heat could be easily tapped. These were primarily places that had been selected because of proximity to geothermal sources, most of them starting as



The service area of cars has expanded in three stages.

centres for schools or as greenhouse areas. Some of these places grew to become the urban centres in their area.

In 1973 the world was hit by an oil crisis because of the decision of the OPEC countries to limit production. This meant that people in Iceland even more than before looked towards their domestic sources of energy. In Iceland the search for geothermal hot water was increased, and projects started in many towns to increase space heating with geothermal hot water. The use of hot water for that purpose increased from 49% to 85% in about ten years. The later oil crisis of 1980 – that also came about because of OPEC common decisions – was the impetus for still further use of geothermal heat.

Before the mid-'80s most of the bigger towns in Iceland had already installed district heating systems. As the price of oil dropped again, the profitability of some of these projects evaporated. Nevertheless, these ventures must be considered positive in light of future developments in the environmental sector.

The progress in the utilization of geothermal heat opened people's eyes to the potential of using this resource for purposes other than space heating. Three heavy industry projects were started for its utilisation: a diatom plant at Lake Mývatn in 1967, an algae plant at Reykhólar in 1975, and a salt refinery in Reykjanes in 1983. In view of the developments that have now been described it is apparent that the technological advancements of the country in generating electricity and the utilization of geothermal heat formed a base for the development of various types of industry. It is exactly in these areas of cheap and relatively clean energy that Iceland has a unique that can make Icelandic products profitable in the world market.

Because most of these natural resources are widely distributed over the country the energy sector is an area where people saw opportunities for forming a policy for future settlements. In other words, such power- related industries were intended to fill the vacuum created by the loss of jobs in agriculture.

The sixth and last area in the development of technological systems in Iceland is today called, information and knowledge. This type of technical development started, as so many others, around the turn of the century. In Iceland the main events were as a trans-oceanic cable to carry messages was laid to Iceland in 1906 and with the advent of the Marconi telegraph connection to other countries. The telegraph station in the Melar area in Reykjavík started operation in 1918. The field was further extended with telephone connections and in 1930 the Icelandic National Broadcasting Service (the State Radio) began operations.

The State Radio right away became a very influential factor in initiating cultural activity connected to the media, which was later enhanced by the production of TV material as the Icelandic State Television Service started operation in 1966. This then paved the way for the introduction of a movie industry.

Parallel to this development many other types of arts have been developed to such a degree that they can now be called an industry. These include music performances and composing as well as dancing, theatre, commercials, etc. All of these are important branches within the knowledge industry that is now helping make society more varied and more pleasurable.

In addition to the jobs created, the new arts and media industries have helped make Iceland known to the world and all this has made it easier to sell the country's products and entice more tourists to come to Iceland. The tourism industry, which started to develop considerably around 1980, brings in considerable income.

Another branch of development within the knowledge industry is connected to computer elaborations of all kinds of data. This has helped Iceland develop towards becoming a high-tech country within the field of its basic industries. Fine equipment has been produced for increasing the profitability, for example of the fish processing plants.

Information technology has contributed important advances in the health care services and also in related research. DeCODE Genetics, making use of Iceland's extensive genealogical records, has a world-wide reputation for identifying genes associated with specific diseases.

All this knowledge and technological development has helped Iceland to build up highly developed industries that in some cases bring in more income for people than the basic industries do. Secondly, this development has helped provide jobs for many of the highly educated people that the school system has produced in past decades. If this knowledge industry had not taken hold in Iceland in time it is almost certain that large of the best educated young people would have emigrated and those left would have been those with less education – and that would have meant a less exciting society.

This radio station is now a telecommunication museum.

II THE MAKING OF NATIONAL DEVELOPMENT PLANS

1 The Activities of the Development Institute

As can be seen from what has been described in the earlier section many ideas were successfully implemented in the twentieth century to build up the country in terms of occupations and education as well as social and technological concerns.

In many respects those in the countryside lived with the situation of lagging somewhat behind the urban areas, and even though special programmes were started to rectify this balance, it is not fair to see these programmes as a special benevolent gesture because they provided services that the urban areas already had.

The central point here is not that building up the countryside has cost proportionally more than in urban areas – in all countries providing social and technical services is more expensive in rural areas. In light of this it is therefore hardly fair to term these projects "special assistance programmes", which is the term used for projects that are only implemented in the countryside.

In Iceland this special assistance has primarily been in the form of giving special loans at low terms for developing trades. The giving of grants for such purposes on the other hand has always been limited in Iceland.

Many people have written articles on the history of development programmes in Iceland. Some have mentioned as a first step, the so-called "government of the working classes" – Raudka, during the depression years. Assistance programs introduced by Raudka included relief work, among other things. A special institute to develop and implement such plans was not established, however, until the Development Institute was founded, in accordance with the law of December 24, 1971; the institute started operations the following year.

In an article in the institute's yearbook for 1981, celebrating the tenth anniversary of the law, Gudmundur B. Ólafsson wrote about the steps that preceded establishment of the Development Institute. Ólafsson traced the developments back to the Marshall Plan that started in 1948 and was provided by the USA to aid the recovery of Western Europe after World War II.

Though Iceland was not bombed during the war and in fact, Icelanders got rich from the occupational opportunities provided by the Allied military who were stationed in the country, Iceland was nevertheless included in the programme.

Soon after the war the Reconstruction Government came to power in Iceland. In a surprisingly short time this government had used up the funds gained during the war. Clearly, a policy was needed on how to use these Marshall Plan funds for shoring up and developing the Icelandic economy.

A special bank was therefore established that provided loans for profitable ventures. This bank, the Development Bank, was coceptualized in 1953 with advice from officials from the World Bank in Washington. It followed the form of development banks that the World Bank had helped establish, banks that were set up to distribute loans in the developing countries.

As the Development Bank of Iceland started operation it was for a long time in charge of most foreign loans taken by the Icelandic government to improve the economy. Among the first loans provided by the Development Bank were loans for building hydropower plants on the Sog and Laxá Rivers and for construction of the fertilizer factory and later the cement factory.

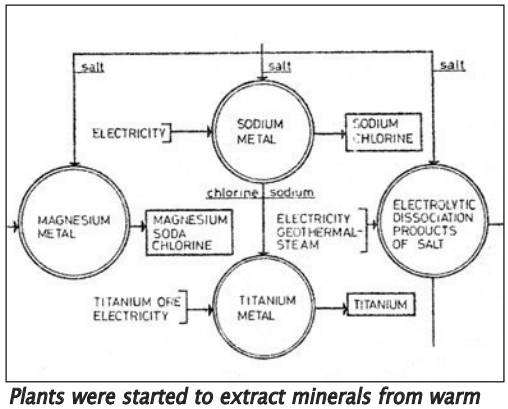
In addition, the bank lent money for projects in agriculture, for the building up of the fishing industry and tourism, and for building hotels and restaurants. By far the largest loan went for construction of Hotel Saga in Reykjavík, commonly known as the Farmers' Palace bcause it houses the offices of the various farming associations. This hotel helped starting the tourism indusrty in Rekjavík.

The Development Fund was established with a law that went into effect at the start of 1967. At this time special smaller loan funds for industries had been strengthened and new funds had been added, but the main objective of the Development Fund was to provide loans to these smaller funds.

Atvinnubótasjódur (The Supplementary Employment Fund) was one of these new funds, founded in 1962. It was to provide loans and grants to increase production in areas in the country where there was the greatest need and contribute to the equalization of job opportunities in the various settlements of the country.

This fund was superseded in 1966 by the Employment Distribution Fund. This new fund received, as a source of income, 70% of the taxes from the aluminium smelter in Straumsvík. The National Bank of Iceland was the caretaker of this fund but administration was in the hands of a parliamentary committee.

Benjamín Eiríksson, Director of the Development Bank.



Plants were started to extract minerals from warm ocean water but have not been successful yet.

One of the things that was very much missing in these decades was information about the state and development of the economy, and so in 1955 the Development Bank started publishing a periodical that provided information and data about the national economy.

Some started to realize that there was a great need for the country to have an institution that dealt with the development of the country's economy. Thus in 1962 an agreement was reached among the State, the Central Bank and the Development Bank to set up a new institute, the Economic Institute.

The institute's mission was to prepare development projects for the government, prepare national income accounts, and assess the probable development of the national economy in the times ahead.

The Economic Institute operated till the end of 1972 when the law on the Development Institute of Iceland took effect. Then the projects that earlier had been worked on in the Economic Research Division and the Programme Division of the Economic Institute were moved to the new institution.

Two other institutes were integrated into the Development Institute, the Development Fund of Iceland and the Employment Distribution Fund, which was now called the Settlement Fund. The political background of the establishing of the Development Institute was that the leftist government with Ólafur Jóhannesson as Prime Minister had come to power in 1971 and pushed enactment of this new law.

Members of the conservative Independence Party felt that this law smacked of a centrally governed economy, a difference of opinion which sparked rowdy political debates. In an article in the annual report of the Development Institute, Sverrir Hermannsson traced the reasons for this and named three main aspects that had caused the disagreement.

The brawl started over the first paragraph of the law that says that this institute shall be in charge of investments and the giving of loans. Secondly, the third paragraph provides that the government shall appoint a three man executive committee to take care of daily business. Thirdly, the Economic Research Division was put under the political leadership of the institute.

The members of this executive committee were called "commissars". Politicians in the opposition parties argued that this arrangement would lead to a greatly enhanced central government and political intervention, for instance in the area of economic research.

In spite of the criticism of the Independence Party and the People's Party the Institute was not abolished when the Independence Party conservatives and the Progressive Party formed a new coalition government in 1974. The institute, however, was backed by a new law in 1976 in which some of the clauses that had been most severely criticised were removed.

Originally the institute had three departments: economic research, programmes and loans. Later, the programme department was divided in two, and thus a settlement department was created. The programme department continued devising programmes on a country scale whereas the settlements department started to work on settlement development plans on a smaller scale.

The Jóhannesson government's manifesto in 1971 backed a widespread programme on developing the country's basic. The Development Institute was asked to create an industrial development programme as well as programmes for building up the fleet of fishing ships with trawlers and other types of ships, and a plan to renew and strengthen various aspects of the fish processing industry and a plan to insure hygienic processing of food products

Work on the industrial development plan had already started with the assistance of specialists from the United Nations Industrial Development Organisation (UNIDO). The main programmes were for trawlers and quick-freezing plants. The motivation for these programmes was, among other things, the increased health requirements that the USA had issued for food imported into the States.

These new plans went hand in hand with the policy of extending the fishing limit to 200 miles in 1975. The policy was eventually


UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
VIENNA

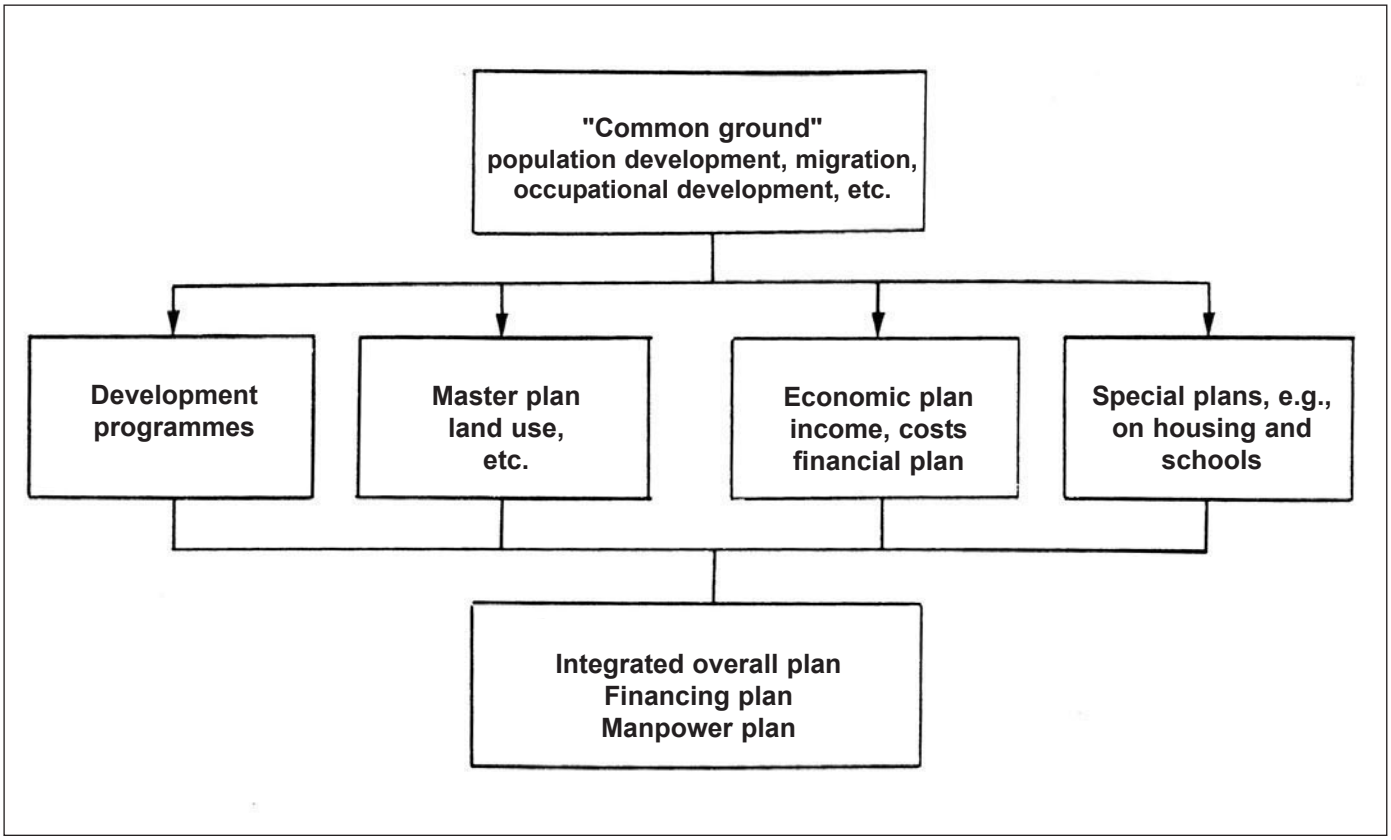
ICELAND

LONG-TERM DEVELOPMENT PLAN
FOR
THE MANUFACTURING INDUSTRY
1973–1980

VOLUME 2

UNITED NATIONS
New York

Industrial plan written in conjunction with the UN in 1973.



An overview of schemes on plans for regions or communities. An emphasis is put on integrating the various programmes and that they are given a common frame by the Regional Development Institute.

successful and meant that few besides Icelanders were allowed to fish in these waters. The fact that Icelanders could then catch what other nations had been fishing in Icelandic waters meant an increased catch and therefore increased income. This gave the opportunity to implement ideas on how to introduce the newest and best technology available.

The great building up of the basic agriculture industries in the countryside that resulted from these programmes, resulted in checking the flight from the countryside to urban centres. In fact, in 1975-1978 there was more population growth in the countryside than in the Capital Area.

Some might want to point out that this rapid build-up did not last, as a few years later another technique in fish processing was introduced, onboard freezing, that made many of the freezing plants unnecessary. Even without this consideration, the plan for the building up of freezing plants went way too far and took too much money because the politicians were overly optimistic about how many towns it would be possible and logical to develop as large future fishing towns.

A judgement of what was right or wrong in these programmes will probably never be agreed upon. It can, for instance, be pointed out that it was of great value to stop the flight from the countryside, even if only for a short period. An important point is that it was right and necessary to venture into many of these projects – the times called for them, even though these investments in fishing plants had a shorter useful life than was expected at the time.

The Development Institute started preparing special settlement programmes for the countryside and divided the country into planning areas that, to a large extent, followed the form of the electoral districts (see map on following page).

The work on the first regional development plan had, as a matter of fact, already been started at the Economic Institute. This was the West Fjords Development Plan – worked on with the assistance of Norwegian specialists – following a decision by Althing in 1963. Transportation was the largest part of this plan and here also Norwegian experts were consulted.

In an article that economist Jónas Haralz wrote in 1966 on development plans he pointed out that, unlike the other parts of the country,

Haralz linked economics and regional development.

people were leaving the West Fjords not because of lower income but rather because of the lack of services and conveniences that urban areas offer.

In his article Haralz expressed thoughts on the future of such development plans after this first experience. There a view surfaced that has long been characteristic of the discussion on development plans, or as Haralz put it: "The nature of development plans is to study the problems of settlement.…it should create a general policy to rectify difficulties and point out an economical way to obtain the hoped-for goal."

It can be maintained that this thinking is fundamentally wrong because it is characterised by being what is called "reactive". True planning measures, on the other hand, need to be "proactive", i.e., to construct right from the start in such a way that the problems will not surface. The danger included in the approach of focusing on problems that are already there is that people then disconnect any "alarm lights", i.e., they focus instead primarily on the operating problems of companies that cannot continue without assistance.

Planning for a region needs to apply an approach that strengthens the area and finds all the best future possibilities. Based on this approach, investments will be directed to the most promising sprouts more than to activities that are already in trouble.

The most important task of the Development Institute in the first decades was to make regional development plans. Some of these plans were quite influential in forming future directions, especially in transportation. As concerns special development measures for the settlements, it proved to be too time consuming to create these large regional development plans: things changed so fast that as the reports were finally published so many changes had happened that what had seemed logical to begin with had become obsolete.

Because of this experience, ideas about large regional development plans were abandoned in the 1980's and the focus instead moved to development plans for smaller areas. Such plans had the advantage that they could be produced faster, but at the same time a part of the goal they were meant to serve – to create a sensible overall settlements policy for the country – was not achieved. This was because, as people started to focus on separate settlement areas, the approach had the flavour of a rescue operation, whereas at the same time any focus on opportunities in the countryside in general was insufficient.

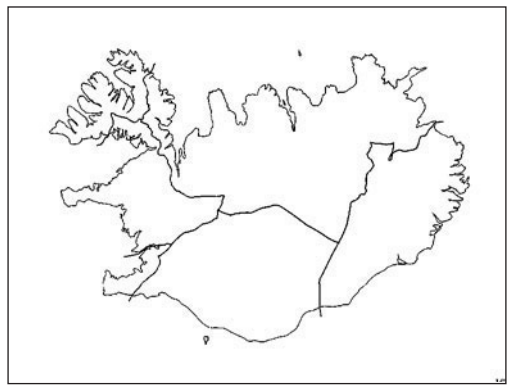
The role of the Development Institute in the building up of the fleet of trawlers and freezing plants has already been mentioned. Later, in 1977, came a plan for building up plants to process capelin and in 1980 people started to think about fish farming.

Research was carried out into settlement development or on the influence of various transportation decisions on settlements, the first being a study into the social influence of the Óseyri Bridge. In 1978-1985 a programme to support the building of paved roads in urban areas in the countryside was implemented. Finally there was the idea of mink and fox farming that, just like the fish farming, at that time, turned out very badly.

These financial debacles led to great criticism about the activity of the Regional Development Institute, which overtook the functions of the Development Institute in 1985, a part of this story that will be traced in the next section.

First evaluation of regional impact of a bridge was on Óseyrarbrú.

The Óseyrarbrú created a circular connection for the larger Árborg area.



The division of the country into areas for regional development plans.

2 The Activities of the Regional Development Institute

The *Regional Development Institute* took over some of the earlier functions of the Development Institute in accordance with a special law in 1985. Meanwhile the flight of the people from the countryside to the Capital Area was again speeding up rapidly and some of the projects that had been undertaken by the Development Office, as well as later by the Regional Development Office, had been quite a debacle.

Because of this situation a conference was called in Selfoss in the autumn of 1987. The instigators were the Regional Development Institute and the Federation of Local Governments. The biggest news at the conference was a speech by *Davíd Oddsson*, then mayor of Reykjavík and a few years later the Prime Minister.

In his speech Oddsson said, among other things: "I think that in the name of the regional development policy many wrong decisions have been made…and quite often suspicion sneaks up on you that the feasibility reports of so-called specialists are simply made in order to let hopeless cases look good…. I should not need to mention the seawater mineral processing plant, the plant for producing grass pellets as animal feed, the algae processing plant or the Broffeld rockwool factory…but a regional development policy where decisions of this type thrive can never work in the long run. It will bring revenge and all the inhabitants of Iceland will bear the brunt."

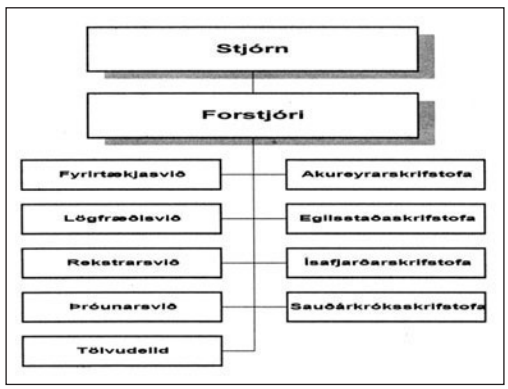
Let us now look at the role of the Regional Development Institute in these matters. First there should be mentioned that according to law the institute is only meant to support regions in the countryside and was not allowed to support activities in Reykjavík or in any of the neighbouring communities. Here already appears a fundamental flaw in thinking, namely, to separate the capital city and the countryside into interest groups with contrasting interests. If we look at the whole picture, we can easily see many profitable projects, like the Sundabraut Highway, that are at the same time of use for the Capital Area as well as for the countryside.

The flaw in this regional concept and the dissatisfaction that resulted because of it among the Capital Area inhabitants was clearly revealed in Oddsson's speech at the conference: "Things should never be allowed to develop in such a way that whole regions and communities get the feeling that they are living on some kind of social welfare."

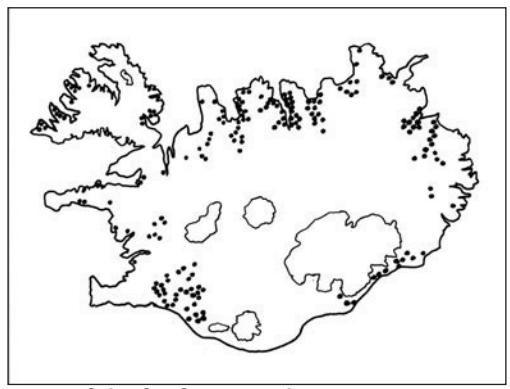
What can be read from Oddsson's words is that already an understanding had developed that the undertakings in the name of regional development had, in most cases, been badly conceived and thus had fully succeeded in being actually a waste of public funds.

Around 1990 the understanding was beginning to take hold that the institute needed to move from specific to general actions, as appeared in the report of one of its employees, Kristófer Oliversson: *Frá styrkjakerfi til heilbrigds rekstrarumhverfis* (From a System of Grants to a Healthy Economic Environment). Examples of measures that can strengthen the economic environment for the benefit of everybody in the countryside include improvements in transportation.

Only four years after the Selfoss Conference, Oddsson had become the Prime Minister and thus also the Minister of Regional Affairs. Therefore the Regional Development Institute as well as regional programmes had become his



An organizational chart of the Regional Development Institute in the 1990's.



Most of the fur farms on this map went bankrupt, like most fish farms, too.

The question: Has the Regional Policy failed?

agenda. In this connection it should be noted that the board of the Regional Development Institute was at this time elected directly by the Althing so that the Minister did not have much influence on its leaders. Soon after Oddsson had taken office he wrote a letter in which he asked for clarification of the goals of the institute.

The law of 1985, which established the institute, was amended to some extent in 1991, and with a new regulation issued in February 1992, the institute was given a clearer framework. The regulation states that the main goal of the institute is twofold: "To support the profitable national development of the country. Its [the institute's] actions should aim to strengthen settlements in the country that can survive in the long run, and where varied occupations and services are thriving."

The regulation describes the second goal as follows: "To monitor and decide on programmes for the development of settlements and the economy in order to strengthen and at the same time improve living and the economy in the country."

One of the main changes in the law of 1991 and the regulation that followed was that the main emphasis of the institute should be changed from providing loans, as banks do, to becoming a development institute.

Following this goal, work on a *policy-formulating programme on settlement concerns* was started in 1992 and in 1994 *regional development programmes* as well. Furthermore, the institute was given various tasks to assist in the co-ordination of public programmes and services.

The regulation states the following about the policy-forming programme as regards settlements: "The Regional Development Institute shall create a proposal for a policy-formulating programme on settlement concerns, for four years at a time. The Prime Minister shall present this proposal to the Althing for approval."

Later the regulation states: "As preparation for planning, the Regional Development Institute shall take into account the situation and outlook in terms of how the settlements in specific parts of the country will develop, and the goals that are considered desirable and nationally advantageous and practical to aim for in the development of the settlements of the country as a whole."

Furthermore: "A policy-formulating programme on settlement concerns shall deal with those actions that the State shall take and how large an appropriation is planned for each year of the programme.…The Prime Minister shall make known to the Regional Development Institute, as the preparation of the proposals begins, the government's policy on settlement concerns and which items are to be emphasized."

In the same month as the regulation had been issued, in February 1992, the Prime Minister sent a letter to the institute where he presented the goals that the government wished to emphasize regarding future development and the building up of the more dispersed settlements of the country.

The letter sets forth eight points, briefly summarized as follows: 1. The government emphasizes the strengthening of so-called *growth areas*, and the plan is intended to provide a definition of that concept. 2. The institute is to decide which areas of the country fall under the definition of growth areas.

3. The plan should explain in what way the government and its institutions can help strengthen the growth areas. 4. The plan shall indicate how to increase the co-ordination of official services in this area.

5. The plan shall indicate in what way the government can support employment, especially in the growth areas. 6. The plan shall explain in what way the institute intends to improve professional services to communities and their associations.

7. An estimation of the amount of funds needed shall be presented. 8. The plan shall include how the institute is going to work out regional development plans based on the policy-formulating programme on settlement concerns.

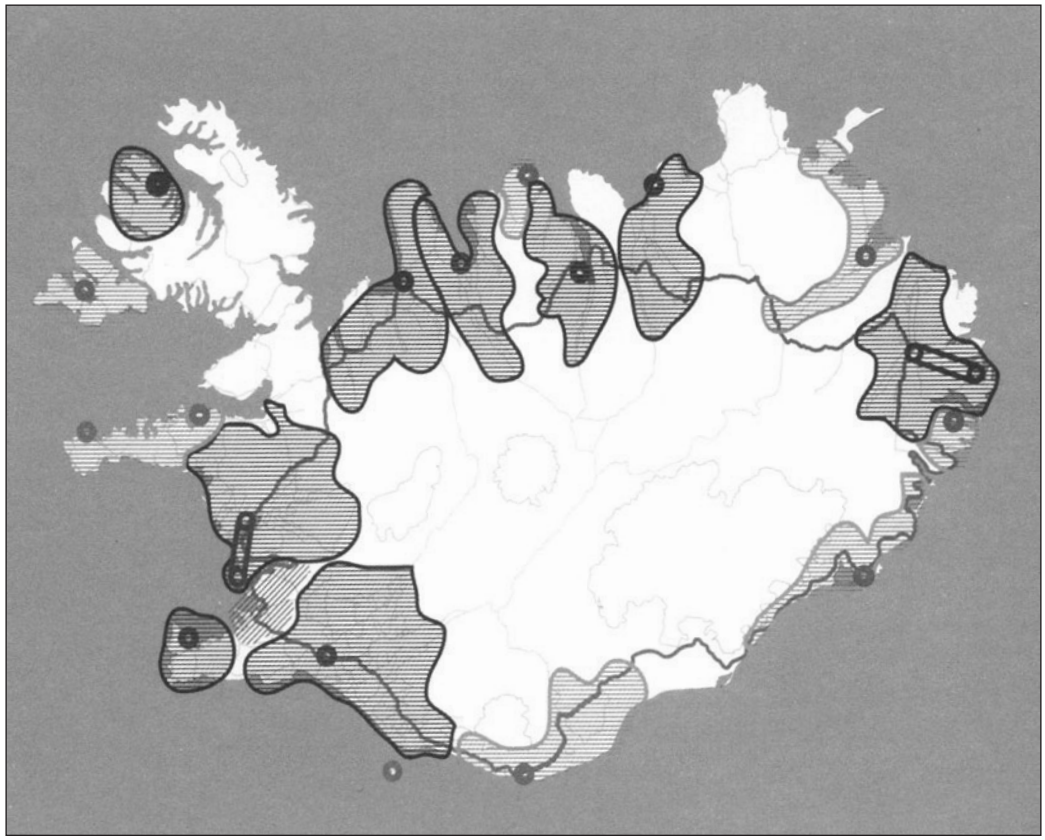
In 1994 the first proposal of the institute´s policy-formulating programme was issued, bearing the name *Changed Emphases in Settlement Concerns*. The time frame was 1994-1997.

In 1995 the chairman of the board of the Regional Development Institute, Egill Jónsson, asked the *National Audit Bureau* to conduct a review of the administration of the institute. This report was issued in September 1996 and started by reviewing the goals of the institute from the time of the Act of 1985, together with later changes in the law, and assessed how well the institute had succeeded in fulfilling its mission.

On page 41 the National Audit Bureau assessed the first policy-formulating settlement plan and concluded that it conformed substantially with the law and regulations and the emphases presented by the Prime Minister.

However, there were exceptions. To start with, the Prime Minister's letter states that the institute should decide which areas of the

An administrative audit shed light on many shortcomings.



In 1963 the Development Institute worked on the project: Changed Emphasis in Regional Matters, presenting ideas on growth areas. Dark: regional, light: sub-regional.

countryside should be regarded as growth areas. The comments of the National Audit Bureau on these points were: "The definition of the term *growth area* has been affirmed on behalf of the institute, but it is nowhere mentioned which areas of the country fall under that definition….

´In the view of the fact that the central theme of the policy-formulating programme was, on the one hand, to strengthen the growth areas and on the other, co-ordination of state actions and programmes, including grants to strengthen the economy in the countryside, it is difficult to see how co-ordination of official decisions…to strengthen these growth areas can be implemented if it is not clear which areas are growth areas."

As for this particular point, it should be pointed out that a draft of the policy-formulating settlement plan included a map with the growth areas graphically defined. This map is presented above.

The board of the institute, however, lost the courage to publish this map, together with the report on the policy formulation, and thereby made it almost impossible to perceive which in fact should be the growth areas.

Here we have come to the central point, namely that the board of the institute had not followed the instructions of the Prime Minister presented in his letter in the name of the government. This "negligence" is probably the explanation why the National Audit Bureau was asked at the time to review the goals that the institute was to comply with.

This was supposedly Oddsson's method for increasing the pressure so that his points would be complied with, even though it was the chairman of the board who asked the National Audit Bureau for the review.

As explained above, it was one of the responsibilities of the Regional Development Institute to make regional development plans in co-operation with communities and occupational development associations and others that had some connection to the issues at hand.

During these years, four such regional settlement plans were made, i.e., for the Skaftár District, North Thingeyja County, West

Report on regional development policy in 1994.

Húnavatns County and the central fjords in the east.

All of these plans contain several suggestions on possible future joint activities among communities in these areas, the possible advantages, and various related processes. In fact, the most important result of this work has been the contribution to the unification of communities in these areas.

The review of the National Audit Bureau was very critical, especially as concerns the period after 1985 when the first law was implemented. This law declares that the actions of the institute should aim to strengthen those settlements in the countryside that can be maintained in the long run.

On page 9 in the section containing the main findings, the National Audit Bureau stated: "During the eleven years that have passed since the law was implemented, the Regional Development Institute has not defined what socially effective development of settlements includes, what constitutes an unacceptable settlement decline or what constitutes a viable settlement.

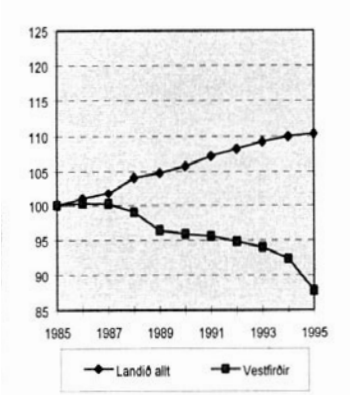
The institute therefore does not have clear measurable comparisons on which to base decisions regarding assistance to the various settlements. The National Audit Bureau therefore concludes that the institution has neglected to formulate a clear policy on where to support settlements, for what reasons and in what way."

In defence of the institute, legislation often sets ambitious goals that in fact are actually not expected to be fulfilled except perhaps over a very long period.

The basic fact, however, in this whole business is that the institute and its board did not have the political courage to define what settlements to support and which are the so-called growth areas.

If a clear policy on which area to support were created, it would obviously result in a proportional lessening of support for other settlements. Since the board only consists of representatives from the countryside, it can easily be seen that the board has a very hard time, politically speaking, making official decisions as to which areas should more or less be doomed or, on the other hand, which areas are meant to prosper.

It is almost a political impossibility for politicians from the countryside, dependent for votes on people from the same areas, to make decisions based on national rather than regional concerns.



Population decline in the West Fjords typifies rural problems.

What should have been done is that the government itself should have taken the responsibility for settlement development. It should have entered the debate on the re-structuring of settlements – which is certainly badly needed – in the same way as such a re-structuring is needed, and often carried out, for various State institutions.

Many companies in Iceland have also, from time to time, had to undergo such re-organization and rationalization in order to remain a viable entity. The task of working on such a new structure is something that no leader with a sense of responsibility can escape.

In 1990 Oddsson became an MP for the first time, and a few weeks later, the Prime Minister. Shortly after this he talked in the Althing about the possibility of helping people move from places of little hope into specific growth areas within the region in question.

Both the Althing and the people in the countryside responded very negatively to this idea. It is quite conceivable that the opposition was using the opportunity to put a stop to Oddsson's actions in the Althing, but in retrospect his proposal actually is rather modest. The proposal only suggests helping people – if they themselves so wish – to move from poorer to more prosperous places.

Some time after this commotion several letters from readers appeared in the newspapers that pointed out that the proposal was a method that could be used for strengthening the growth areas and also, at the same time, helping people to get away from places in decline without having to lose everything they owned and thus having to start anew almost empty handed.

The result of these harsh reactions was that Oddsson never mentioned this idea again. The possibility that the government would take the responsibility for settlement problems, relieving the board of the Regional Development Institute of that same responsibility, had come to nothing.

In reviewing these matters it seems clear that Oddsson later wanted to remove this concern from the responsibility of the Prime Minister's Office by giving it to the Ministry of Manufacturing Industries and Power. It was not, however, until after the elections in 1999 that changes were made in that direction.

Moving the settlement concerns to the Ministry of Manufacturing Industries and Power meant a loss of some of the political support the government can supply.

This has also meant that the regional policy has been moved to a lower level of special tasks

so that today, to a lesser degree, it has co-opted from the Regional Development Institute the goal of presenting a national policy on the future of the country.

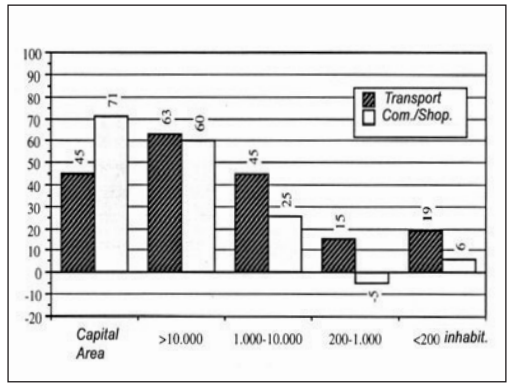
Those who wanted to interpret Oddsson's retreat negatively said that he had already realized that bad news loomed on the horizon and therefore he wanted to get rid of the question of settlement concerns. On the other hand, it should be remembered that he attempted rather determinedly to get the board of the institute to take the responsibility of deciding what should be the growth areas, and thus an effective regional policy.

The attempts did not succeed and one could even imagine that Oddsson's attitude was: I offered you this – to take the fight as concerns how the growth areas could be strengthened with relocation grants, and also to support the idea of creating defined growth areas. You, however, refused to co-operate with me on this, so I leave it up to you to decide for yourselves what to do.

In any case it is certain that since this last organizational change of moving the settlement concerns to the Ministry of Manufacturing Industries and Power the outlook has become much worse and there is much less likelihood that the state will really solve the problems of the settlements.

Let us now turn to some other reports that have been written for the Regional Development Institute and estimate the progress made. One of these reports, termed *Búseta á Íslandi* (Settlement Questions in Iceland), was written by Stefán Ólafsson and published in 1997.

This report studies the reasons why people move between places in Iceland. Results from a questionnaire showed that people are rather happy about many aspects of the quality of life in the countryside. These findings, however, have to be viewed, keeping in mind that the people in the countryside have a tendency, defensively, to present themselves as happier than they really are. In many cases, for instance, when locals give verbal weather reports from their area they are tempted to offer a too positive description of the weather. People therefore often jokingly talk about settlement-policy weather reports. Local reporters frequently describe, with great enthusiasm, that the weather is good, but forget to mention if the weather is not that good. This probably is to counteract the sad fact that in many areas in the countryside the weather is not as good as in the south.



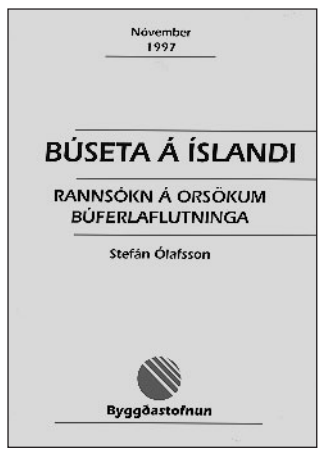
Satisfaction with services, divided into size groups of towns.

As the weather is increasingly a very influential factor in Iceland in terms of where people want to live, the perception of how good or bad the weather is in a certain area is very important as the locals are trying to get people to settle in their area. Increasingly tourists organize their travels according to the weather prediction. Therefore the spokespersons of the tourist services in the countryside try, as often as they can, to advertise that there is good weather in their area.

To summarize: there is a tendency among people in the countryside to express as much satisfaction with their situation as is reasonably possible. This fact needs to be kept in mind as they read the positive results of Ólafsson's report. Ólafsson's report, however, is a good contribution as an overview of aspects that people are satisfied with or complain about.

Most often the aspects people are most concerned about are not so much connected to work but rather to social and educational factors. This has meant that of late settlement policy has increasingly been focused on supporting these aspects.

Following the policy of increasing educational opportunities in the countryside, a university has been established in Akureyri and some university-related activity has been started in other areas. These measures have strengthened the settlements in question and, most importantly, attracted educated people. In order to strengthen the cultural aspects the government has, for example, proposed establishing cultural centres in all parts of the country, a project that is now well under way.



A social study on the reasons behind moving house.

III Nature Conservation Plans

1 The Origin of Nature Conservation Ideas

Book Four explains features that affected the shaping of the settlements in twentieth century Iceland, with special emphasis on the ideas and developments on a country scale and therefore titled *The Development of Systems on a Country Scale*.

Many will not realize instantly that the development of ideas on nature conservation and nature conservation areas, as for social and technical infrastructures, constitutes steps towards devising a system of nature conservation areas that play an important part in outdoor life and tourism.

This section, as well as the next two sections, will describe how the development of nature conservation ideas came about, as well as how the underlying thinking gradually broadened and ultimately encompassed the preservation of all the environment and quality of life – not least with regard for the physical and mental well-being of humankind – and thus became an important part of the creation of ideas on how the environment could best be organized and planned.

It is often said that 1970 marked a watershed in environmental issues as attitudes towards the environment became a strong point in the discussion of society and settlements. The year marked the first International Year on the Environment, which then led to an international conference on environmental concerns in Stockholm in 1972.

The environmental movement has its origin in the immense environmental problems that had surfaced at the time or had been recognised around the world.

The development of the subject has since con-tinued, the largest occurrence in this process being the conference of the United Nations in Rio in 1992. A study of environmental issues has introduced new concepts, including *sustainable development*, which will be described later.

These concepts – as well as the problems concerning the resources and pollution of both the ocean and the atmosphere – have become so well known and so influential in the whole thinking about the present that it is necessary to try to understand the conceptual root of this movement.

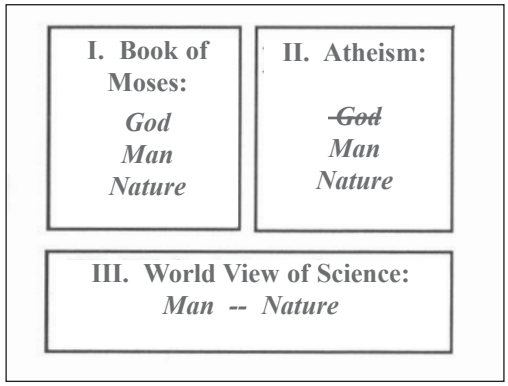
Without understanding the historical root of this movement people have a hard time distinguishing between positive and negative features in the immense flow of ideas and proposals that are currently being put forth in the name of environmental protection. This section will therefore apply a rather philosophical approach in an attempt to briefly illustrate humankind's ideological relationship with nature from as early as the beginning of human existence.

Originally humankind was, not unlike other animals, integrated into nature and only had limited possibilities to manage or to seek shelter as the forces of nature became harsh. Later, in the Christian ideology, humans were given certain rights to suppress nature, which was in total contrast to their earlier condition when they were totally dependent on its whims.

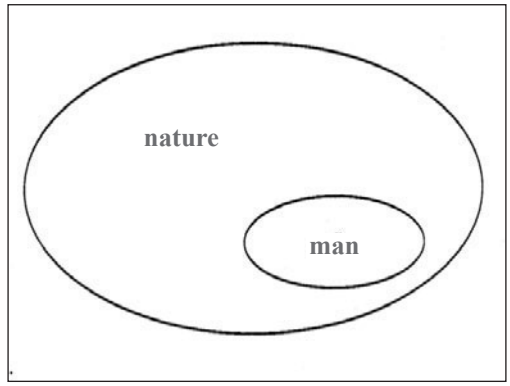
The Bible says that man should be the master of nature but above man is god. God is allowed to decide in this hierarchy, since he had created both man and earth.

In the Renaissance, and later at the start of the Industrial Revolution, humans began to be so successful that they started to want to be in charge of their own concerns: they did not think

A poster from the Rio convention.



Three worldviews. The third considers man and nature to be equals.



Men as subset. Many interpretate this as that nature concerns should be decisive.

When the cities of the Industrial Age were built, little was known of the social and environmental problems that arise in such dense cities. They were often riddled with disease and corruption. Planning methods developed in order to solve these problems.

they needed any longer be subject to God's will. This changed the hierarchical scheme in such a way that God was taken out and humans instead, almost made themselves the head of creation and thus also the master of Mother Nature. Or as Nietzsche put it infamously "God is Dead!"

As the Industrial Revolution had been on its way for several decades, creating numerous large cities, it started to become clearer that humans were not too successful at running things, as evidenced by the fact that many of the cities created in response to this Revolution were terrible places of plagues and vice.

Now it also became increasingly clear that humans in fact could hardly be trusted to be the masters of nature because we went too far in many areas in our search for advancement and as we, in many cases, went beyond what nature could withstand.

As matters still developed for the worse many theoreticians started to remind us that humans too were nothing more than one of the animals living on earth and that we ourselves are a part of nature. Therefore it would be unwise, and unethical, to take the mastery of nature into our own hands. In this third model understanding has advanced to the point that Nature has rights of her own that need to be respected, no matter what ideas humans may entertain as to how the natural environment can be utilized.

When humans had started to surpass what nature could withstand, on a global scale, with the polluting of waters, the ocean and the atmosphere, people started to realize that Nature itself needed to be given a still stronger position in the hierarchy of power.

Today many people are of the opinion that it would be wise to put Nature in the top place, which means that we must take second place without complaining and must adjust our actions to what glorious Mother Nature can support.

What has followed from this is that, in international agreements and elsewhere, in the case of new projects nature is allowed the benefit of the doubt; the legal term for it being *the precautionary principle*.

This principle means that if people cannot prove that they are not going beyond what is acceptable to Nature they should not be allowed to carry out the project. There are definite limits

People disagree on where to look for guidance.

as to how far we can go in running against Nature, both as concerns the degree of pollution as well as what we can take out of life systems without damaging the sustainability of natural processes.

A central concept in this new ideology is *sustainable development*, which means that we must aim for limiting the utilization of nature so that we not damage or decrease its value, but rather that our actions assure a sustainable future development. The future development of occupations in the world such as agriculture and fishing should be aimed at a degree of utilization that can be maintained, without threatening the sustainability of the fish stocks or the vegetative cover.

Many philosophical questions have surfaced in this environmental debate. If man had taken pre-cautionary steps at the start of the development of human civilization, many of the projects that were the foundation for the development of today's culture could not have been realized.

There is, for instance, no doubt that if the precautionary principle had been in effect in early times, it would have been almost unthinkable that the irrigation system in the Nile delta could have passed an environmental impact assessment because this project meant that the natural conditions of the estuary were much changed even though the ancient dams and irrigation systems left the annual flooding of the Nile more intact than most such constructions do today.

If these projects had been stopped by the environmentalists of that time, the waters of the Nile and the rich fertilization brought by the annual flood would not have been put to as much use by the inhabitants of the area, and the rich culture of ancient Egypt would hardly have become a reality. Similarly, the irrigation systems and cultivated terraces in China, and many other countries, would hardly have materialized.

From these examples it is obvious that in human history, natural environments were exchanged for a built environment, man-made or partly man-made. In many cases we have got so used to the built environments that we now adore them.

In a country like Iceland, that is still in the process of being settled, this ideology of untouched natural conditions is a serious threshold to overcome as people are considering various modern projects. This goes for all types of projects – roads, power lines and power plants. The dominant attitude now that holds that human activities are an insult to nature is a complete about-face from previous thinking and now stands in the way of getting large engineering projects accepted.

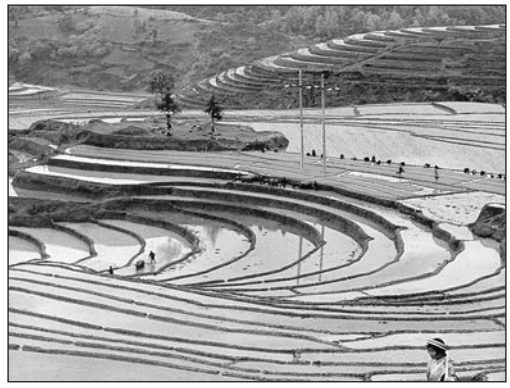
In this connection it has been very influential that Iceland has almost exclusively been marketed for its natural beauty – primarily because of the lack of other things that Icelanders can be proud of. This has had the result that the qualities of nature are highly respected and have increased Icelanders' pride in their country. The Icelandic pride in the landscape means that the spokespersons for nature conservation can easily tap into the emotional life of the nation if something needs to be done to protect the natural environment.

During the Middle Ages the Western World – not least Iceland – was in a very defensive position against the forces of nature and nature therefore was largely defined as threatening and unsightly. Thus, in the old Icelandic manuscripts there sometimes is talk about the "surprisingly ugly" peak of Mt Búlandstindur and also about "the terrible lava fields where monsters dwell" and the "black wind-driven sand that is blown over pastures and suffocates them".

User Pays Principle, which says that those who use an environment or a resource shall pay for the protection or maintanance of these qualities.
Polluter Pays Principle says that those who pollute shall pay for the damage and its rectification.
Co-operation Principle says that disagreements shall be resolved among the parties involved.
Pre-cautionary Principle. This principle orders that plans or projects shall not be allowed, or be continued, if environmental harm is to be expected.

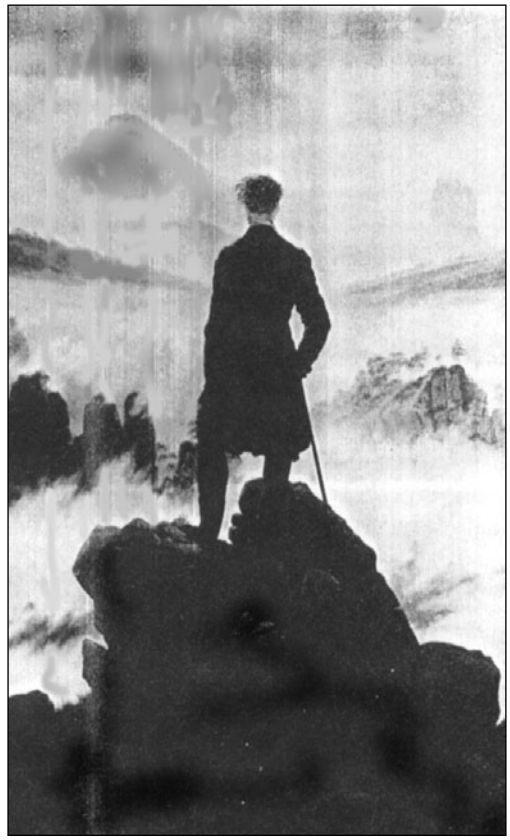
Four important principles of environmental law.

The Nile's irrigation system changed the desert into an orchard.



Cultivation ledges in China change the landscape and would not pass assessment today.

Fear of nature in the Middle Ages led to nature having a bad image.



Romanticism changed this as people overcame their fear of nature and started to praise it.

Western thinking has cities and nature standing as opposites. In the future, we need to move away from this mode of thinking and find ways in which man and nature can co-exist.

Increased education and knowledge of natural forces has mitigated these views. The technology that presented us with tools to help us fend off the onslaught of nature and to tame it has brought relief and also caused admiration for our own technical prowess.

What followed from industrial development was that the people migrated into the shelter of the towns. Then nature – with its wild animals and bad weather – was no longer a daily threat. The city had thus, in the beginning, an image of safety and shelter, and all the most beautiful values of man were connected to the city.

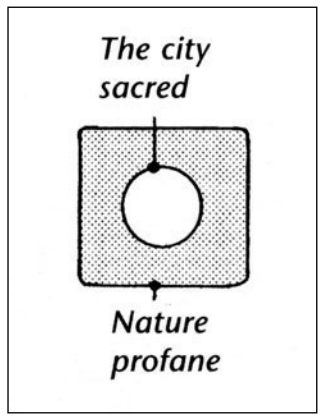
As the Industrial Revolution progressed, however, various large problems started to surface because people did not know how to plan cities nor to defuse or solve the problems as they emerged. Gradually these problems – both environmentally and socially – became so bad that the city gained the image of the profane.

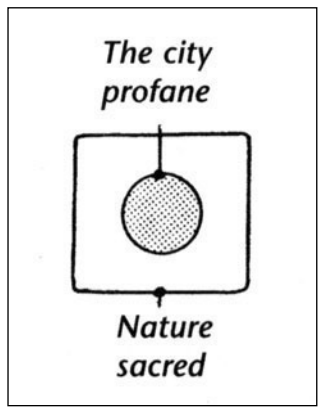
This meant that now the old dictum of a holy city – profane nature was reversed so that now the city had become profane and nature holy. This meant the advent of a new ideological movement, *Romanticism*, where it became fashionable to elevate nature and thank it for all the good things that man had acquired.

The originators of this European romantic movement in Iceland were the Fjölnir group, with the natural scientist Jónas Hallgrímsson at the head of the flock. The battle in the mid-nineteenth century for independence from Denmark was very important in strengthening national pride. Thus two things came in handy – the glorious history of the Age of Settlement and the natural beauty of the country – which by then had developed into becoming very highly regarded in the world.

A striking example of this new style of thinking, and therefore of writing, is one of the best known of Hallgrímsson's poems, *Iceland*, in which the country and its awe-inspiring landscape are personified and given the highest of values.

Interestingly, the words "Iceland, country of good fortune, and snow-white mother of prosperity!" are sung to a centuries' old tune. Here it is actually no longer nature and this ice-cold country that are the problem, but rather, Iceland has now become the "mother of prosperity".





City and country alternate in being holy and profane.

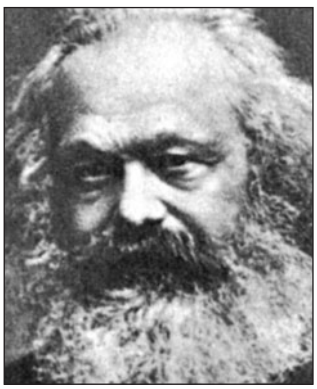
The Romanticism and the writings of Jónas Hallgrímsson and his comrades had direct political consequences. The Fjölnir group not only glorified Iceland but also expressed a very negative attitude about Reykjavík, which then was much under the influence of the Danes – or as Hallgrímsson put it in his mock poem about the town: "There the blessed children are French with a ribbon hat, and the government badly Danish on every other hummock."

The Fjölnir group visualized re-establishing Iceland's glorious national state as it had been in the days of the Commonwealth and wanted it to be resurrected in its ancient form with the Althing meeting at Thingvellir. The political leader Jón Sigurdsson was, on the other hand, more of a realist and said that Icelanders could make Reykjavík a fine capital for the nation.

Britain was the first of all countries to industrialize and therefore most of the ideological fights about the future took place there, not least because there the reality of the ills of modern society appeared most clearly.

Many considered that harnessing the power of the engine and technology to lift the heavy workload from people's shoulders was almost the only way out of their problems. The prospects of reaching this goal did not seem to be very promising to begin with because greedy industrialists enslaved the workers and labour unions were not strong enough to defend their rights.

The humanists that suffered with the workers started to scorn the power of capital. The German, Karl Marx, wrote his influential *Das Kapital* after he had moved to London, in which he famously urged the proletarians of all countries to unite, not only to rectify their lot but also to take power out of the hands of the privileged. This political doctrine was very influential in the twentieth century, but many aspects of this theory were so flawed that it led to economic disasters..



Marx's work was inspired by the misery in the cities.

Those who did not like how the British society and cities were developing had, of course, to point to something else. Two of the best-known ideologists in Britain opted for the policy of "back to nature". One of them was *William Morris*, who became acquainted with the Icelandic sagas. He therefore studied Icelandic and translated some of the sagas into English.

Morris saw the Icelandic Saga Age – which was free from an oppressive upper class – as a model for the future state. Morris was both a prolific writer and an artist and in addition to his numerous political writings he worked on developing the use of machines to strengthen the crafts rather than causing their downfall.

Morris saw the Saga Age as a glowing example to follow.

The other ideologist who put human values above all else was *John Ruskin*. He considered the humiliation of the general public and the excessive profligacy of the upper classes to be criminal. Ruskin, and many others, thought it was right to nationalize ownership of land so that people could be given the opportunity to create a life for themselves in the country where machinery could be used to make work easier. Along this line he wrote: "A piece of land, which will only support ten idle, ignorant and improvident persons, will support thirty or forty intelligent and industrious ones."

Eight years after the death of Ruskin, one of the greatest Icelandic ideologists of the twentieth century, Jónas Jónsson from Hrifla, went to study at Ruskin's Collage in Oxford. This school was probably the model for the co-operative school that Jón Jónsson later established in Iceland

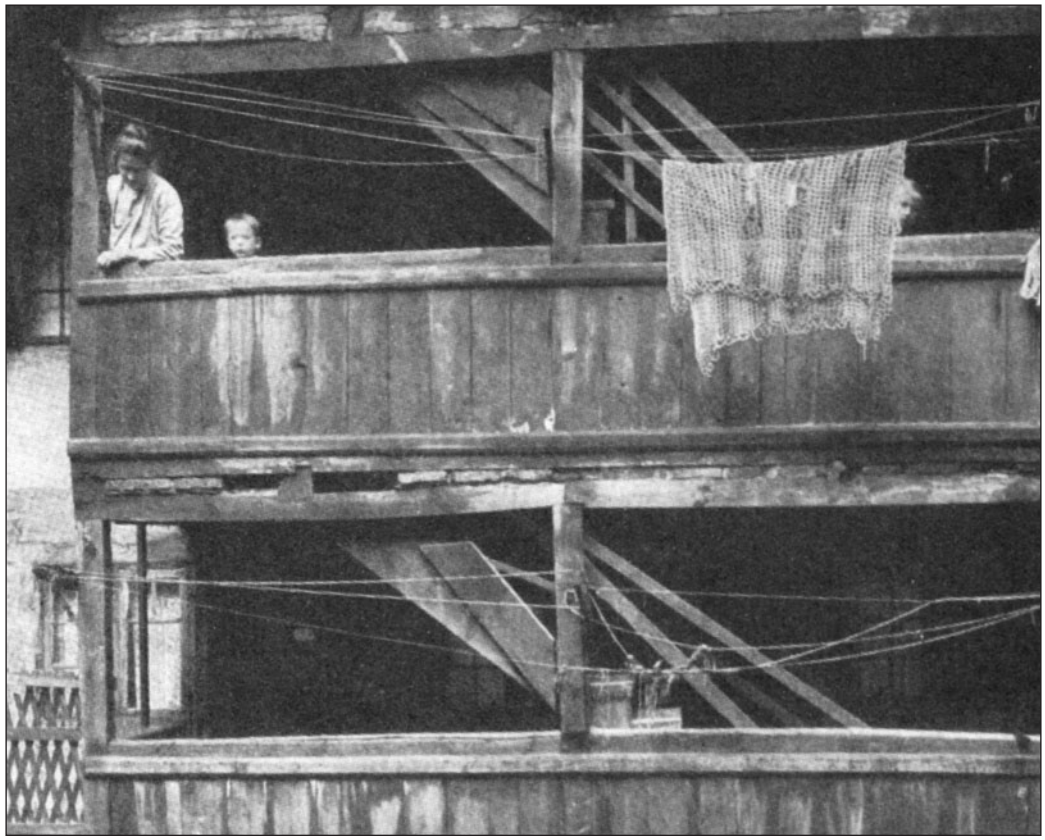
These British ideas were very influential in the young people's associations that were founded in Iceland around 1910. Jónsson wrote an article in 1913 for a magazine that these associations published, *Skinfaxi*, in which he says that capitalistic factories could hardly give Icelanders freedom because the life of the common man in the country was like heaven compared to the life of the workers in the industrialized countries.

Only when people had learned to distribute wealth in as intelligent a way as they created it would mechanical progress be worth anything. Based on this thinking Jónsson became an opponent of building, for example, the harbour in Reykjavík, the introduction of railways and fishing with trawlers – because the capitalists alone would profit.

It was, however, not only big towns and industries that Jónsson was against, but also the building up of big farms because he said – like some foreign scholars – that the big farmers were exploiting the workers, were limiting the use of farmland, and robbed those who had no land of their opportunity to work for their own profit as well as for that of their nation.

Jónsson played a considerable part in establishing both the People's Party and the Progressive Party in 1916. But gradually, however, Jónsson and the socialists grew apart. The socialists were the protectors of the workers in the towns but Jónsson was set on a vision of Iceland as society of free people who worked for themselves in the countryside, as in ancient times.

Because of this it was one of Jónsson's policies to strengthen the rural centres and he had obtained the power to do so as he had become a cabinet minister



The creation of large-scale industries led to the creation of cities. As the standard of living for many was appalling, many people turned against both cities and industry.

The Depression around and after 1930 hit the workers in the towns, so the socialists and conservatives joined forces. Jónsson and the Progressive Party, on the other hand, held fast to their small farms policy.

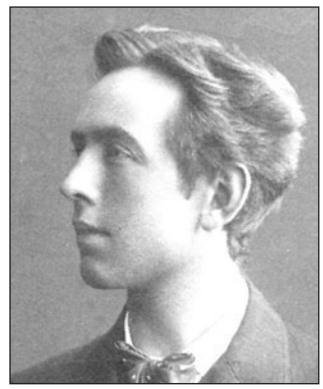
A booklet published by the Progressive Party before the elections of 1937 described the extremes in the towns in the following way: "On the one hand there is a life of excesses; the refined capitalists who will suck the marrow from you….on the other, the uneducated rabble who perish, generation after generation, in poverty and filth which is much worse than can even be imagined as what would be most disgusting and pitiful in human existence."

This remarkable story of the early part of the twentieth century – the fight between the ideology of the urban-industrialists and the small-farm agriculturalists – has been described in the fine book of Ólafur Ásgeirsson, *Idnbylting hugarfarsins* (The Industrial Revolution of the Mind).

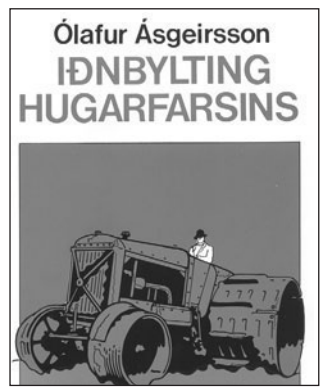
Ásgeirsson describes how the conflicts among these two groups constantly intensified, even though both of them were considered to be leftist. He frequently quoted the writings of Einar Olgeirsson, for example in the magazine *Réttur* in 1939. Ásgeirsson wrote: "There Olgeirsson violently attacks the policy of Jónsson to want to move the people out to the countryside, which he saw as returning to the Middle Ages. Olgeirsson says that strong powers within the Progressive Party 'wanted to hinder the increase in jobs at the coast and work against the building up of heavy industry there.'"

Ásgeirsson traced how the Kveldúlfur affair – when the trawler company owned by the Thors family was in difficulty – became an issue that resulted in the union of the far Left and the Right. This later led to the fact that, at the end of World War II, Olgeirsson and Ólafur Thors together formed the Reconstruction Government.

The concept of this government was directed at introducing a reconstruction of the Icelandic economy by buying a great number of trawlers and fishing boats in order to strengthen the fishing industry and the fishing towns. In addition to this a considerable amount of money was given to the countryside to help it become mechanized.



Jónsson was a spokesperson for rural ideology.



A book describing the movement towards urbanization.

2 Special Laws and the Nature Conservation Law

The dramatic development in concern for the environment in the latter part of the twentieth century has caused people to search for the roots of the ideas that have paved the way for this changed view. In many cases the first indicators of these ideas appeared in earlier legislation because people quite early started to realize the necessity of preserving the environment.

One of the things that nature conservationists in Iceland have done is to interpret the worshipping of various natural phenomena in the ancient manuscripts as an inner human need to protect the land. Thus, for example, Páll Líndal has written: "The story of the belief in Mt Helgafell, in the west, is commonly known from *Eyrbyggja Saga*. This is one of the strongest conservation demands ever heard: 'Nobody shall look toward it who is unwashed and nothing should be destroyed there, neither man nor beast.'" Whether this injunction applied because of the worship of nature or because of the wights or guardian spirits who live in the mountain is unclear.

The truth was probably that both views applied as the wights were themselves a part of nature. It would be taking it too far, of course, to claim that a quote like this is some kind of directive for the conservation of mountains or other areas because of their beauty or natural science value.

In the early discussion about environmental concerns after 1970 the first book on the subject in Icelandic was *Vistkreppa eda náttúruvernd* (Ecological Crisis or Nature Conservation) by Hjörleifur Guttormsson. In an appendix to the book Guttormsson published a part of the story of nature conservation in Iceland where, among other things, various special laws were described as being antecedents of the general law on nature conservation that followed. Guttormsson felt that a directive issued in 1849 on hunting in Iceland – concerning seal haulouts, the placing of nets and bird nesting grounds – is the oldest law still on the books in Iceland that can be seen as a nature conservation law.

Guttormsson also described how influential the ideas on national parks were in developing ideas on conservation in the whole world. The first national park was the Yellowstone Park in the USA, established by law in 1872.

The reason why Icelanders today have placed the beauty of the landscape on such a high level is in part because there are so few architectural remains to boast of.

In his article on the steps that led to the passage of a nature conservation law in Iceland, Líndal pointed out that in the early twentieth century Scandinavians already had nature conservation laws: in 1909 in Sweden, 1910 in Norway and 1917 in Denmark. Even though Icelanders most often follow Scandinavians in passing similar laws, it was not until about half a century later, or in 1956, that the first Icelandic nature preservation law was enacted.

Probably two factors were the main causes of this delay. First, the natural sights in Iceland were not in great danger because of the sparse population and secondly, because there was little construction in the first half of the century. Perhaps in addition, many of those who wanted to strengthen Icelandic agriculture looked with a wary eye on the idea of a nature conservation law.

In the fight for independence from the Danes, Thingvellir played a big role. As the millennium of the founding of the Althing at Thingvellir in 1930 was approaching, people started to give

A booklet on the first environmental disputes.

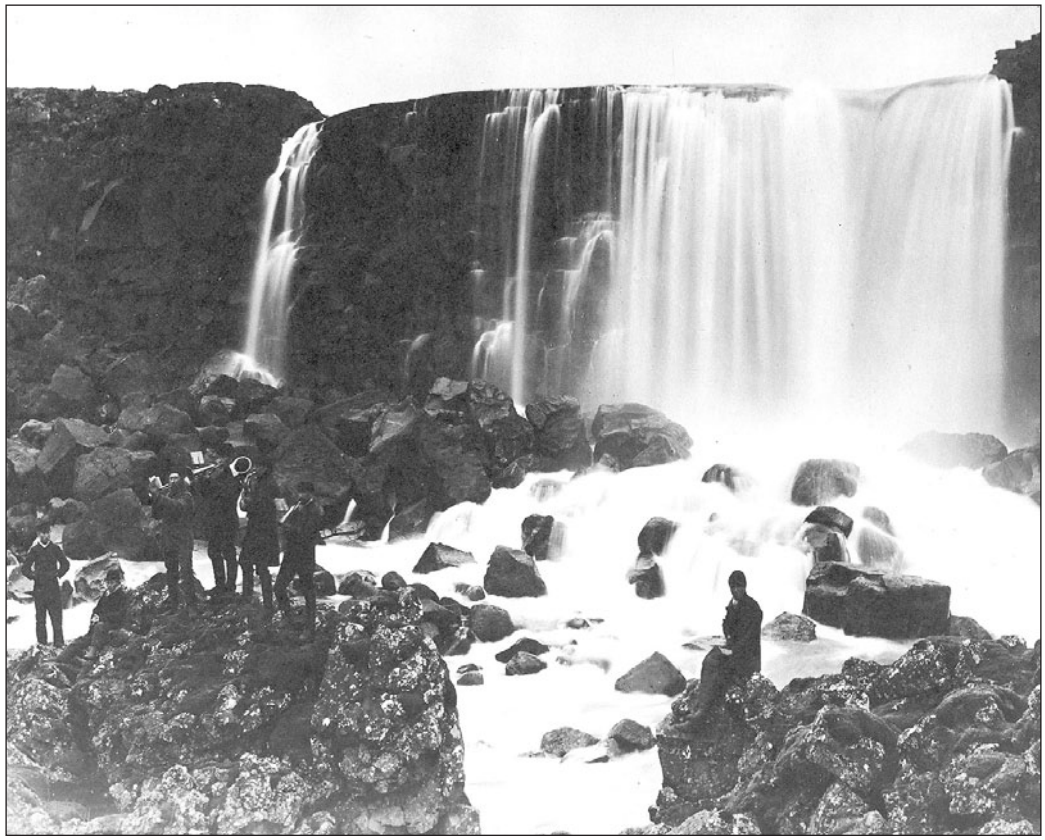
The first book on the global eco-crisis in Icelandic.

> *"Nobody shall look toward it who is unwashed and nothing should be destroyed there, neither man nor beast."*

It is not clear whether the supernatural or nature is being discussed here.

> *"...oh, this is Lake Thingvellir ! This is the lake that Jónas beautified as in days of yore shining poetry."*

Gröndal wrote on Jónas Hallgrímsson's contribution in his famed poem "Iceland".



In ancient times people moved the river bed of Öxará, and led it down into the Almannagjá fissure. Such an operation would have difficulty passing environmental assessment today.

thought to how respect for the site could be assured. The events leading up to the special law of 1926 that created the Thingvellir National Park included the road that had been built from Reykjavík and which made this area a frequent tourist destination.

As in most such cases two things followed: conditions in Thingvellir started to deteriorate and at the same time there was growing concern because more people had the opportunity to get acquainted with the beauty of the place.

Earlier, the two most outspoken enthusiasts about Thingvellir were the painter *Sigurdur Gudmundsson* and *Matthías Thórdarson*, later National Antiquarian. To them the beauty of the place and its deep historical meaning became one, the only valid approach to take as there were almost no architectural ruins at Thingvellir.

For the advent of the national festival at Thingvellir in 1874 Gudmundsson wrote a report about the importance of the place, later published as a book. In 1907 Thórdarson published an article in *Skírnir* which he called "The Protection of Beautiful Places and Remarkable Natural Sights". There Thórdarsson pointed out that not only archaeological heritage needs to be protected but also the artefacts of nature – lest they be spoiled or even fall into the hands of foreigners. Iceland, he wrote, has become famous for her many beautiful sights. He put the Almannagjá Rift and the area above the place where the Althing sat by the Öxará River in first place, though he also named many other places that later were designated conservation areas. Thórdarson ended his article with the words: "Let us take good care of the nation's natural wonders and no less of the jewels of our mother, the Mountain Queen."

The greatest ideologist in terms of nature con-servation that came on the scene at this time was *Gudmundur Davídsson*, a teacher and forester. Davídsson had lived for a while in North America and was therefore acquainted with the pioneering work there in the area of nature conservation. In 1913 Davídsson published an article in *Eimreidin* that Líndal felt was the first presentation of ideas on the conservation of Thingvellir as well as on the establishment of a national park there.

The traffic to Thingvellir had increased considerably by this time and Davídsson said: "Land quality is being reduced and the destruction


ALÞINGISSTAÐUR
HINN FORNI
VIÐ ÖXARÁ,
MEÐ UPPDRÁTTUM
EFTIR
SIGURÐ GUÐMUNDSSON,
KAUPMANNAHÖFN.

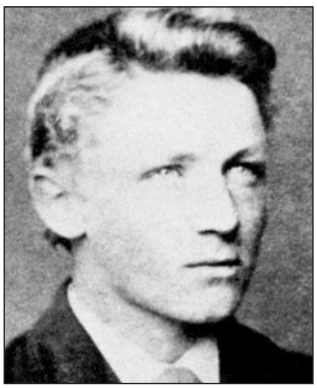
Gudmundsson's book on the ancient site of the Althing.

increases year after year…it seems to be expected that this ancient and holy seat of parliament – the heart of Iceland – will in a few decades be torn apart, the vegetation ruined and cluttered with horrific buildings." After this introduction Davídsson presented an idea about the demarcation of a conservation area, as well as various other ideas about the planning of such an area.

This discussion about Thingvellir led to the Althing decision in 1915 to allocate money for improvements and in 1919 approval of preparations for conservation of the area. Voices were raised in dissent primarily because conservation would mean that agriculture, to some degree, would be driven away from the area, especially the raising of sheep. It was the view of one of the MP's that it would be more logical to try to increase rather than to decrease the number of farms in the area.

In 1923 the MP's *Gudmundur Gudfinnsson* and *Jónas Jónsson from Hrifla* presented a bill to the Althing for the preservation of Thingvellir. In the debates in parliament, people already started to discuss in what way the area could be prepared for the millennium in 1930 but, in spite of that, the bill was not passed.

But the millennium was moving ever closer so that more bills followed till finally in 1928 Jónsson, then a cabinet minister, presented a special bill on the conservation of Thingvellir. In spite of the general interest and excitement in the nation, other voices were also heard. One man asked in an article in *Vísir*: "Are they proposing that we Icelanders should, like the English nobility, let large tracts of land stand unused so that we can play there?"



Davídsson, the first environmentalist: inspired by his stay in the US.

Jónsson, a minister and a pioneer in legislation.

Even though the main impetus was the holiness and history of the site, it was the millennium that was the decisive factor that led to establishing Thingvellir as a nature reserve. This first conservation law caused a general awakening about nature conservation in Iceland. In a meeting of the Icelandic Nature Association in 1932 a committee was elected to start working on nature conservation.

Somewhat later a bill was presented to the Althing on nature conservation and the conservation of historic places. The bill called for the appointment of a committee of five, which was to be given the authority to ban construction that destroyed fauna, flora or other features that the committee designated for preservation.

The chairman, Jónas Jónsson, was the sole speaker on the issue in the Althing. A similar bill was repeatedly presented to the Althing in the following decades. In the meantime various special cases arose, including one in 1939 on the conservation of Eldey Island and in 1947 when a bill was presented on reviewing the law on hunting and the preservation of birds and eggs.

The bill on nature conservation was not discussed in the Althing but finally in 1949 the Althing decided to give the government the task of preparing a bill on the protection of places that are remarkable for their nature or their history.

The public discussion became ever more intense and in 1949 geologist *Sigurdur Thórarinsson* gave a famous speech on the State Radio. *Eysteinn Jónsson*, who was the Minister of Culture at the time, contacted Thórarinsson and asked him to take a seat on the committee for preparing the bill on nature conservation.

Numerous changes in the draft for the bill were made in subsequent years but the bill was finally before the Althing in 1954. It was not approved but was discussed. The bill was presented again to the next meeting of the Althing and was finally approved in the spring of 1956.

In the following description Guttormsson's writing, citied above, will again be of guidance. The first section of the nature conservation law dealt with conservation itself and damage to and destruction of the natural environment, and it allowed for the setting aside and protection of special natural formations, plants and animals. Responsibility for managing and monitoring of the nature conservation issues was given to a three member committee in each county and main town, as well as to a *Nature Conservation Council* consisting of seven members.

The Ministry of Culture was given the responsibility of management of nature conservation concerns and the Ministry appointed the chairman of the Nature Conservation Council. The department heads at the Natural Science Institute of Iceland each had a seat in the Council and other members were appointed by the Farmers Association, the Forestry Association and the Engineering Association.

The Nature Conservation Committees elected in the counties and the biggest towns proved to be rather lacking in initiative. But the Nature Conservation Council itself was active and took the initiative in various conservation matters such as the conservation of stalactites in caves in 1958, of hot springs in the Kverkfjöll Mountains in 1960, of the purchase and conservation of the Skaftafell area in 1967, and of the conservation of the Lakagígar craters in 1970.

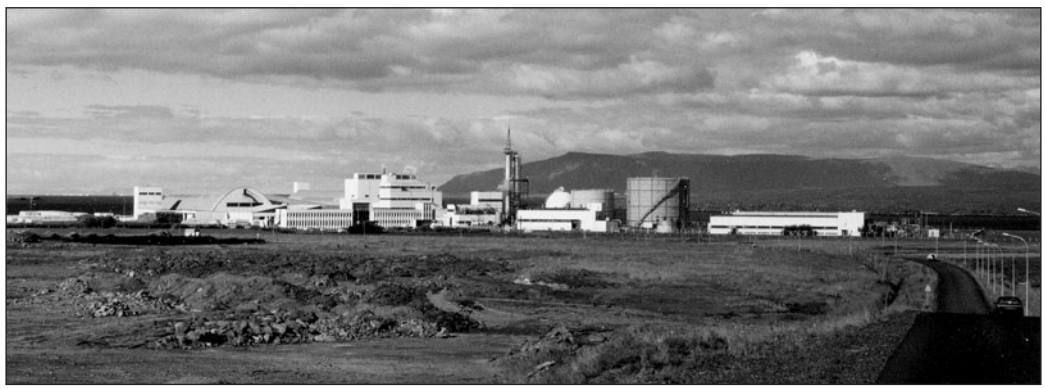
The second paragraph of the first section of the law was the precursor of what would later be called environmental impact assessment. The

In 1949, Sigurdur Thórarinsson gave a lecture at the INA, and later on the radio. The lecture led to a general awakening on environmental issues. Here is the geologist at work.

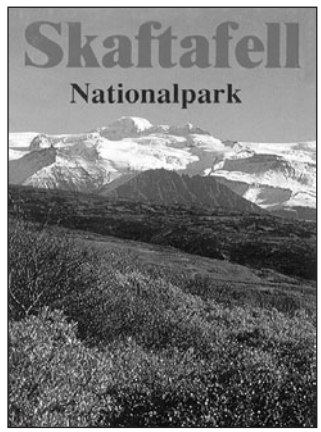
law stated that if proposed construction is likely to cause damage to the natural environment the opinion of the Nature Conservation Council must be sought before construction is started. Guttormsson, in his book, claims that this provision was not respected enough and even the Althing itself and the government bypassed it as legislation was enacted to build a plant to process diatomite at Lake Mývatn in 1964.

A new bill providing for nature preservation was presented to the Althing in the spring of 1969 and passed as law in 1971. Based on this law, detailed regulations on nature conservation were announced in June 1973.

In 1999 a new nature conservation law was passed, and in 2002 a change was made which established the *Environmental Institute*, which integrated some of the older state institutes under one umbrella, including the Nature Conservation Agency, the Environmental and Food Agency, the Wildlife Management Institute, and the Advisory Board on Fishing and the Hunting of and Wild Animals.



The building of the first heavy industry plant, a fertilizer plant, in 1951, started many people to think about the sacrifices in terms of natural qualities that this would mean.



Making Skaftafell a national park: an important step.

3 Survey of Nature Conservation Areas

As described in the previous section, work on preparing proposals and creating a description on various natural wonders started in the 1960's. In all cases proposed for conservation, special laws had to be written and approved.

According to the *Nature Conservation Law of 1971* it was the duty of the *Nature Conservation Council* to compile a list of important natural wonders, areas or other items which were considered advisable to set aside and preserve. The Council was also to make a proposal on national parks and country parks. The Nature Conservation Register publishes a list of nature preserves or proposed areas. Some of them have been formally set aside in accordance with the law of 1971 or some other special law. This register has been published in an edited version in part B of Stjórnartídindi and also published in a booklet every few years.

The first early steps towards compiling this register were worked on by several natural scientists like *Sigurdur Thórarinsson,* who compiled a *list of waterfalls* that was published in 1978. In this list, waterfalls of importance are categorized and their special value described and estimated. Another list of wetland areas was compiled by *Arnthór Gardarsson* and was also published in the same year.

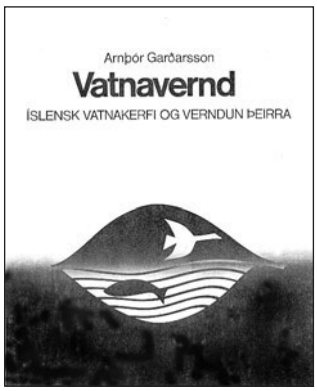
The Nature Conservation Law of 1971 defines four categories of conservation. These are *natural monuments, national reserves, country parks* and. *national parks*

In addition to the *national park at Thingvellir* that was established according to a special law in 1928, a national park was established at Skaftafell in 1967. Another park is *the canyon of the river Jökulsá á Fjöllum,* established in 1973. This canyon includes the famous Dettifoss Waterfall. In 1975 a national park was established at *Hornstrandir,* which is a huge seaside cliff on the northernmost tip of Iceland. In 2001 the *Snaefellsjökull Glacier National Park* was finally established. By that time a new law had been passed that allowed such parks to be private property and special agreements were entered into with the landowners about the terms of conservation.

In the 6th edition of *The Nature Conservation Register* in 1966 the number of areas and natural wonders listed had swelled to about four hundred. Of these areas 76 had already been conserved legally according to the law of 1971 and three conserved according to other legislation. The total area of the legally conserved areas then came to about 10,000 km^2 or almost 10% of the country. The preface to the register of 1996 stated that the Nature Conservation Council had already created the draft of a proposal for a few large, continuous conservation areas. It also pointed out, however, that because of how large the areas are and because of how many owners are involved, it would be very time consuming to finalize the protection papers.

These large, continuous areas were quite similar to the proposed conservation areas in the picture at the top of the opposite page. The preface mentioned eleven conservation units: *1. The southern highlands:* Thórsmörk, Hekla, Landmannalaugar, Veidivötn, Jökulheimar, Laki. *2. Thingvellir:* i.e., the watershed for Lake Thingvellir and an area reaching into Hvalfjördur. *3. Snaefellsnesjökull Glacier* and the area to the south and west of the glacier. (The preface states that a national park is in preparation in this area). *4. The southern part of the West Fjords,* for example: Vatnsfjördur, Dynjandi and the western part of the Reykhólar community. *5. Hornstrandir,* i.e.,

"List of Waterfalls" was the first environmental register.

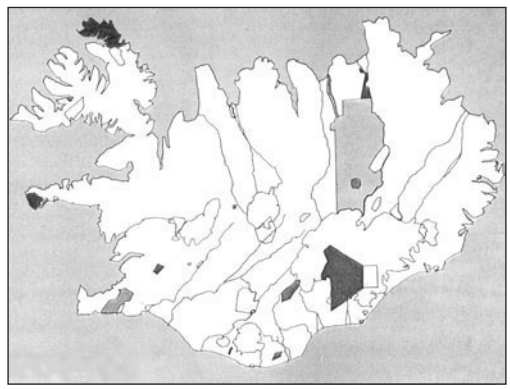


This report discusses lakes, rivers, marshes and beaches.

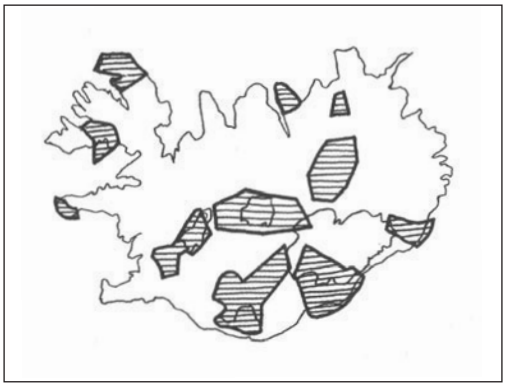
Types of protection according to the 1971 nature conservation law:

Natural wonders
National reserves
National parks
Country parks

The four types of preservation. Each has a different legal position.



The dark areas are the national parks, grey areas are large protected areas.



***A draft idea for conservation units similar to those described in the* Conservation Register.**

the enlargement of the Hornstrandir National Reserve. *6. Hvalbakur, Fjördur and Flateyjardalur:* a deserted area and mountains, cultural remains. *7. The canyon of the River Jökulsá á Fjöllum.* Today's national park is only on the western part of the canyon, the report notes, but it is necessary that the eastern part be protected as well. *8. The Lón lagoon:* A review of the boundaries of the national reserve in the Lón highlands in the east. *9. Skaftafell:* A few areas adjacent to the national park in Skaftafell will be added, e.g., the Öraefajökull Glacier and the sands of the River Skeidará as well as the coast. *10. Núpsstadur:* It has been pointed out that the Núpsstadur area has an exceptional beauty and also a remarkable history that is important to help today's and future generations to learn to know. *11. The highest part of the central highlands:* Hveravellir-Vonarskard.

Some of these ideas became integrated into the regional plan for the central highlands that included a proposal for large conservation areas (see section on p. 244).

With *the new Nature Conservation Law in 1999* some changes in procedures and processes were introduced. One of the novelties was that a five-year nature preservation plan was to be produced and presented as a bill to the Althing. The conservation proposals are primarily meant to be based on scientific data, where there is enough information and an overview of certain natural aspects.

In the spring of 2002 the first proposal for this new programme was presented, and in the *Environmental Assembly* in the autumn the proposals that by then had been reviewed were presented by the Minister for the Environment.

The main change was that the proposals are meant to have a strong scientific foundation and argumentation, with the special European programme *Natura 2000* used as a model. This means that Iceland, in this new programme, is using the same classification schemes and categories as in Europe, which facilitates comparison.

The old Nature Conservation Register will be maintained and certain areas – even though outside of the new programme – are probably going to be brought up for confirmation. In some ways this register is a child of its time because the necessary scientific argumentation and the supporting data were not always there.

As before, individual communities can make proposals on conservation within their communities, and in the south-west many of the proposals – presented in the map above – have been made by locals.

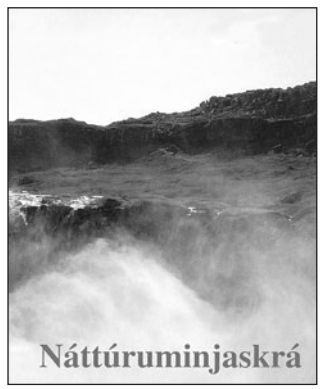
The report presented in the spring of 2003 contains 75 areas or places that the Environmental Research Institute had proposed for conservation. The small map to the left, on p. 285, shows these areas. They are all an addition to the already confirmed conservation areas shown on the large map in the upper part of that page.

All communities in Iceland and many other places were given the opportunity to comment on these proposals during the summer of 2003. Representatives of the institute went all over the country to have meetings with local committees and officials, landowners and other interest groups.

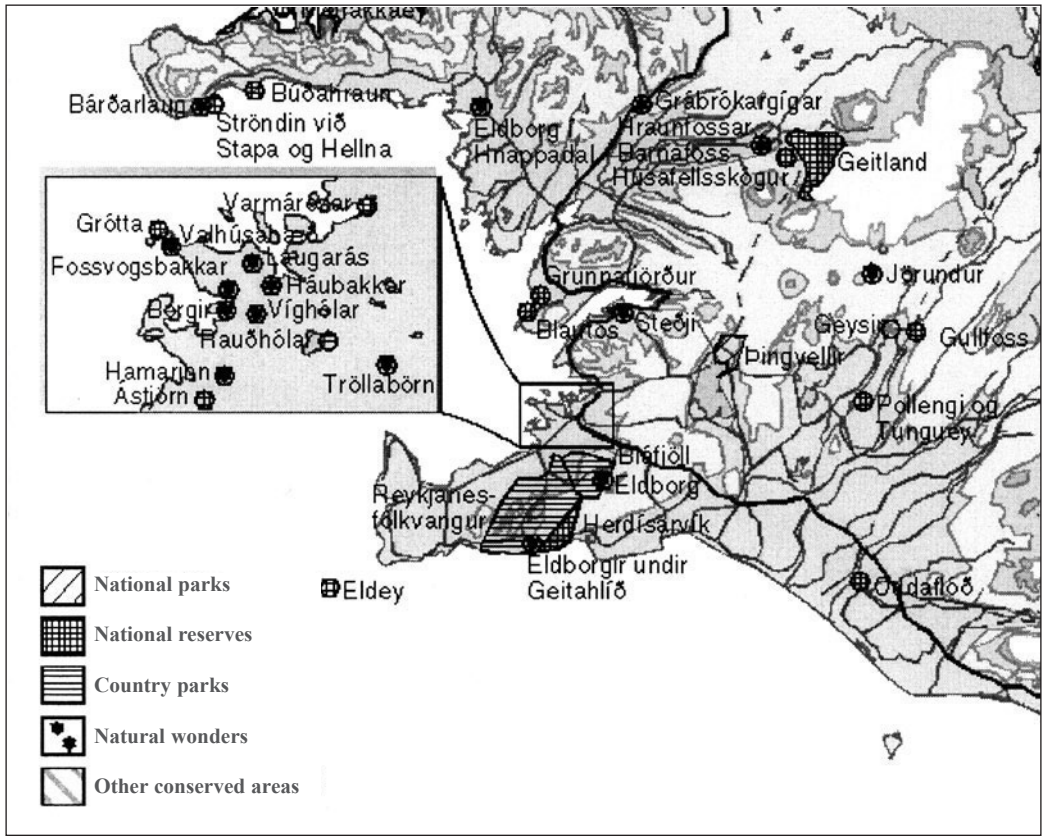
Preparatory work on the proposal of these 75 localities included gathering information and making new investments in studying the geological formations, hydrology, biological diversity, landscape, and wilderness as well as the cultural and historical remains. The main foci were: uniqueness of biological species and areas that are sensitive to change, such as important bird colonies. The scientific and cultural values of areas as well as international, scientific values were considered to be of great importance, as well as of how outstanding or remarkable their natural features are.

The main goal of this *first five-year plan on new conservation areas* was to create a net of conserved areas where scientific evaluation or the conservation value would be based on a definition and the registering of natural wonders.

One of the main policy statements was that there should be three areas of emphasis for national conservation in 2004-2008: *1. A net of conserved areas,* with unique bird life, should be created, areas with a conservation value on an international scale. *2. An enlargement of the national parks of Skaftafell* and *at the canyon of the River Jökulsá á Fjöllum. 3. Establishing a national park north of the Vatnajökull Glacier* and conserving the areas that will be included in it.



This register publishes lists of all nature conservation areas.



SW Iceland has the most reserves, which is why the NPR publishes a separate map of the area. The diversity is due to volcanic activity, beaches and the interchange of humans and nature.

The report notes that for each of the areas it is necessary to decide what the protection should include. Obviously, the main emphases differ in the different areas, whether mainly birdlife, botany or geological formations, etc.

In the Environmental Assembly in October, fourteen areas were singled out from the 75 areas to be proposed for conservation in the five-year plan. These areas are shown on the small map to the right on p. 285 and are described as follows:

Austur eylandid (Eastern River Islands Area) in Skagafjördur. The most important habitat of the Slavonian grebe, which is on the list of endangered species.

Álftanes – Akrar and Löngufjörur (coasts and wetlands in Mýrar County). Important nesting area of the White-tailed sea eagle. Conservation of these areas means protection of 90% of the sea eagle nests.

Álftanes – Skerjafjördur (peninsula and fjord) in the Capital Area. Important resting places of the Brent goose and the Knot on their way to northern nesting areas. All these areas have to do with the conservation of birdlife.

Geyser, hot spring area. Geological conservation value. The hot spring area has to be conserved, and the access of tourists has to be ensured.

Gudlaugstungur – Álfgeirstungur (areas between rivers) north-west of Hofsjökull Glacier, in the highlands. Important because 4% of the European pink-footed geese nest here.

Jökulsárgljúfur (gorge of the River Jökulsá á Fjöllum). A continuous national park will be created all through the gorge area by enlarging the park to the east.

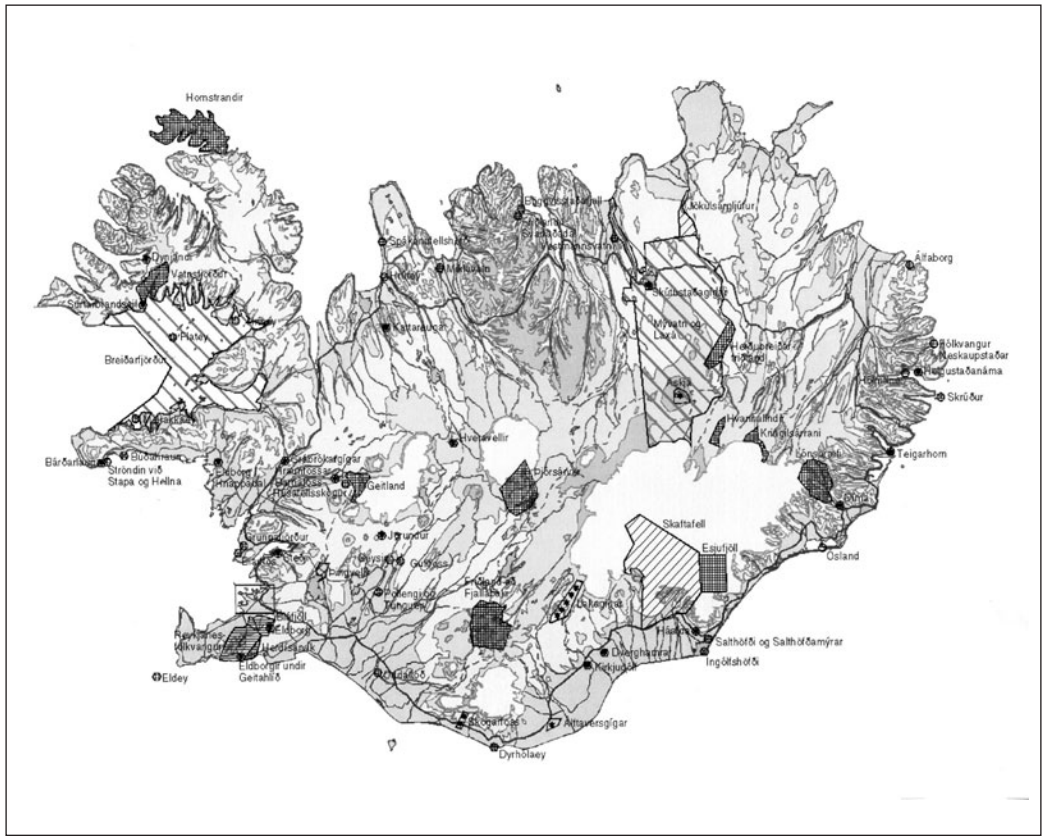
Látrabjarg – Raudársandur (southern West Fjords area). One of the largest seabird areas in the country, 60% of the Razorbills in Iceland nest here, 30% of the Guillemots and 20% of Brünnich's guillemots. These bird cliffs are the largest in the North Atlantic.

Látraströnd – Náttfaravík (deserted area in the north). Protection of rare plant species. Thirty rare vascular plants. And twelve other species that need protection.

Njardvík – Lodmundarfjördur (sparsely populated fjord landscape in the east). Conservation of rare plant species, including 32 species of vascular plants.

Reykjanes – Eldvörp – Hafnarberg (south-west tip of Iceland). This area has geological conservation value and is considered unique in the world because it can be seen here that Iceland is the continuation of the Atlantic Ridge.

Booklets on nature are published for use in schools.



It was logical to start creating a register of natural artefacts based on their individual value. The next logical step is to create wholes where ideas on water protection and tourism enter the picture.

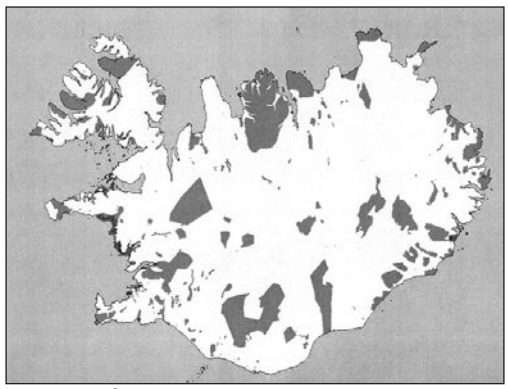
Skeidarársandur (sand flattened by glacial floods in the south-east). Skaftafell National Park is at the south edge of the glacier. The proposal is to enlarge it and to connect it to the coast by including the sands in the conservation area. The sands are the main breeding places of grey and harbour seals and one of the largest nesting areas for Great skuas in Iceland.

Vatnsholtsskógur (old birch forest in Skorradalur Valley in the west). For protection and reclamation of natural birch woods.

Westman Islands (islands off the south coast of Iceland). The islands contain one of the biggest seabird nesting cliffs in Iceland; cliffs and islands will be conserved as bird habitats. Within this conservation area over one million pairs of seabirds nest.*Öxarfjördur* (area in the north-east). Important habitat of Slavonian grebe.

Some voices of criticism were heard at the *Environmental Assembly*. A frequent complaint was that there was little emphasis put on *landscape* or *cultural landscape conservation* in these proposals. The answer is partly that these are rather new fields of scientific study so the basic information is probably not yet there to a sufficient degree for making such plans.

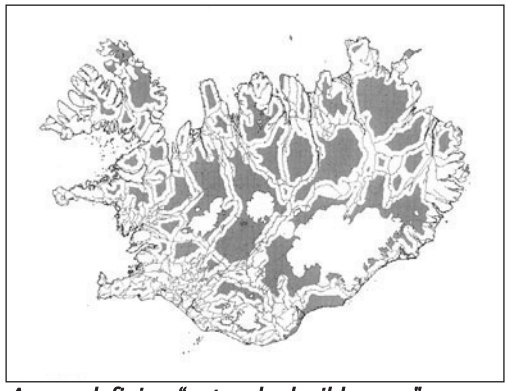
In July 2004, a new directive from the EU will become law in Iceland. This is the *Strategic*



Areas in the Nature Conservaion Register in addition to those on the large map above.

Fourteen areas proposed for conservation in a proposal in the fall of 2003.

The area around Mt Herdubreid is of exceptional beauty.



A map defining "untouched wilderness", created for the Ministry for the Environment.

Environmental Assessment (SEA) that demands that all major policy-formulating law, plans and programmes will have to be investigated in terms of their environmental impact. Some might say that it would be a contradiction in terms to make an environmental impact assessment of an environmental plan like this, but the fact is that according to the EIA law these assessments shall not only assess impact on the natural environment but also on the economic and social environments.

Therefore it seems obvious that such an assessment needs to be made and because it is the same ministry that is in charge of both of these matters, it seems to be very logical that the ministry puts this new conservation programme into such an assessment process, even though the law only becomes effective in July 2004, i.e., after this programme will presumably be accepted by the Althing.

Now, finally, a few thoughts on how a sectoral plan or programme like this needs to be integrated with other programmes in the future. It is certainly logical to start with sector or specialized plans as for individual plans. But the work on these plans on a national scale has actually been taking place for such a long time in Iceland that the authorities should now be ready for the next stage, i.e., to integrate related plans into unified plans for certain subject categories.

The methodology for such an integration of individual sector plans has already proved to be very successful in Iceland in the making of the unified transportation plan. This plan integrated three sector plans that were earlier worked on independently, i.e., for roads, harbours and air services (see section starting on p. 296).

The new planning law of 1998 allowed for work of this kind at the country plan level but the government has not yet provided the funds necessary to start such work at the State Planning Agency. In the much-needed national plan on open or green areas in Iceland it would be logical to integrate four aspects: nature conservation, water conservation, areas that need to be kept free because of natural hazards, and wilderness areas in respect of their value to tourism.

Use of overlay maps for each of these aspects could show, for example, how, in certain areas, sometimes three or four of these aspects come together. Such an overlap makes it much easier and more sensible to decide on the protection of an area because it would be justified by several reasons.

As a matter of fact there are various policy options at hand for conserving bird nesting and other areas, but the planners should not only look at the natural history features in their work but rather they should be ready to make compromises. This could mean that an area with a little less importance in terms of the natural environment is conserved if it coincides with other conservation needs.

It is of some concern that one of the fourteen areas proposed for conservation is the Skerjafjördur Fjord and Álftanes Peninsula, both near Reykjavík. There are two important species of birds that stop over there on their migration to Greenland, but if they were not allowed this space, there are other peninsulas and fjords where they could rest and feed, for instance in Hvalfjördur. And it is of concern that a proposal like this seems to be rather indifferent to the limitations that are then put on future opportunities for settlement and transport developments in the Capital Area.

A suspicion arises that the proposal has in part been made to try to stop ideas like building a bridge over the Skerjafjördur Fjord or relocating the Reykjavík Airport from its important central location in Reykjavík to a landfill in Skerjafjördur Fjord or to the Álftanes Peninsula.

Those who make proposals on conservation have to take care not to limit other land uses. If scientists have the tendency to use their power of making conservation proposals that interfere with planning issues in the only major urban area in Iceland, they stand the risk of losing some of the trust placed in them.

Booklet on Öraefi region that was buried in an eruption.

IV National Plans for Sustainability

1 The Ideology of Sustainable Development

The last section described the planning of nature conservation in Iceland, which can be taken as a "system of nature protection" for the whole country. This section, on the other hand, will describe national plans based on the concept of sustainable development.

To start with, the nature protection areas themselves are partly linked to the concept of sustainability, in particular those areas where measures are taken that are intended to assure sustainability, for example for outdoor activities and tourism. If the value of these areas were diminished from use, the areas would not be sustainable and would no longer be able to fulfil the expectations made for them. The "sustainable" approach makes it possible to assure that the asset itself is not damaged, but rather that the use of areas in question can be developed in such a way that the quality is not diminished. In this way the development of activities in the area becomes sustainable and can be continued into the future.

The area where the concept of sustainable development is best known in Iceland is management of the fish stocks. Considerable legislation has been implemented in this area, among other things to regulate the catches so as to maintain the size of the stocks. In this case it is primarily the spawning stock that should not be excessively fished so as to prevent the collapse of the stock in question.

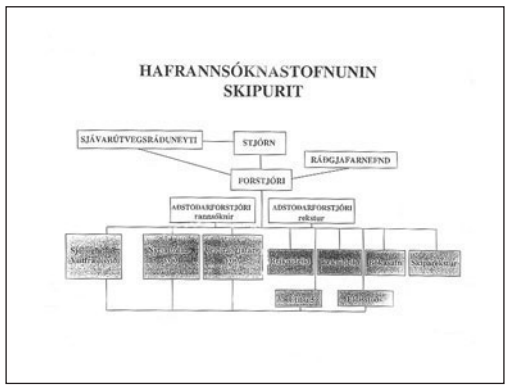
The most dramatic reminder for Icelanders of how important it is to preserve the fish stocks happened in the late 1960's as the over-fishing of herring led to the collapse of the Norwegian-Icelandic herring stock – which was the largest fishing stock in the North Atlantic – in about two years. Conservation practices were implemented, but it took over twenty years to build up a part of the herring stock again. Around 1970 the cod stock had also become reduced even though fishing had not increased.

What saved the Icelanders was that politicians succeeded, with the help of scientific data, in convincing other fishing nations of the danger the fish stocks were in. This, together with the help of USA via NATO in the Cod War against the British, led in 1975 to extending the fishing limits to 200 miles. The extension meant that Icelanders themselves became almost the only people who could make use of these fishing grounds. In spite of this the catch continued to drop throughout the 1970's because of the buying of many new trawlers and fishing boats that then led to increased fishing.

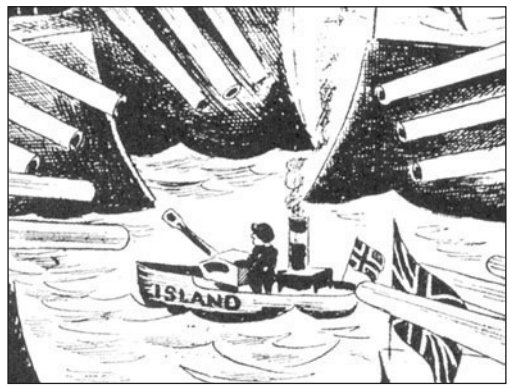
In retrospect we can clearly see that if protection measures had not been introduced in the 1970's, some of the fish stocks would have collapsed. These protection measures were therefore actually implemented at the last minute. If this had not been done, the cod stocks at least would have collapsed and the result would have been what has happened in New Zealand, Canada, the Faeroe Islands and the Barents Sea.

The people fishing in these areas had strong governments to support them as unemployment and depression struck following the collapse of the fish stocks, but Icelanders, on the other hand, would have had hardly anybody to help them out, though it is conceivable that Icelanders could have applied for membership in the EU to become eligible for its relief funds.

It is more than just the overuse of fishing stocks, vegetation and energy that has called the nations of the world to band together to support the ideological concept of *sustainable development*. The UN took one of the biggest



Three main areas of ocean research listed on the bottom left.



A cartoon dating from the Cod War showing an Icelandic gunboat surrounded by the British.

Sustainable development:
A principle that proclaims that the use of resources should not damage or reduce their capacity. Only in this way can their utilization become sustainable. This principle not only covers the natural environment but it also points out the need for the same type of thought in conceiving and analysing social and economic environments because all of these three elements are interdependent.

The concept of sustainable development is hard to define

Six conditions for sustainable development

1. First prerequisite is economic in nature:

Economic growth has to be strengthened in order to be able to carry out projects

2. Technological preconditions:

Environmentally friendly technology has to be developed

3. Managerial preconditions:

A policy has to be formulated and implementation plans have to be started

4. Political preconditions:

All parties in the world and in individual countries have to work together

5. Sociological preconditions:

Correction of social and economic inequalities

6. International co-operation:

Nations have to work together on their common problems and even out fluctuations

The six preconditions for sustainable development in the world. Planned actions have to take place in all these areas in order for things to go in the right direction.

steps in this direction by publishing the report *Our Common Future* in the spring of 1984. This report is sometimes referred to as the *Brundtland Report* after its Norwegian chairperson.

The report lists six prerequisites that are necessary so that sustainable development can be maintained in the world.

The first prerequisite is economic. Here the committee puts a heavy emphasis on rekindling economic growth in the world because only with a strong economy are countries able to solve environmental problems.

The second prerequisite is that technological development should be strengthened toward producing a clean environment, meaning a technology that leads to reduced use of energy and materials.

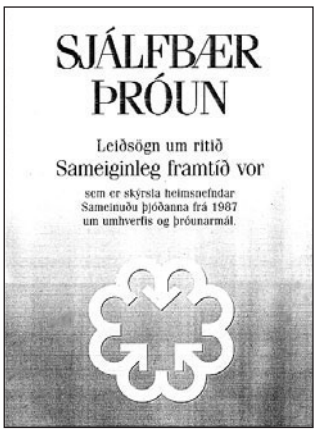
The third is of a governmental nature and points out the necessity for policies and programmes that can bring the world closer to sustainable modes of working. This requires a new type of management.

The fourth prerequisite is political and demands world-reaching co-operation of leaders of companies and governments and more participation in societies on the whole. This requirement means that information of various types needs to be made more accessible, for without information the public, companies and associations cannot become active participants in the political process.

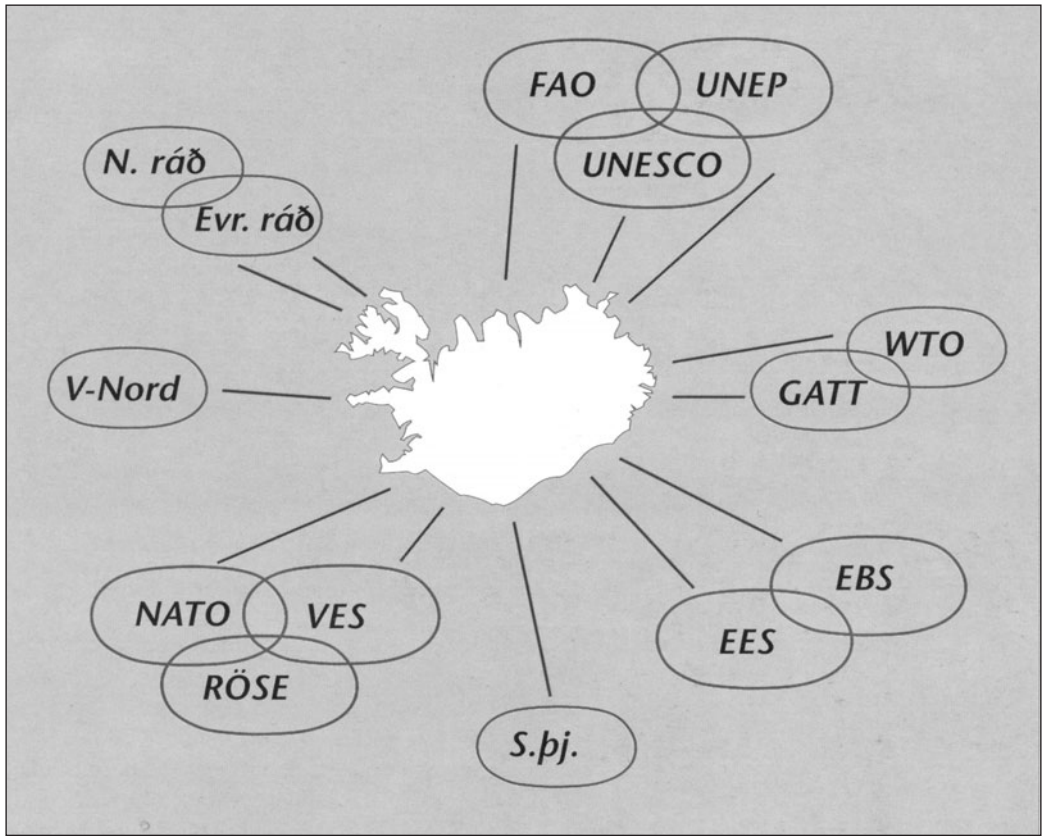
The fifth condition is that nations need to work with the social aspects of environmental matters because social and economic inequities are some of the primary reasons for social conflicts among nations, conflicts that lead to environmental damage and encourage poor nations to use natural resources badly. The lowering of economic standards because of conflicts means that nations have to invest a great deal of money into social support, leaving less money to bring environmental concerns up to standard.

One of the biggest social issues is to control the population growth of the earth, both within individual countries and in the world as a whole. If this is done, people can be provided with a better quality of life and the strain on the environment can be reduced because an increased population often leads to less income per capita and, at the same time, more environmental stress.

The sixth prerequisite is the need for more international co-operation. This is because



The first booklet from the Ministry for the Environment.



The beginnings of international co-operation started in detached areas. Of late issues tend to interact often with the environment as a focus.

pollution does not recognize borders and can only be solved with international co-operation. One example is the danger to the Icelandic fishing grounds because of pollution by long-acting cancer-causing materials that are brought to the country by wind and ocean currents.

The Brundtland Report made it clear in1987 that the nations of the world needed to pull together to take action against these problems. This.groundbraking report was a good foundation for the second world conference of the UN on environmental matters held in Rio de Janeiro in 1992.

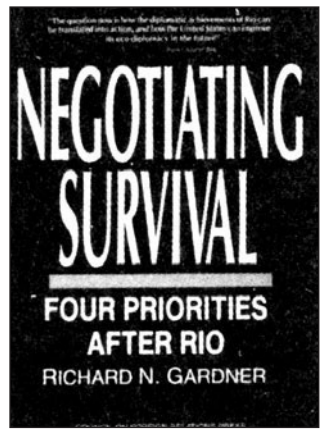
The Rio Conference agreed upon an agenda for the twenty-first century called Agenda 21. Based on the overall ideology of this agenda, the individual nations were asked to formulate their own environmental policies and also to create an implementation plan to follow up on the agreed goals.

Discussion of the environment has, for the most part, ignored issues connected to the built environment, but a change occurred at a special world conference in Istanbul in 1996. At this conference the countries presented their ideas on how to work on the environmental issues of cities and urban areas.

In the autumn of 2002 the third big conference of the UN was held, this time in *Johannesburg* in South Africa. This conference reviewed what progress had been made and found that the developed countries had managed to bring about some positive changes, but that the poorer countries needed to meet the economic prerequisites to be able to tackle the issues.

In reviewing what had happened in terms of the six prerequisites for sustainable development postulated in the Brundtland Report of 1987, we can see that it is primarily within the political area where little progress has been made – especially lacking is social equality.

The largest part of the world population lives in the third world and environmental matters will not improve in these countries unless the political and social prerequisites can be met. Without more success in this area, there is little hope that the underdeveloped nations will be able to make the necessary effort to manage their environmental problems.



A book on the 4 priorities after the Rio Convention.

2 State Policies and Plans on Sustainability

One of the main points in the discussion on environmental issues in the last decade of the twentieth century was that all nations needed to agree on common goals for dealing with environmental problems, even though some of the nations did not share the same problems. This thought was turned into a single phrase: Think Globally but Act Locally.

In order to make this happen most of the member nations of the UN were asked to sign a declaration of intent as concerns the formulation of common policies as well as plans on how to deal with environmental problems. To be effective this project has to be carried out at two government levels: on the one hand, national plans needed to be created, and on the other, it is necessary to mobilize lower levels of government, those of regions and communities, to work on *local agendas*.

As the Rio Conference of 1992 was being prepared, all member nations of the UN were asked to deliver a report that described the status of environmental matters within their countries. The Icelandic report was published at the conference and is named *Iceland: Environment and Development*.

Prior to the conference several committees had been at work to prepare policy for various fields. Based on the work in the Rio Conference, an international action plan for improvement of the environment as was approved by the member nations. This document is called *Agenda for the Twenty First Century*, in short *Agenda 21*. The report contains forty sections covering 115 areas of work and totals about 400 pages.

The central idea of the concept of sustainable development is that the environmental problems will not be solved unless economic development is strong enough so that people can deal with the environmental problems that necessarily accompany modern development. A further definition says that development should not transcend the limits of utilization of the life systems of land and ocean or else the productive capacity of land and sea will be reduced.

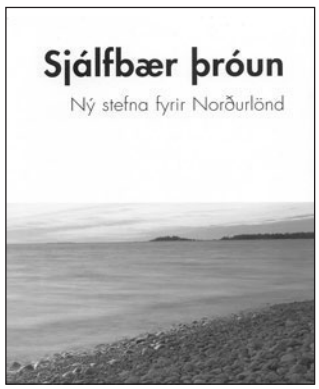
After the Rio Conference all UN member states were asked to put together a policy on how they were intending to introduce the idea of sustainable development at home, as well as global responsibility and other aspects described in Agenda 21. This report the Icelandic government had completed in 1993 and then sent to the UN. This report is called *Á leid til sjálfbaerrar thróunar* (On the Road to Sustainable Development).

This report starts by tracing, rather candidly, what is the status of the main aspects of environmental matters in Iceland, for instance, that the soil and vegetative cover of the country have been reduced by at least 80% since the original settlement in the late ninth century.

The report also states that the allowable catch quota for cod has for many years continually been reduced. The report also admits the fact that an estimated 47% of the catch of the freezer trawlers and about 15% of the wet fish trawlers' catch is thrown back overboard.

Let us now look at the process applied to reach the objective of sustainable development. Once the goals have been clarified and the policy formulated, the next step is how to plan to implement the agreed goals. In Iceland the Minister for the Environment appointed seven task groups in 1993 composed of 124 people. In the autumn of 1996 a draft for the programme for 2000 was issued.

All nations had to prepare a report for the Rio convention.



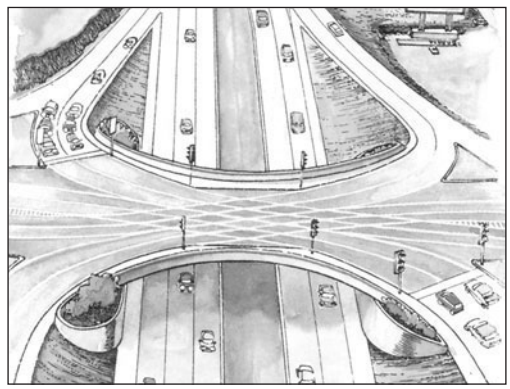
The Nordic countries have a common strategy.

Reykjavík has the goal of becoming the most environmentally friendly capital of the north. To achieve this goal Reykjavík has created an environmental policy.

It is the goal of Reykjavík that the concept of environmental protection will guide the running, directing and building up of the city.

It is the goal of Reykjavík that its environment will be attractive and healthy, emphasizing the well being of the citizens.

From Reykjavík environment policy: How can a car city become an example in environmental matters?



To provide for road safety is good, but it often comes at an environmental price.

Local agenda - summary
Local agenda for Greenfjord - summary
Natural pollution
Quality of fresh water
Noise and air pollution
Cultural artefacts and nature conservation
Education on the environment in schools
Energy saving measures
Termination of pests
Goals by various environment aspects
Sewage mains and sewage systems
Waste from homes and companies
Toxic chemicals
Emptying of septic tanks

From the table of contents of a book published to guide certain municipalities in formulating environmental plans.

The next step was that the Minister announced the first *Environmental Assembly of Iceland* in November 1996. In this assembly several work groups reviewed the draft and, based on criticism expressed at the assembly, the Minister amended the draft.

The programme was approved by the government in February 1997 and published early in the summer under the name *Sjálfbaer thróun í íslensku samfélagi* (Sustainable Development within the Icelandic Society).

It was not enough that the state set such environmental programmes – ways also had to be found to encourage the individual communities to work on such plans for their own area. A joint contract was therefore agreed in 1998 by the Ministry for the Environment and the Federation of Local Governments.

The contract has the aim of helping each community to prepare Local Agenda 21. Such local agendas are meant to define the goals of the community in question and describe how the community intends to change planning and other types of programmes so that the goals of sustainable development can be realized.

A guide was published to help the communities on how to do the work. The text box above gives a part of the table of contents of this book, showing the most important subject groups. The making of these local agendas has been proceeding rather well and the agenda for the town of Akureyri is one of the best.

Some of the smaller communities, however, have not yet started the work. This is an example of how very small the smallest communities in Iceland are as they are like the poorest countries in the world when it comes to dealing with the greatest environmental problems: they lack the wherewithal to fund change and therefore the impetus to formulate the necessary policy.

Policy making in the wake of the Rio Convention.

Implementation plan to ensure that the policies are followed.

V The Integration of National Plans

1 The Lack of Integration

There is a considerable lack of integration in planning in Iceland. It is of most importance in order to achieve large-scale integration, to start at the top of the decision pyramid by developing a vision. The next step is to create a policy and the third to decide how the policy can be translated into plans and programmes.

This is the three-step method that is widely used in the planning or restructuring of large companies. In cases where we are dealing with the planning of a whole country, or a particular subject group that is political in nature, the task becomes much more difficult.

This is not least because of the common disagreements in the political arena about a party's vision. Ideally, it should be one of the main tasks of the politicians to describe their party's own vision and to debate the question with others that are politically involved.

Early in the twentieth century some countries created integrated state visions. These were mostly Communist countries and other dictatorships like that of Germany, Italy and Spain. The common vision of these monolithic nations made it rather simple to let the various state plans merge into the same vein and thus they were often successful in formulating a programme.

A famous example is Hitler's goal to increase the speed of transportation between the various parts of Germany via the Autobahn highways. The German Reich also planned, on behalf of the state, to make the car readily available to all; for this purpose a small car was designed called the Volkswagen – The People's Car.

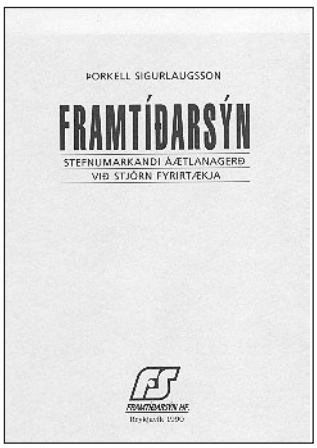
What helped these dictatorial governments to come to power was mainly the political chaos in these countries at the time as well as the Great Depression of the 1930's. People wanted to get out of their problems at whatever price. What made these dictatorial governments so successful was that their power was so extensive that they could create highly pointed and integrated plans to aim for.

The times provided many opportunities for progress – in transportation, industrialization and the creating of social welfare systems – so state plans in these fields were successful. Like Hitler, Stalin created comprehensive plans for a set term, for example five years, at the end of which certain goals were to be reached. In general it can be said that the results of these extensive plans pulled these nations out of their misery much faster than would have been possible otherwise.

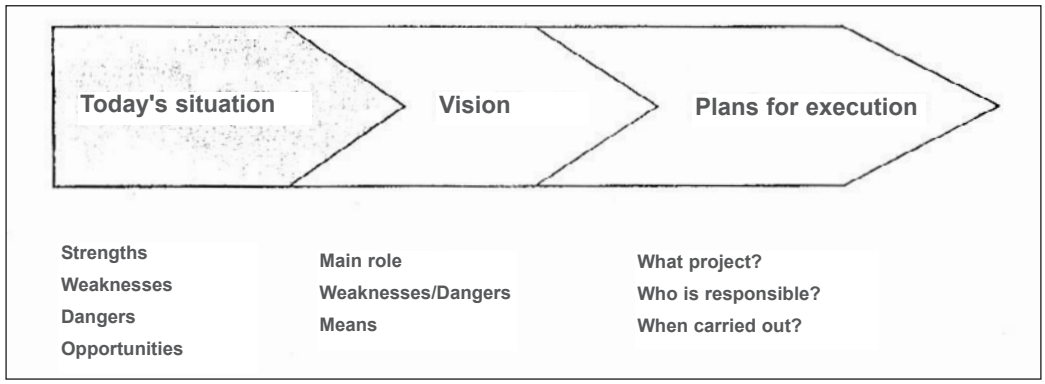
After World War II, the Western World realized that plans were needed to prevent the development of political forces that could otherwise develop into political extremes, as known in the Third World. Development aid was planned in a manner comparable to that of planned economies.

The idea behind aiming for increased prosperity was that people saw that poverty and political chaos were usually the main reasons for extreme political movements. These plans are called development plans and the countries the developing countries. The USA was the first to start work in this area with a grant programme financed by the Marshall Plan. A prerequisite for receiving a grant was that the countries had to subscribe to the political and social goals that the USA considered agreeable.

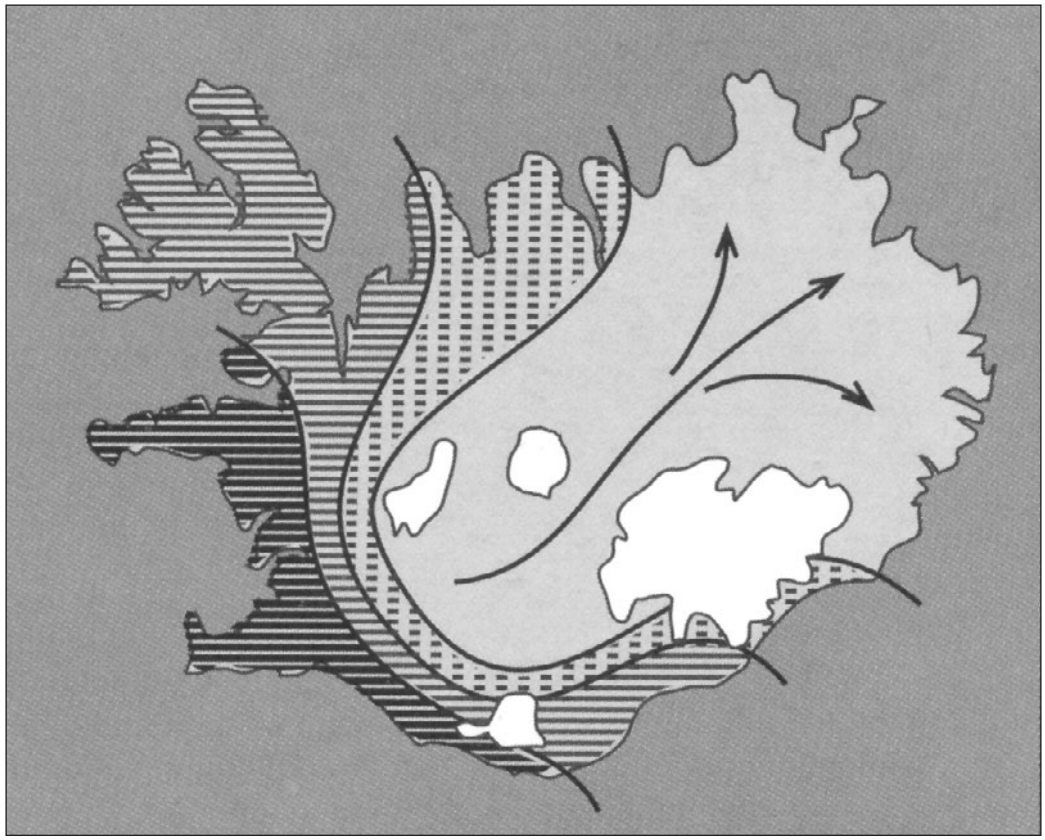
These political prerequisites meant that the states of Eastern Europe were not applicable for Marshall Plan aid, which furthermore was one of the reasons why Eastern Europe did not develop as fast as the Western part of Europe.



Book on creating a vision in marketing science.



Three stages of policy making: analysing the situation, a vision of the future, and finally making a plan where production is organized e.g. in terms of timing and responsibility.



This picture shows, in 3 stages, how road traffic has overtaken areas earlier serviced by air. Knowing that would happen should have led to a rise in road building and a reduction in airport building.

In addition, these countries lacked the role models that had been so common in Western Europe and, since Western Europe was bombed so thoroughly, they could begin with a clean slate.

When the *World Bank* was established, for the most part it had the same goals as the *Marshall Plan*. Iceland had rather easy access to this bank because politically Iceland followed the "right" ideology. Furthermore, the need for the building of a basic infrastructure in various fields was great in Iceland.

At the same time the UN started to offer assistance in the making of development plans in many countries, Iceland being one of them. Thus a manufacturing industry development programme and a programme on the future development of tourism were created around 1970.

Even though planning and theoretical work have been applied to the building up of various systems and economic pursuits. in Iceland in recent decades the fact remains that there is much lack of integration or co-ordination of these plans. Lately there have been some developments that should facilitate integration, for instance in the field of information technology. The drawbacks of not having worked in an integrated way in planning can be seen in the little co-ordinated development of the land, sea and air transportation systems in Iceland.

As we review this area of transportation today we see that it would have been possible to save large amounts of money with co-ordinated planning. More road improvements could have meant developing fewer harbours and airports. Today, with an improved road system, many of the airports and harbours built in the last few decades have become unnecessary, though at the time even those close to the capital were needed as interim measures.

The fact, however, remains that if the government had started to work on integrated goals around 1960 then the number of harbours and airports that were built during the 1960's and 1970's, during the time of maximum construction, could have been avoided. The improvement in the transportation system was central to strengthening Iceland and therefore an application was made for loans from the World Bank. The World Bank's policy, however,

The Stykkishólmur airport has no commercial function.

was to grant loans only on condition that a feasibility study be carried out. In the case of Iceland's request, the Bank asked: What is your future transportation policy?

In order to be able to answer this question, Iceland had to hire a company which specialized in this type of transportation planning. The company hired was the Danish *Kampsax*, which started work by creating a vision of the Icelandic transportation system. The project was started in 1968 with the idea of creating a transportation plan for Iceland for 1969-1976.

Specialists from Kampsax came to Iceland and worked with Icelandic institutions within the transportation field as well as with the Economic Institute. The total report consisted of a thorough analysis and plans for the future and amounted to about 1200 pages. The proposals that Kampsax made were similar to what has been described earlier: that it would be possible to get by with many fewer harbours and airports. The report therefore suggested that the number of harbours should be decreased to a maximum of ten to fifteen. The report furthermore proposed that the number of domestic airports should be decreased to nine or ten, excluding the Reykjavík Airport.

To follow up on this policy, the plan proposed to develop a local transportation system around each of these harbours and airports or a *Radial Distribution System*. Finally, the report points out that warehousing should be placed at such central nodes of transportation, making it possible to integrate the various modes of transportation.

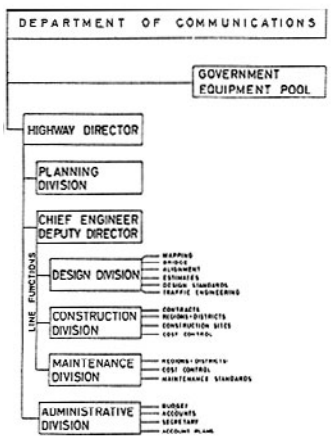
Within the area of regional development the first real attempt to integrate ideas and projects was made in the first integrated regional plan of 1994. The *Regional Development Institute* held meetings with the heads of all the ministries to discuss the need for the integration of the plans of the various ministries. Unfortunately the ministries were reluctant to give up any autonomy, which would have been necessary to integrate their individual plans with the plans of others. The reason for this is probably that in Iceland there is a tradition that the ministries and the ministers are very independent in their operations.

The *Prime Minister* does not have the power to become involved in the tasks of the ministries, something he would need in order to be able to co-ordinate policies. In many countries the Prime Minister, or the President, has such authority but in Iceland the Office of the Prime Minister is very small and the Prime Minister functions almost like a chairperson when the cabinet ministers meet.

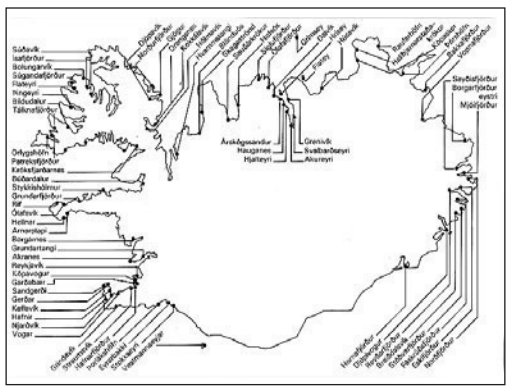
In some countries all the main issues that concern infrastructure development are the responsibility of a single ministry, which makes it considerably easier to co-ordinate plans and programmes. As there is no such single ministry in Iceland, co-ordinating would have to be worked out in groups created by representatives appointed by the ministries or in institutions created for that specific task. The various institutions would then need to accept and abide by the policies made by the special groups. In the eyes of an Icelandic minister who is used to working almost individually, this would probably mean an unacceptable infringement of her or his power.

In addition to the structural problems arising from the independence of each ministry it is also a fact that Iceland, with its parliamentary democracy, has so far had only coalition governments. The ministries are therefore divid-ed up among the political parties forming the coalition so that there is competition among the ministers to make their own area of responsibility look as good as possible when they come up for re-election.

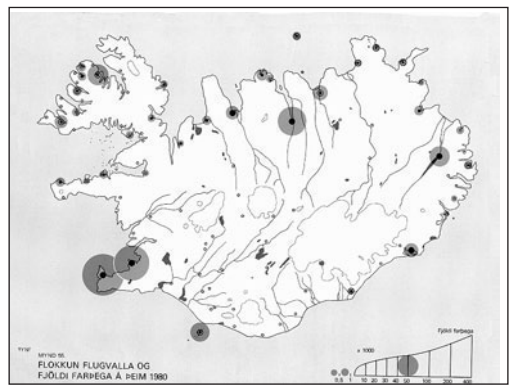
The best method for creating integrated plans



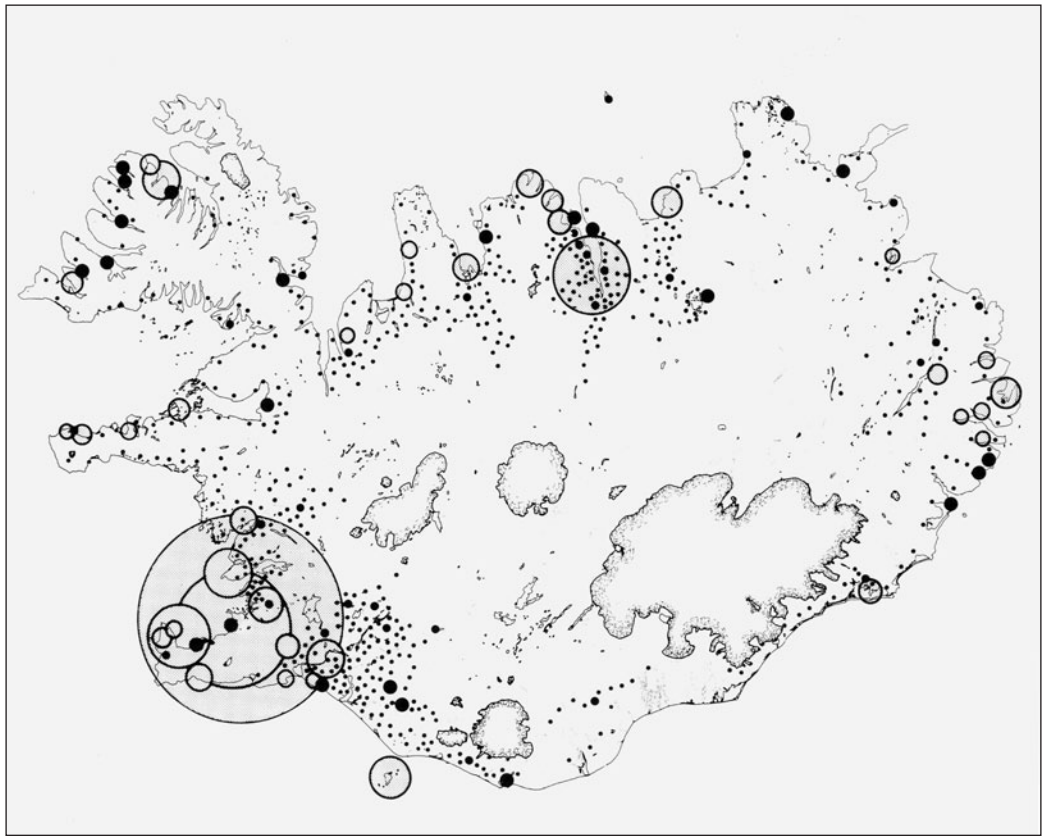
The proposal of Kampsax for the Directory of Roads.



Most fish processing is now concentrated in few towns, most these harbours are still maintained.



Airports in Iceland 1980. Today regular services are only to a few of them.



Settlements are quite scattered in Iceland and there are few areas of concentration. Distribution of inhabitants in 1981. Small dot: 50 inhabitants; most common size of towns, 5000 inhabitants.

has therefore turned out to be giving the ministers themselves their individual sections. This makes it possible for the minister to refer to the section as her/his private initiative as the advantages of the programmes are being realized.

What is most surprising about the lack of integration of plans is that even plans that are related and are the responsibility of the same ministry – like the plans for roads, harbours and air transportation – also typically lack co-ordination.

For a long time there was talk that within the transportation field that there should be a good possibility of working on integration because the transportation modes are all technological subjects, directed by engineers, some of whom have even gone to school together. In 2000 a decision was finally made by Sturla Bödvarsson, the Minister of Transport and Communication, to commence making an *integrated transportation plan*, a plan that described in the following section.

It is elementary in such co-ordinated work to agree on a common vision and a common estimation of the future of the various transportation aspects. The work on such a vision was carried out in connection with the co-ordinated planning. A prerequisite for being able to visualise the overlapping of the three transportation plans for land, sea and air was that clear ideas had been formulated on what the development of each of the three plans would entail if they were to proceed individually. The creation of ten-year plans for the three aspects of transportation was therefore necessary as a preparatory step.

The first proposal for a long-term road plan was presented to the Althing in the winter of 1982 – 83. According to the law this plan was to be reviewed every fourth year and at the same time four more years should be added to the duration of the long-term plan. In actuality, the long-term plan was first reviewed in 1991 and then again in 1998, and the plan extended to 2010.

Tillaga til þingsályktunar

um langtímaáætlun í vegagerð.

(Lögð fyrir Alþingi á 113. löggjafarþingi 1990–91.)

tar að á næstu 12 árum skuli eftirfarandi fjármagns afla
skal varið til framkvæmda í vegamálum samkvæmt langti

1. Áætlun um fjáröflun.

æðir í m.kr. áætl. meðalverðl. 1991. skv. fjárlögum (vt.

23
26
28

12-year plans for roads have been made for two decades.

2 Integration of Transportation Plans

The concept of an *integrated transportation plan* was carried out in a logical way in the Kampsax plan for Iceland in 1969. This was made to fulfil the requirement set by the World Bank for a plan before the bank was willing to finance the development of the transportation system. The loan was received and a large programme of road construction was set in motion. Until that time only the road to Keflavík had been paved, in 1965. This road had been built with the financial assistance of the USA because the road had been needed in connection with the military base in Keflavík.

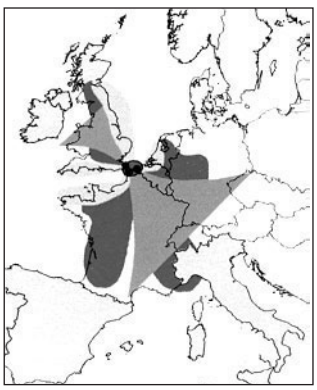
In 1970 paving of the West and South roads, east of the Ellidaár River, was started. The way that the Althing decided on various transportation projects in the ensuing years demonstrated that it was not their intention to pay much attention to what the Kampsax Report had proposed. As elsewhere, the MP's were usually busy pushing for the building of harbours, airports and roads, within their own constituencies rather than being concerned with a national plan. Now and then, however, there were reports consonant with the concept of integrated transportation planning, like those in 1979 and 1991.

The main reason why the Icelandic government have of late ventured into systematic research on various operating costs is the approval of the *EEA Agreement* of 1992, as Iceland was included, together with some other EFTA countries, in the *European Economic Area*. In conformity with this agreement Iceland has had to accept various laws and regulations from the EU about the activities regulated within this economic zone. The fundamental concept underlying these laws is that no political party is to disrupt the competitive position of the others, for example among the transportation modes. For example, transportation fees are not allowed to contribute to an imbalance. This basic principle is valid both in terms of individual countries and in terms of individual fields of transportation.

At that time much work had already been carried out within the EU to make all types of costs visible to equalize the competitive position in transportation, for instance by unifying technical standards. In order to adhere to these standards Iceland had to adopt the European standard of 11.5 tons maximum per axle, even though earlier roads and bridges in Iceland had only been built to withstand a load capacity of 10 tons per axle. If this principle of unification of standards is not followed, European transportation equipment cannot be used effectively and economically on the Icelandic road system and would constitute a *technical commercial barrier*. After Iceland had signed the EEA Agreement, like other nations it was allowed a period of deferment to adjust to the new regulations. Recently, however, the pressure has increased for Iceland to amend its planning to conform to EEA regulations.

Within the EU in the last decade of the twentieth century work was done on several aspects of transportation within the member nations, including passage of a frame law which was written to support sustainable development. The largest project, however, was the TEN-T Plan that has the aim of co-ordinating and improving the transportation systems of Europe. In order for these plans to be realized considerable investment has been made in projects that conform to the goals of the plan.

The EU stresses integration of transportation so that goods can go almost unhindered from



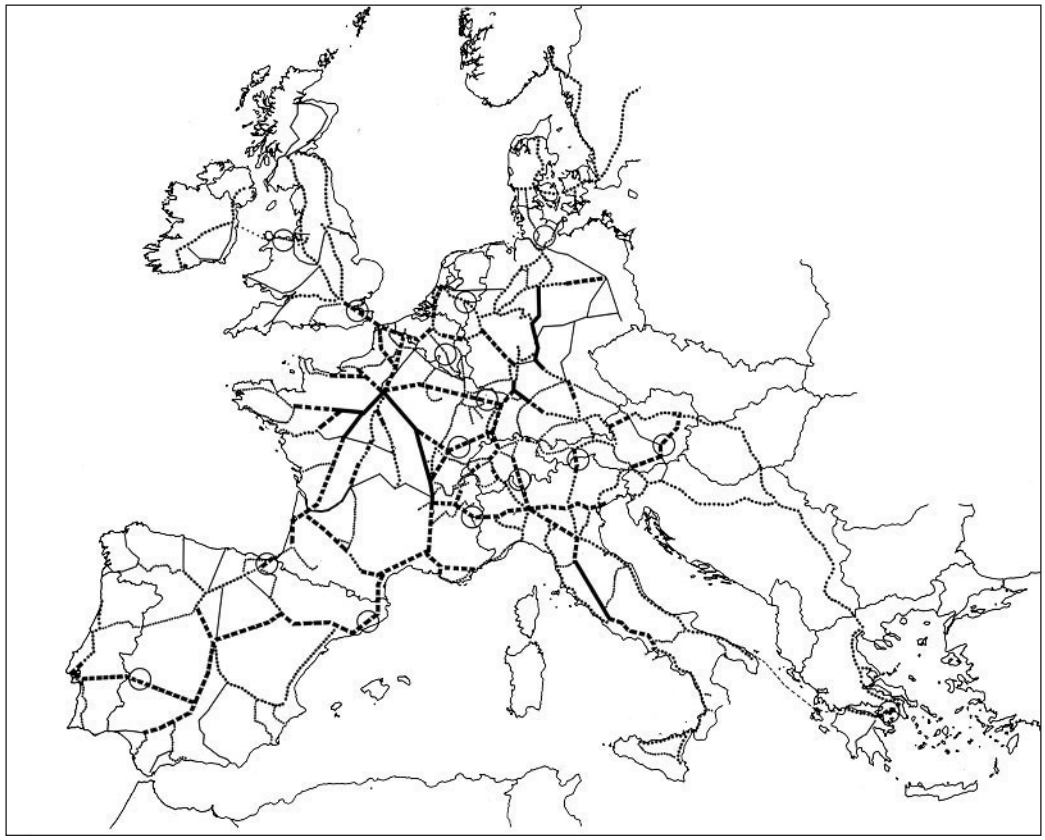
A map showing the impact of the Channel Tunnel.

Reglugerð um stærð og þyngd ökutækja
Samanburður á ásþunga, í viðauka 1 og 2

Ásþungi er miðaður við að bil milli ása sé 1,3–1,8 m á tvíás og 1,3–1,4 m á þríás	Ásar	Þyngdir í tonnum Viðauki 2	Viðauki 1 ESB	Drifás
Ás með tveimur hjólum		7	10	Blaðfjaðrir 10,5
Ás með fjórum hjólum		10	10	Loftfjaðrir 11,5
Tvíás með fjórum hjólum		11	18	
Tvíás með átta hjólum		16	18	Blaðfjaðrir Tvö drif 18

A chart showing allowed axis loads e.g. in connection to number of wheels per axle.

Loads have to be controlled because of the limited carrying capacity of roads.



The most ambitious plan of the European Union is to build a high speed train system throughout Europe. The plan emphasizes that other systems will be linked to this system.

door to door and so that all transportation modes on land, sea or air are equally available with obstructing factors. Now transportation and insurance companies are permitted to work in all the transportation areas at the same time.

Together with the work on taxes and legal frames the EU has also worked on physical and spatial planning for Europe. In the area of transportation this means seeing to it that the different infrastructures meet in transportation cities or centres to facilitate connections.

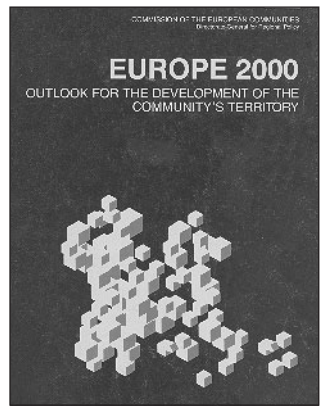
If this is done the distance between an airport and a railway station is not a hindrance in the transportation of people and goods between these two transportation modes. As a part of this plan, express train connections have been built at various airports in Europe so that people can walk almost straight from the airline into an express train and continue their journey.

One of the most important transportation policy documents within the EU is the *Green Book*, published in 1995. This book deals primarily with pricing within the transportation systems. The main emphasis is that all fees are to be fair and visible. In 1998 the policy of the *Green Book* was followed with the publishing of the *White Book*, which provides a more detailed spelling out of the advice contained in the *Green Book*.

One of the proposals of the *White Book* is to change the current taxation into service fees for the use of the transportation systems as well as fees for various side effects which the use of the systems results in. This has the goal of improving the use of transportation facilities and protection of the environment.

As an example, if this new type of fees is accepted and the fees are adjusted for the road each person uses each time, people can choose to travel during times when the traffic is not as congested. This will happen if the fees are lowered for the less frequented periods.

Electronic possibilities are already available for measuring the use of a road by vehicular traffic and such use can be calculated in relation to the weight of the vehicle and the time of the day. This opens up possibilities for creating user fees for these periods and would provide an incentive for drivers of cars and lorries to avoid peak congestion and lessen their fee costs by searching for more economical patterns in their transportation routing.



The first European overview of spatial development.

The three modes of transportation in Iceland – by land, sea and air – could have a somewhat different position in terms of the new transportation policy of the EU. In order to have this clarified, the Ministry of Transport and Communication asked the *Economic Institute of the University of Iceland* to ascertain how much the state contributes to each of the three traffic modes, both in terms of infrastructure and of operating costs.

One of the findings of this report is that the user fees for domestic flights in Iceland are too low and need to be raised, even as much as two or three hundred euros for each flight. According to the EU this fee should be added to the price of the airline ticket so that the state could regain the costs.

As for the use of the harbours, recently goods that earlier went by ship are now transported by road. Those speaking for the harbour facilities point out that the state is subsidizing transport by road as the lorries do not pay enough taxes to cover the cost of road construction and repairs needed because of their heavy loads. The heaviest transporters damage the roads much more than does regular traffic.

In order to include the load weight of a vehicle as part of the user fees, the authorities would need to have weighing stations at certain points along the routes most used or alternatively to insert gauges at certain points so that the meter in the vehicle not only shows the distance driven but also the weight of the load.

Combining the parameters of distance and weight can yield a more realistic user fee in relation to the resultant road damage. It is in light of these planned European developments that the traffic authorities in Iceland have realized that Iceland must also be prepared for the introduction of the same practices.

Without doubt this was one of the greatest incentives that led the Minister of Transport, Sturla Bödvarsson, to decide in 2000 to start work on an integrated long-term transportation plan for Iceland.

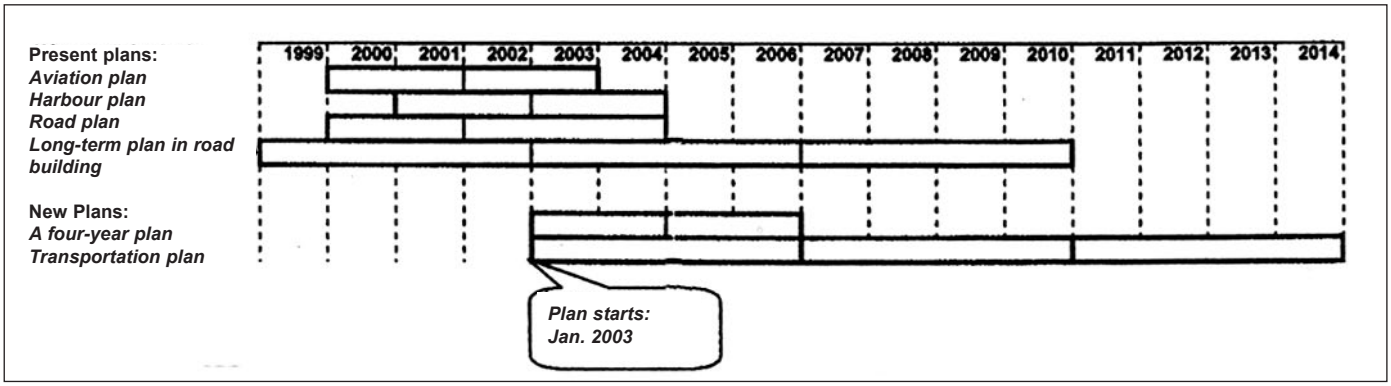
The time frame was divided into two parts. First, a plan covering the period until 2030 was agreed, and for that purpose a work group was established with members from outside the transportation sector. Secondly, three work groups were created, all under the guidance of and appointed by people that were employees of the three transportation institutes in Iceland.

In order to manage this project a steering committee was formed by the heads of the three transportation institutes: Helgi Hallgrímsson of the Public Roads Administration, Thorgeir Pálsson of the Icelandic Civil Aviation Administration, and Hermann Gudjónsson from the Icelandic Maritime Administration. Vilhjálmur Th. Vilhjálmsson, chairperson of the Federation of Local Governments in Iceland, was appointed chairperson of the committee.

It was necessary to have as chair a person outside the transportation institutes because the directors tend to opt for their own sector and are also under pressure, both from the people they work with and from others connected to the transportation sector.

There were three work groups: *1. The Economic and Legal Group*, which dealt with governmental decisions for the governmental structure, the division between state and governments and the financing of the transportation system, among other things. *2. The Environment and Security in Public Transportation Group*, which saw to international tasks. *3. The Transportation Group*, which dealt with the strengths and weaknesses of the transportation modes, transportation and regional development, and the social benefits of a good transportation system.

The groups were given the task of creating both a four-year traffic plan and in addition a



The integration of aviation, harbour and road planning into one transportation plan – and a four-year schedule for implementation. The bottom line shows that the twelve-year transport plan is divided into three four-year periods.

EEA (European Economic Area)

WTO (World Trade Organization)

ECMT (European Conference of Ministers of Transport)

ICAO (International Corporation of Aviation Organization)

JAA (Joint Aviation Authority)

IMO (International Maritime Organization)

IRF (International Road Federation)

IALA (International Association of Lighthouse Authorities)

PIANC (International Navigational Association)

Paris MOU (Memorandum of Understanding)

OECD (Organization for Economic Co-operation and Development)

ECAC (European Civil Aviation Conference)

In creating the transportation plan, obligations and directives from these international organizations had to be taken into consideration.

plan for the period until 2014. Moreover, the groups were supposed to take some bearing on a vision for 2030. One of the first tasks was to study the strengths and weaknesses of the various transportation modes and to assess developments in the near future, possible higher oil and gasoline prices coupled with any added cost because of growing environmental concerns, both of which would slow down the growth in transportation.

The next task was to trace the latest developments within the three transportation sectors and study how they have influenced the development of settlements.

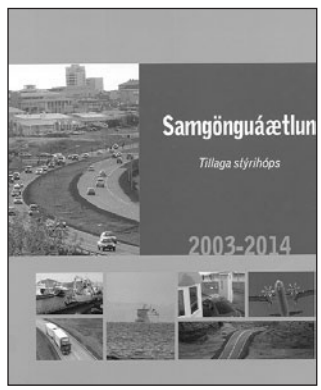
One of the findings was that there had been a great deal of harbour construction whereas income had been on the decline at some of the harbours, partly because coastal shipping had declined.

Air transportation turned out to be the same story: there had been a considerable build up of airports but their use had declined, with the result that construction and maintenance costs would have to be distributed over fewer users if and when the user fees are calculated according to the new EU policy.

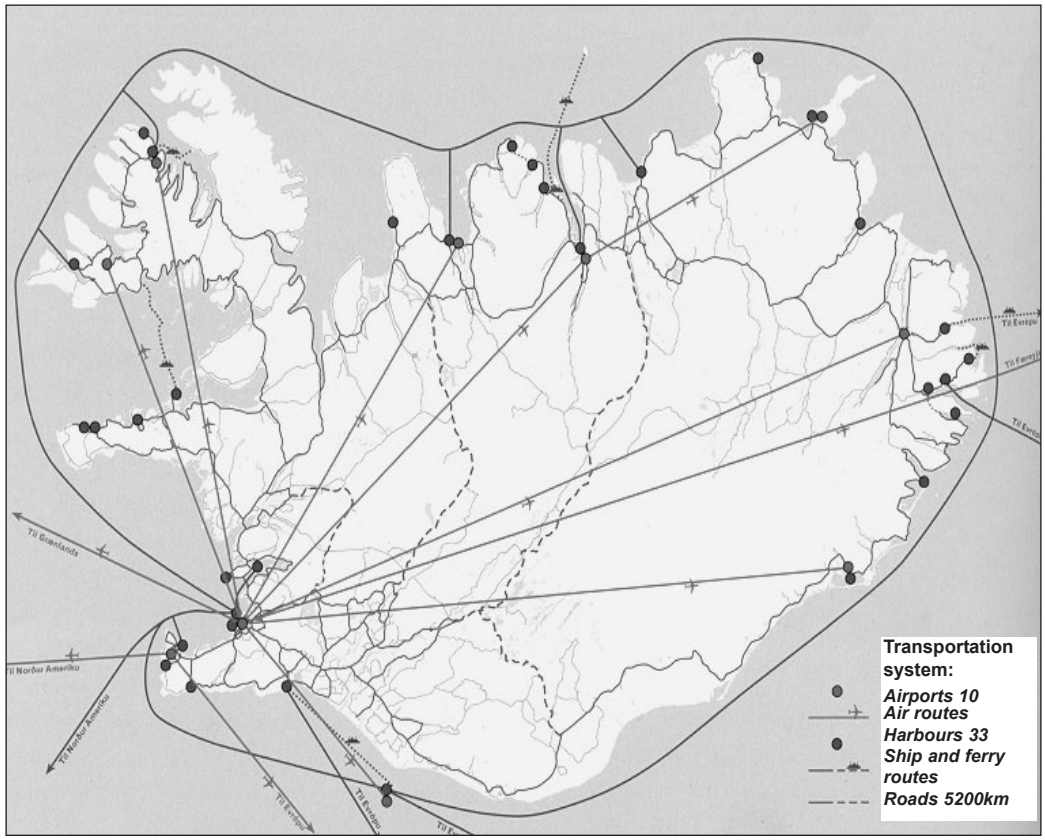
It has also been pointed out that regular flights have already been abandoned to certain airports that are close to Reykjavík, but these airports are nevertheless kept open by the state for occasional flights, such as for the sick. As these costs are transferred to the costs of other flight routes this will make them more expensive to run. Because of this, there has been talk of transferring some of the costs of these airports from the state over to the local authorities.

As for surface transportation, the roads have been increasingly improved with asphalt paving. Winter services have also been improved, including more frequent shovelling of snow, better maintenance, more informative traffic signs, and better information about weather conditions. Scheduled bus services have, however, been on the decline.

Improved transportation leads to the expansion of potential employment areas. An improved road system can also make it possible to lessen the number of service centres, both private and governmental. In addition, the state is pulling itself more and more out of the sphere of occupational activities such as telephone and banking services.



The first intergrated transportation plan.



The transport proposal of 2003–2014 included a basic transport net in Iceland. It is interesting to see that four highland routes are included this basic scheme.

Demands for profitability in running such services will therefore increase, which calls for rationalization and efficient organization. This will mean in turn that the number of service centres in the countryside, just as in the urban areas, will be reduced.

The increase in e-business will also lead to a reduction in the number of service centres. It is important to underline that, even though this development may turn out very badly for some small places that no longer have a post office, a telephone office or even a gasoline/petrol station, a good road system leads to the creation of larger marketing and shopping areas and the strengthening of shops in those areas and in turn lower prices.

The bottom line, however, is that in spite of the better roads, the changes in service structure mean that people in the more distant places have to travel farther to be able to make use of these improved and lower-priced services.

A reduction in the number of airports and harbours seems to be possible in the future. To a certain degree, this could happen almost automatically as maintenance costs exceed income and those harbours and airports with least use will be closed down. This will lead to somewhat worse settlement conditions in certain small and distant places but will, on the other hand, strengthen the larger places and thus gradually lower the investment costs within the three transportation sectors.

Government aid is a fact in many transportation and regional areas of concern in Iceland today. In general, the EU approves of regional assistance as well as assistance for people living in areas that badly need such governmental help, so it will be possible to lower transportation costs in these areas by state grants.

What will happen first, however, is that these costs will be made visible. After that it will be easier for Iceland and the EU to decide which of these grants should be continued, but the future, certainly, is the new system of user fees.

The map above shows the proposal of the *Transportation Plan for 2003-2014*, giving the routes that will make up the *Transportation Net*. This net consists of the three transportation modes-land, sea and air, as well as of the connections to foreign countries.

Framtíðarsýn samstarfshóps
um samgöngur

Inngangur

A vision of the future until the year 2030 was created.

VI A National Plan for Tourism

1 Policy Making for Tourism

Let us now turn to tourism as an important part of *Book Four: Development of Systems on a Country Scale*. The development of systems within the field of tourism started, as in most other fields, with small steps.

The first small steps were only linked to certain places and actions, but lately tourism has become an influential factor in the development of the basic core of the settlement structure. This core has the function of linking various aspects and helps provide a structure that creates a single whole out of leisure activities, sports and culture, together with the development of the country's general services.

Tourism differs from what has been described earlier in that we are not dealing here with the utilization of single isolated aspects but rather social systems. A brief review of the preceding five sections shows that they cover all the most important systems that tourism is based on. Even the social infrastructure that was described in chapter I – schools, hospitals and health centres – are integral in promoting and offering tourists services in Iceland.

Surprisingly, the schools have played an important part in tourism because initially the dormitories created the opportunity for running summer hotels in the countryside. Even now that other accommodations are also available in the countryside, the schools remain important for their kitchens and dining rooms and other facilities, and many of them are still run as summer hotels.

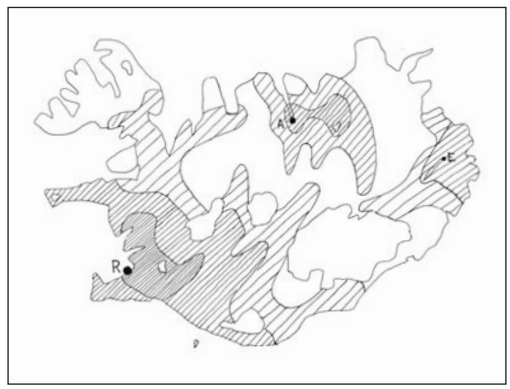
Chapter II described the making of regional plans and special efforts concerning electrification, geothermal heating and transportation. These technological systems are also important as basic systems of tourism, and what is especially positive about them is that the over-capacity in the countryside has been utilized in the service of tourism. This has meant that only in a few cases has extra funding been needed for the development of tourism in Iceland.

Tourism has become doubly important to those in the countryside because, given the decrease in income from agriculture and other sectors, it has helped to fill the gap and has become a very positive alternative. Unfortunately, however, not all areas in the countryside have enjoyed the benefit of tourism. The areas that have most profited from tourism are Borgarfjördur, the southern lowlands, Akureyri and the Lake Mývatn area.

After the Ring Road opened in 1974, driving all the way around Iceland became possible, which led to an expansion of tourism farther out into the countryside. Many people availed themselves of the opportunity, the first in the history of Iceland, to drive all the way around the island. The increased traffic on the Ring Road has meant that places by the road or close to it have especially enjoyed the positive effect of tourism. The problem with the Ring Road, however, is that it is too long, or about 1400 km, so that it is not well suited to the most common types of tourist journeys.

Chapter III traced how a system of nature conservation areas in Iceland has gradually been building up and even though these protected areas have not been set aside expressly for tourism, the fact is that the promotion that such areas receive has made them desirable places to visit. Many of the facilities that are created in protected areas, such as trails and information centres, are made use of by the tourist industry. On the other hand, on the negative side, these areas – that are often beautiful because of how

The schools at Laugarvatn became the foundation for a tourist village.



The darkest shading shows tourist areas that are most likely will be important in the future.

Cutting the ribbon. Ring Road opening in 1974.

fragile they are – are often subjected to too much stress. It is ironic that this promotion of conservation and the increased tourism that follows often result in more damage to these protected areas than to other areas, especially if not enough money is allocated to preparing them for the increased traffic, as has frequently been the case in Iceland.

The Icelandic experience is the same as in other parts of the world. In fact, a European institute has issued a special report on this problem, which is called *Loving them to Death*. This negative situation in many sensitive tourist areas is one of the incentives for the application of the concept of sustainable development to tourism, a concept described in chapter IV.

Tourism, like fishing in Iceland, is based on a fragile natural resource and if we do not deal with these resources with due respect things are bound to turn out badly. A natural resource can only take a certain degree of use before it becomes abused, and it is important to define this limit.

Sustainable development is especially important in the planning of fishing and tourism because neither can be allowed to extend beyond what the natural systems can withstand. It is of course much easier to understand the results of overfishing than the results of overuse within the field of tourism. Therefore today, fishing in Iceland is run according to a management scheme that puts a heavy emphasis on not overfishing the various fish stocks, a task seen to by the Fisheries Research Institute. In the case of tourism, we have no such institute to decide how far the use of land for tourism can go without irreparably damaging landscape and vegetation.

It should be a warning to us that damage to the landscape, once it occurs, is very hard if not impossible to remedy. Therefore Iceland sorely needs management plans that are effective not only in building up the tourist industry but also in channelling it into the right paths and levels of utilization.

The previous section described the creation of an integrated plan for tourism. One of the goals of this plan is that the various modes of the three transportation systems (by land, sea and air) are brought together in certain places in the country to facilitate the moving of tourists from one traffic mode to another. It is easy to understand that this type of planning work is very positive for tourism because it is actually the transportation system that is the spine of the tourism industry. This is even truer in Iceland than in most other countries as tourism in Iceland is based on travelling around the country and only to a lesser degree on staying in the towns.

The tourists that come to Iceland are primarily interested in nature but also to some degree interested in the old cultural heritage. Examples of both are distributed all over the country, but because urban development came so late in Iceland, we only have a very few old towns or old buildings that are of interest for tourists to visit. Therefore tourism only started to prosper in Iceland as the transportation systems started to develop. As soon as new areas were opened to traffic they became new tourist areas.

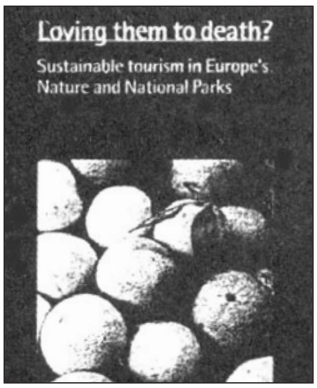
To start with, travel in Iceland was primarily by ships sailing around the country. Tourists stopped in some of the coastal towns and rode on horseback for short distances into the country. The road system started to develop gradually with roads that led out of town. This is also how tourism developed, initially with short trips out of the largest coastal towns.

After World War I the economy picked up, trades and economic pursuits in Iceland started to develop much faster, and imports and exports increased significantly. One of the good things about the cargo ships that were built at that time was that all of them included cabins for passengers.

This meant an increase in both the number of Icelanders going abroad and of tourists coming to the country. During World War II Iceland became a transport centre for cargo ships and naval vessels running between America and Europe, primarily for the convoys that sailed north of Iceland and north of Norway to the Soviet Union, bringing both goods and weapons.

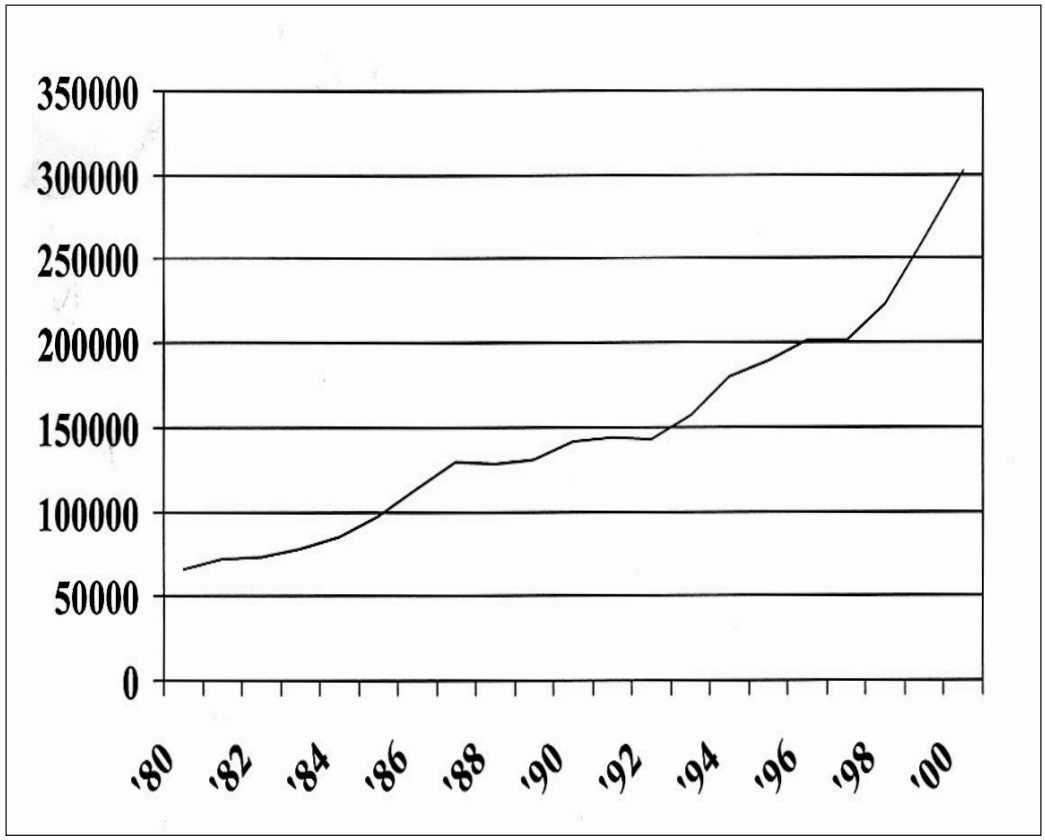
During the occupation, tens of thousands of soldiers, principally British and American, passed through Iceland and were stationed there for several years. These events were a tremendous promotion for the country. As international flights started in 1949 with American airplanes the first Icelandic international airline, Loftleidir, was helped by the fact that many foreigners had become interested in coming and visiting.

Domestic flights started to develop around the same time and the British built an airport in Reykjavík as well as some other places in the countryside. Tourists that landed there could thus continue directly on to some of the bigger towns in the countryside, like Akureyri and Ísafjördur. The road system, even though it only consisted of gravel roads, had at this time been extended to such a degree that people could



Drawing attention to places can lead to abuse.

Off-road driving will be reduced if more roads are built.



There has been a steady rise in the number of tourists visiting Iceland since1980. These foreign tourists help keep up the level of transportation and service standards in the country.

drive to most places. Services for cars had also developed considerably.

As a result of the war, the economy of the European nations where the airplanes landed was still in poor shape during the 1950's. There was therefore little increase in tourism in this period, though even so, tourists to Iceland numbered around 12,000 in 1960. At this point, the lack of accommodations because of the limited capacity of the simple summer hotels and dormitories had become a bottleneck. People therefore started to think about building larger hotels, like that of the Saga in Reykjavík (today the Radisson SAS-Saga Hotel), especially after the arrival of prop-jets around 1960 and later of jets that allowed an increase in the number of flights to North America.

The rapid development in air passenger traffic to North America was primarily based on five factors: low fares; agreements about flight routes helped by Iceland's membership in NATO; the goodwill of the small state of Luxemburg, which granted an operating permit that gave the airline a base in Europe; and also because at this time it was not unprofitable to cross the Atlantic in two stages. Landing the planes en route in Iceland meant that an ever-growing number of tourists landed in Keflavík.

In 1973, hardly any passengers arrived with ships any more but the number of tourists arriving by air had increased to 80,000. Then disaster struck: the first oil crisis. The increase in tourists came to a halt. This period of stagnation lasted for quite some time and in 1980 a second but smaller oil crisis occurred. The result of these two crises was that after 1980 only about 70,000 tourists came to Iceland.

There then followed a great period of growth so that in 1987 there were 130,000 foreign tourists. A slight decrease followed this periodic growth but around 1992 the number of tourists had reached 140,000. A slight decrease because of a minor economic world crisis followed, but then again a new period of growth commenced and in 1994, the tourist numbers were up to 200,000 and over 300,000 at the turn of the century (against a total population in Iceland of ca. 275,000!). In the last decade of the century there were so many tourists that the need for planning for this new and important industry in Iceland had become clear. Various negative aspects of tourism that had started to appear,

The oil crisis of 1973 showed how fragile our world is.

such as overcrowding and damage to soil and natural formations, gave an extra push to rushing these precautionary measures.

Another big incentive for starting the development of a policy on tourism and plans to handle the traffic was the significant inconvenience of the fact that the tourist season only really existed during the summer. Clearly measures had to be taken to improve the number of tourists during other seasons. Thus, in 1995 Halldór Blöndal, the Minister of Transport and Tourism, appointed a steering committee to make proposals for a government policy on tourism.

Some attempts at formulating policy had been made earlier so that people had become used to the possible gain to be had from planning. The first of such projects was a plan by the American company Checky that was carried out with a grant from the Development Fund of the UN in 1972-1975. The ministry then had some work done in 1981 and 1989, and the Tourism Council, which is a co-operative platform of the government and various companies and other groups that work within tourism, also carried out some work of this kind in 1993.

Around 1990 the Nature Conservation Council had already started to worry about the impact of tourism on the environment and had published a booklet on the subject, *Ferdamál á Íslandi* (Tourism in Iceland) *in 1990*, and the Nature Conservation Assembly of 1991 dealt especially with this subject. The booklet explains that the main reason for discussing the project that Blöndal started was because formulation of policy in this case was followed up by a special implementation plan, which is described in the next section.

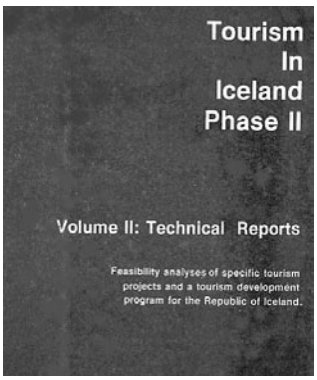
After some months of working in groups a booklet that summarized the policy formulation was published, called *Stefnumótun í ferdathjónustu* (Policy Making in Tourism) in 1996. The structure of formulating policy was complicated because of the large number of different types of activities linked to tourism. Eight representatives were selected from the various fields of society to be members of the steering committee. In addition, special employees were hired to work on formulating policy.

The next step was to appoint fifteen work groups to work on tourism and country planning, foreign markets, economic conditions, and leisure activities. All of the fifteen groups delivered reports and collected large amounts of data. The form used in the policy booklet was to describe the policy in every field with just a few core sentences.

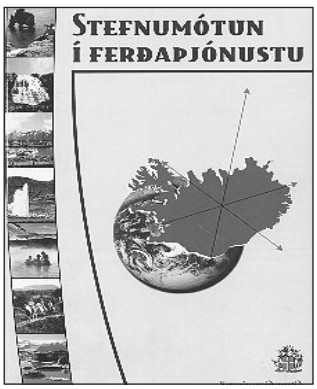
Next, the several steps in the process needed to implement the policy were itemized with individual numbers and short explanatory texts. In this way, the main aspects about each of the features of the policy could be presented in only one or two pages. After the booklet had been published in the summer of 1996, new groups were appointed to create a plan for implementing the various sections within tourism.

The booklet presented the twenty features that constituted the main goals of the policy. The fifth feature stated: "The marketing drive will be increased with the goal of evening out the distribution of tourists over the year and over the country."

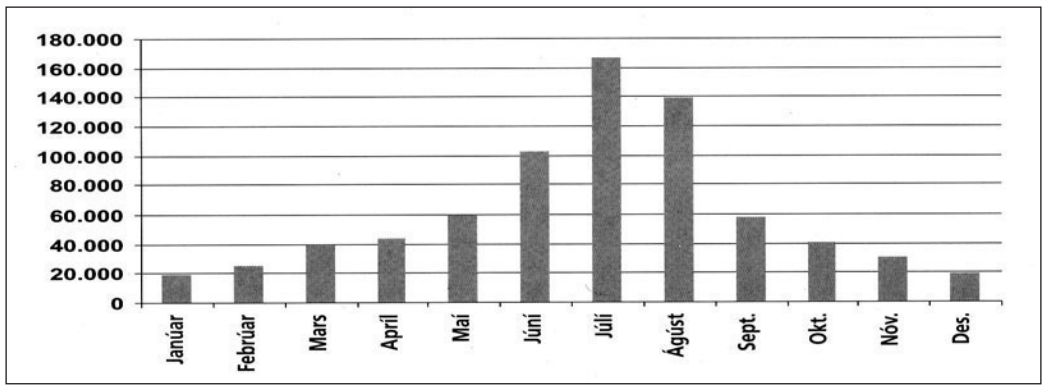
Let us now examine this goal briefly. What we see here often happens in policy making, i.e., that a beautiful vision is created which is, however, probably at the same time somewhat unrealistic. It is certainly true that following this policy and a certain drive in marketing the goal of distributing tourists throughout the year has been successful to some degree. On the other hand, people have not been successful in getting winter travel to reach out into the countryside.



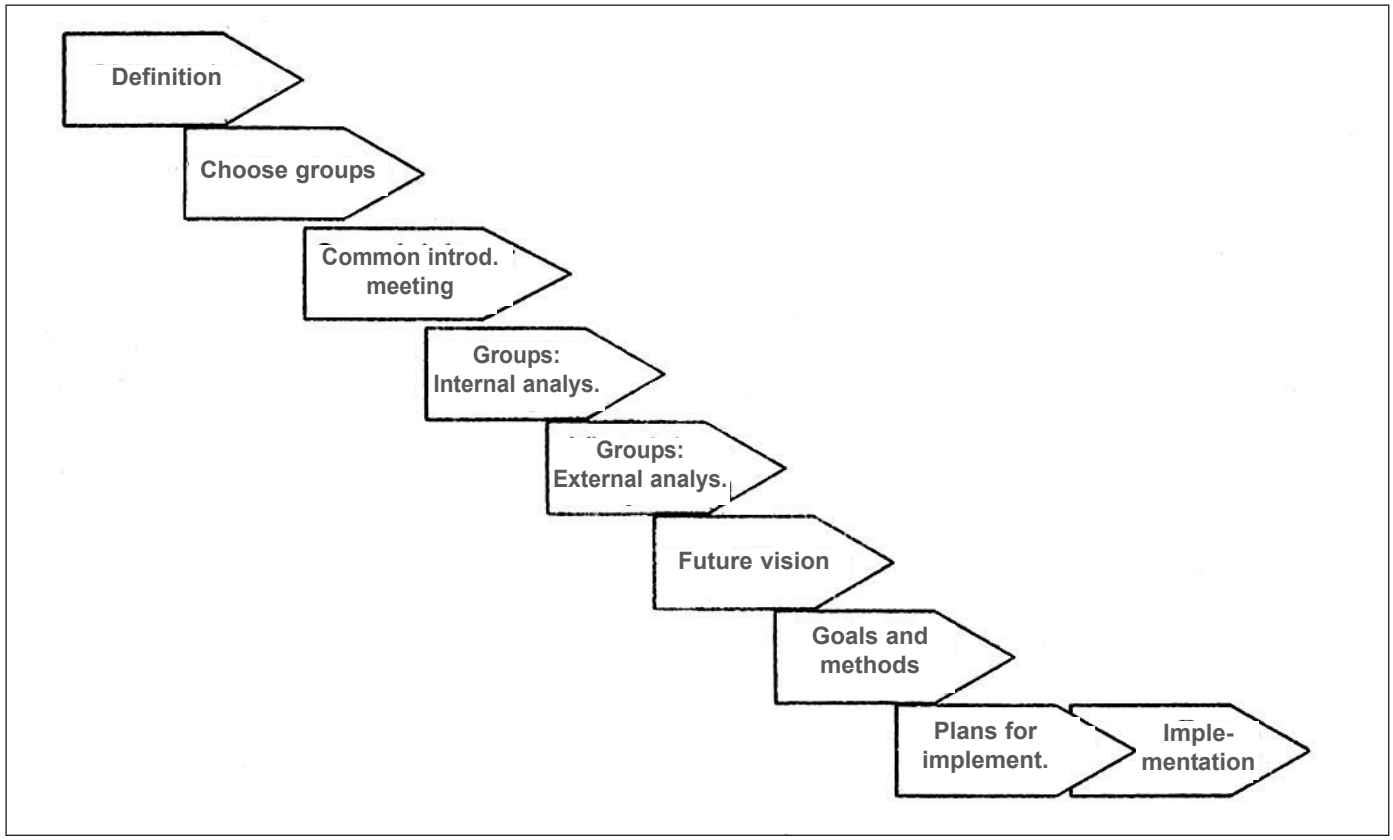
A plan on future development of the tourist trade.



A tourism policy document was published 1996.



Number of foreign tourists in 1994. The main problem is how short the peak season is. It has been a primary goal to remedy that.



The figure shows steps in policy making that took place for the various branches of tourism. The figure ends with a plan of implementation that will be described in the next section.

This is primarily because all conditions for driving and air transport are bad in the winter in Iceland and tourists rarely take the risk, as they are in most cases tied to certain dates for arrival and departure.

The result is that the increase in winter travel has primarily taken place in the southwest corner of Iceland and therefore the goal of making tourism a major pillar for the settlements in the countryside has not been successful.

Let us now look at feature 19 of the 20 main goals of the tourism policy, a feature that talks about how Iceland should take a pioneering role in the field of environmental conservation. We can immediately agree that we can present a rather good picture, for instance advertisements in foreign papers, with the description of this goal. But we have to go deeper into this concern.

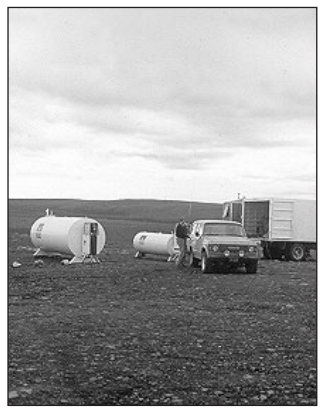
If we study the history of environmental conservation, we discover that in no other European country has as much land been eroded as in Iceland. Our history of the treatment of the fish stocks and of our throwing the by-catches overboard are also features that hardly support our advertising claims that Iceland is a pioneering country in the field of environmental conservation.

It would only take one critical television team to create a black picture of environmental matters in Iceland. People are taking great risks advertising the country as a role model for other countries to follow in environmental concerns.

Even though some of the policy formulation dealt with transportation and planning, the tourist areas were not defined on maps. What should also have been done, as in other countries, was to define certain areas for certain functions.

It is of the utmost importance, if people want to develop tourism as a year-round industry, that the activities be multifaceted and embrace many factors so that all of the needs of tourism, at all times of the year, can be met.

An attempt has been made to achieve this with a health hotel in the village Hveragerdi, hotel and other facilities at the Blue Lagoon, the planning of historical and cultural trails in the south out of Selfoss, airport hotels in Keflavík, and the planning of short day trips from these spots.



Erosion in Iceland makes talk on leadership difficult.

Akureyri has also had some success in developing an all-year tourism industry by offering tourist packages consisting of hotel accommodations, travel, theatre and skiing. Smaller towns with year-round hotels – such as Stykkishólmur, Húsavík and Höfn in Hornafjördur – have been in great trouble. The only thing that has been positive for these hotels is that they have been able to generate some activities during the winter, such as chess tournaments and meetings of various associations. These hotels have also been of some use as communal centres for the area in question.

Earlier in this book on page 227, a special structural plan for the south-west of Iceland was described. Some of the main incentives for this work were that it was clear that, with defined actions and a definite plan, it would be possible to strengthen tourism in this area. The basic theme was that the country itself, the landscape, was really the resource for tourism and this concept led to the title of the work: *Land sem audlind* (Land as Resource).

The book created a vision of what can be done in the field of physical planning to promote tourism. The project started by defining, on maps, the main natural resources in the area. In addition, areas best suited for hiking, nature observation and summer outdoor life were defined on maps. The maps were drawn on transparencies that, when superimposed, gave a visual representation of how various tourism resources are centred in certain areas. For example, the various resources were clearly apparent at Skorradalsvatn Lake, in Hvalfjördur, at Lake Laugarvatn, and at Gullfoss Waterfall.

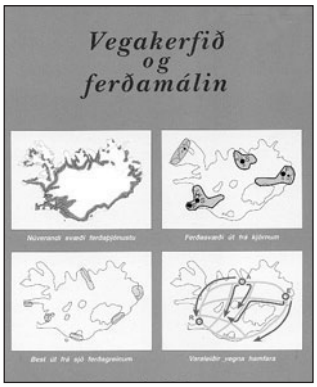
Another group of maps presented areas where the polluting or damaging effects of tourism should primarily be avoided, for instance, water protection areas and areas with very fragile natural formations. This work provided an insight into how a physical country plan for tourism could be worked out, so a second project was started at the University of Iceland for the making of a similar series of maps for the whole country.

These map series and discussions of the findings based on them, i.e., on where the best and worst areas for tourism are, were later presented in the book *Vegakerfid og ferdamálin* (Roads and Tourism) published by the Public Roads Administration in 2000. The main findings concerning the settlement structure that would be most profitable for tourism are shown on the map below.

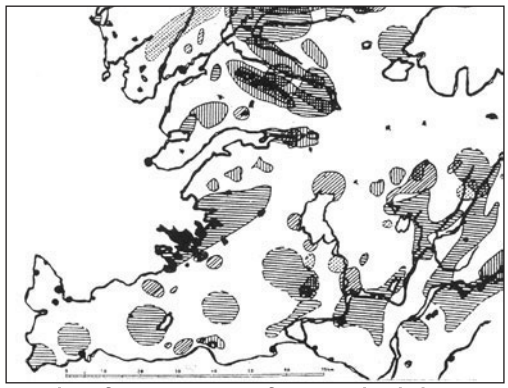
In 1998 work started on regional planning for the central highlands, work that included the creation of ideas about tourism and transportation policy for the area. Unfortun-ately, there was some lack of agreement among the representatives of tourism, as was described in the section on pages 244 and 248.

One of the decisions made in this first highland plan was that no roads other than those passable in summer should be built in the highlands and also that there should be little developed in terms of services. In general it was planned that the services for tourists in the highlands should be provided instead in the lowland rural areas. The idea is that people should primarily go only on daytrips into the highlands.

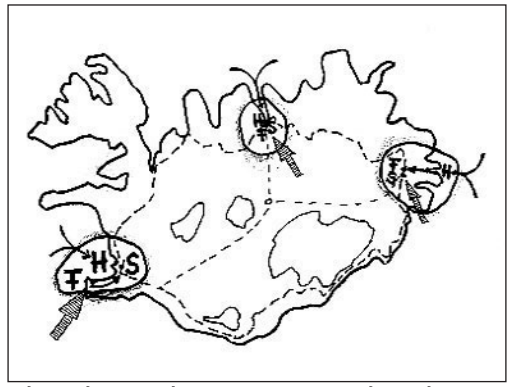
This plan proposes a number of mountain huts with the service level kept at a degree that assures a certain ruggedness. In 2003 a revision of the highland plan was started. Then work had already taken place on tourism in this area in connection with a *frame plan for energy utilization*. It is to be expected that the level of services and the levels of road connections will be increased in this new highland plan.



Road and tourism development influence each other.



Overlay of resource maps for SW Iceland shows where positive features add up.



These three settlement centres stand out due to having air, sea and road transportation.

2 Implementation Plan for Tourism

As described in the previous section, it was an important innovation in the work of the Ministry of Transport and Communication that the policy and plans for tourism be followed up by an implementation plan for the various aspects involved. In the winter of 1996-97 the minister appointed six new work groups to conduct this implementation for the main subject groups connected to tourism.

As in the earlier planning, the members of the groups were both officials as well as representatives of the various relevant interest groups. In addition, the groups included various specialists as the role of planners, marketing specialists and experts on tourism had greatly increased in the last decade of the twentieth century.

There were six work groups: The first group was in charge of *leisure activities*, the second group worked on *quality and information*, and the third produced a *marketing plan*. The fourth created an implementation plan on *education and research*, the fifth dealt with *transportation and planning*, and the sixth was concerned with ascertaining how the goals of moving tourism towards *sustainable development* could be reached.

Specialists working on the whole project created schemes such as those presented on page 311. *The aim* of the project in each case is listed in the first column and the next four columns cover *means, operations, responsible executives, and year of inception*. Each of the goals was thus made clearer by the statement of the possible means for attaining it. Column 4 then lists who is most likely to be the executive manager, and finally column 5 states the year in which the implementation is to take place.

The ministry published six booklets, one for each of the work groups and categories. The following presents several examples of goals, means and suggested operations, as well as a discussion of how successful people have been in the implementation of these goals.

The first group – that dealt with *leisure activities* – addressed the subject of quality and security in leisure activities. The Ministry of Transport states on its website that: "Necessary pony trekking trails are to be provided and the building up of facilities at stopping places shall be planned." As a means to achieve this goal, the minister was to have an assessment made of the overnight stopping places along the most important trekking trails in the highlands. Work has been carried out on implementing this proposal, work groups were created to see to this, and a report was issued in 1999. On the map on the following page, hiking and horse trails are shown as they were in the first regional plan of the highlands. There, all the main horse trails are entered on the map, together with preferable overnight stopping places.

Group 2 dealt with *quality and information*. It proposed classifying hotels and other accommodations, a classification that was adopted in September 2000. This proposal was amended, however, so that legislation would not require that everybody who offered accommodation should be obliged to take part in this classification scheme.

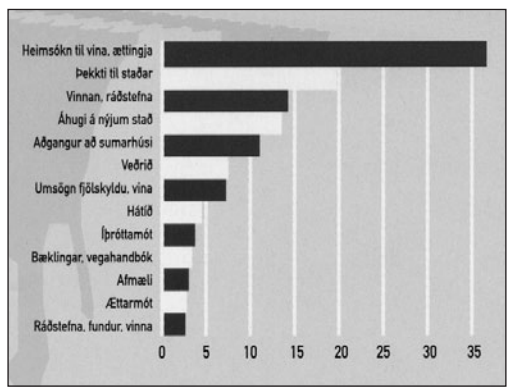
As to access to information, one of the goals was to have "[t]he Iceland Tourist Board be put in charge of a data information centre in co-operation with interest groups…." This decision was soon implemented and the Tourist Board's website was opened in late 1997.

Group 3, which dealt with a *marketing plan*, pointed out that chains of tourist bureaus would very much like to see a reduced number of

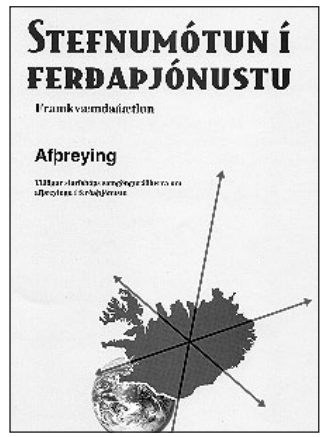
Tasks of six groups working on the implementation plan:

1 *Leisure Activities*
2 *Quality and Info Matters*
3 *Marketing Plan*
4 *Education and Research*
5 *Transport and Planning*
6 *Sustainable Tourism*

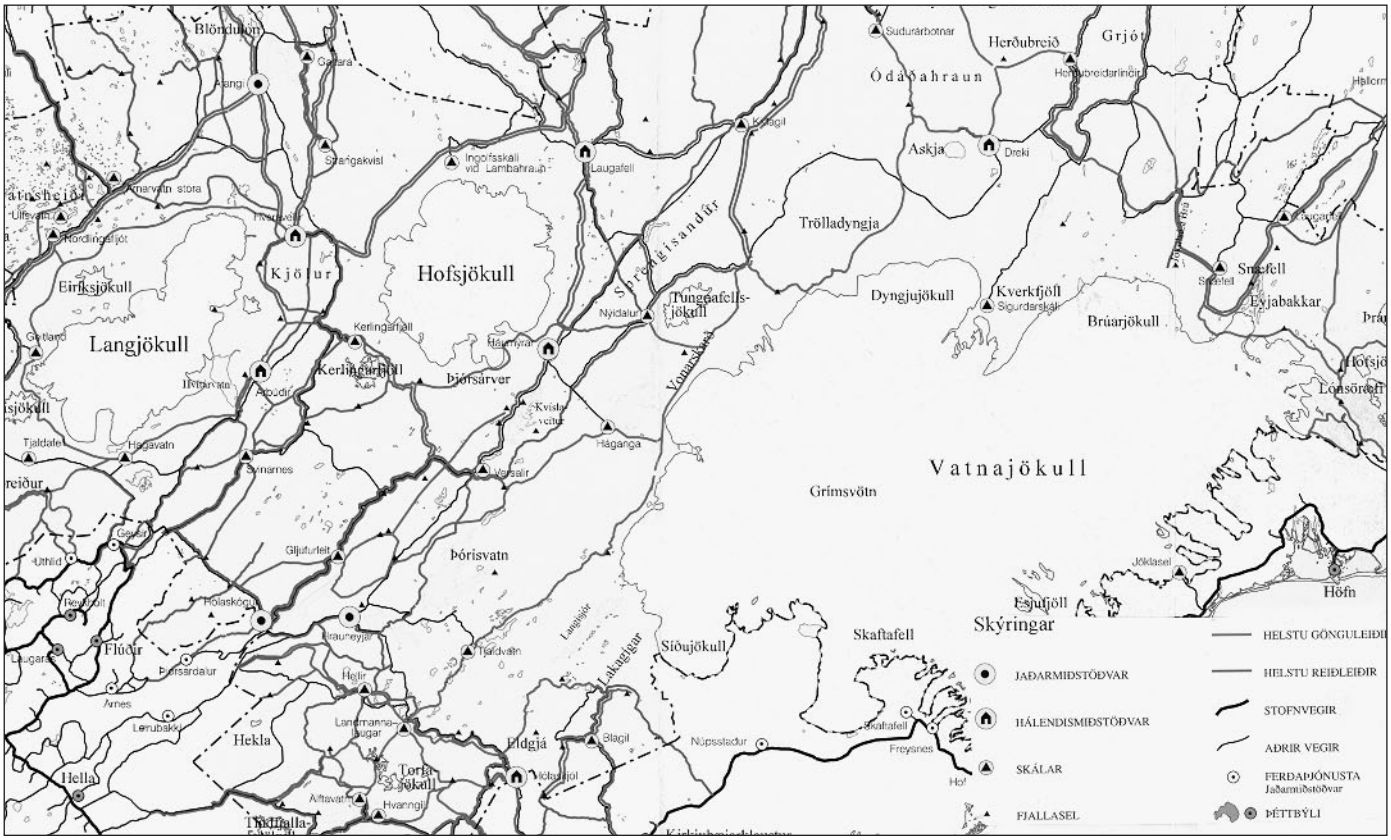
These six factors as a whole formed the management plan for tourism.



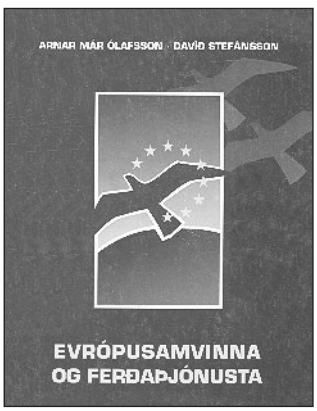
Factors influencing domestic travel of Icelanders. Data important in planning.



Report on a management plan for leisure activity.



Hiking and riding trails often go side by side in the highlands and then they appear as a double line on the map. These trails are planned to connect places of rest and their crossroads are the largest stopping places.



Iceland has access to Europe's various programmes.

tourist wholesalers and instead utilize a form of the *computer booking program START*. This computerization has been spearheaded by German institutions like TUI and DER. Icelanders now offer their services via START. The marketing group's implementation plan was divided among the main marketing countries. One of the biggest campaigns was proposed for Britain, as figures had shown that few British tourists came to Iceland but that their interest in Iceland was clearly growing.

One step in realizing this goal was the printing of a booklet with an initial print run of 55,000 copies. These were distributed in 2001 and since then the number of tourists from Great Britain has increased considerably. The original implementation plan decided on various goals to be reached in 2005. Immediately in the year following acceptance of the plan, the increase in the number of tourists had exceeded expectations and the increased income aimed for had almost been reached in 2001.

On the other hand, the numbers of jobs created was not increasing at the same pace and it looks like that goal will not be reached by 2005. On the bright side, the goal of evening out the differences between tourist seasons has been more successful than expected. It is especially good that there has been a greater increase of tourism in the winter season than the marketing plan had dared to aim for.

Group 4 had the task of suggesting methods and means to implement and attain the goals of the policy as concerns *education and research*. The group suggested that that a course of study in tourism could be introduced at the university level. As a means to reach this goal, the group suggested establishing a course in tourism at the University of Akureyri in the north – perhaps in response to the wishes of the Minister of Transport, who was himself from the northeast. This proposal was actually implemented and the Iceland Tourist Board established its second office in Akureyri.

Group 5 dealt with *transportation and planning*, covering transport by land, sea and air. Most of the text of the group's report, however, dealt with how the various planning measures could be applied to better the position of tourism. The discussion of goal two includes the statement that "Planning in urban areas as well as in uninhabited areas shall be based on the needs of

	1985	1995	Change	Change%
Germany	9.464	36840	27.376	289%
USA	31.633	28.633	-3.000	-9%
UK	9.720	22.512	12.792	132%
Denmark	9.946	19.027	9.081	91%
Sweden	8.167	17.520	9.353	115%
Norway	7.665	13.448	5.783	75%
France	4.483	9.142	4.659	104%
Netherlands	1.653	6.558	4.905	297%
Switzerland	2.744	6.489	3.745	136%
Italy	1.170	4.206	3.036	259%
Finland	2.596	3.792	1.196	46%
Austria	2.235	3.744	1.509	68%
Japan	716	2.410	1.694	237%
Belgium	594	2.200	1.606	270%
Canada	1.286	1.842	556	43%
Spain	457	1.560	1.103	241%
Ireland	320	1.150	830	259%
Taiwan	18	1.114	1.096	6089%
Luxemburg	47	770	623	424%
Other	2.429	6.839	4.410	182%
Total	**97.443**	**189.796**	**92.353**	**95%**

Increase in number of tourists from 1985–1995. This information is useful in measuring the success of marketing strategies and mapping where interests lie.

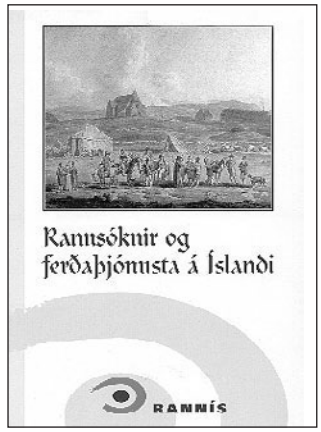
tourism…." As a method of reaching this goal, the report goes on to say that: "Increased emphasis should be placed on overall planning where the interests of the tourist industry will be taken into consideration…." The report proposes that: "The Minister of Tourism shall, in co-operation with the Minister for the Environment, seek ways to insure that the advice of the Council of Tourism will be sought in all planning for both urban and uninhabited areas."

Concerning transportation, goal four of the policy formulating plan was that "the access of airlines to markets will be improved" and as a means to achieve that goal "the Minister of Transport shall ask the Minister of Foreign Affairs to hold consultations with the Baltic nations and Canada. An agreement with the Russians should be completed as soon as possible." All these elaborate air transport agreements have now been signed, among other things, opening the way for direct flights to Canada.

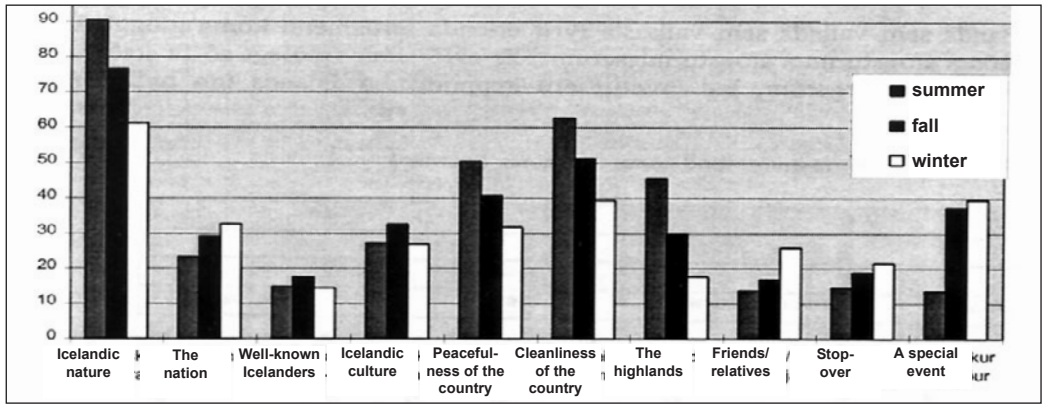
Under the rubric of tourism and country planning the group proposed that: "The policy making of the Minister of Transport, as well as the implementation plan, shall be presented formally to all parts of the country." On the implementation of this proposal, local inhabitants were asked to prepare a special plan for each part of the country, using the minister's policy and implementation plan as a guide.

In order to follow up on the implementation plan the ministry employed a special official, who has been in contact with various regions and regional groups to introduce the policy and to entice them to comply with the policy in planning tourism within each region of the country.

It is hard to give a clear overview of the extent to which locals have been following up on the Ministry's policy, but many regions have definitely been working quite extensively on a tourism policy in the last few years. There is, for example, the report *Byggdir milli jökla* (Settlements Between Glaciers – a Policy for Tourism in the West, 1998-2005), which was published in 1998. Much work has been going on in the West Fjords in co-operation with the Travel Association of the West Fjords and the Local Trade Development Association. For instance, a marketing plan has been worked on



Overview of studies funded by the Research Council.



Factors that tourists have said influenced them in their choice of coming to Iceland. In summer, nature and cleanliness dominate, whereas social factors are prevalent in winter.

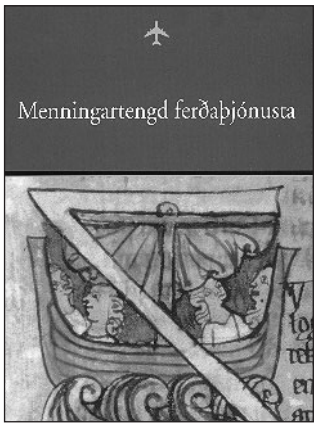
based on a time frame of five to ten years. In the north, the Trade Development Association of Eyjafjördur has been working on policies for the new regional plan for the Eyjafjördur area, which was presented in 2002.

In 1998, the Marketing Office of the East Fjords was established. It continues an earlier incentive for strengthening tourism in the east. In 1999 the Minister of Transport, Sturla Bödvarsson, appointed a committee on culturally related tourism under the leadership of Thomas I. Ulrich, then chairman of the Tourist Board. The report was published in August 2001 and stirred considerable interest.

Let us now turn to the ministry's implementation plan. Goal 15 in the planning part of the project says that: "The Minister of Tran-port shall demonstrate the initiative for the introduction of a country plan level in Iceland under the guidance of the Office of the Prime Minister, where all ministries shall be required to make a country policy for their operational field. A county committee will give this work a frame and direct the co-ordination between plans and those country infrastructures that the proposal is dealing with. This work should be followed up at the regional planning level."

The proposals for a country plan have not been worked out at this writing and regional development concerns have been moved from the Office of the Prime Minister to the Ministry of Industry. If something should be done in this area it can be expected that the Minister of Industry would be most likely to take the initiative, though it is also possible that the Minister for the Environment will also have a good deal to say about the matter. The new planning and building law of 1998 included a clause about the collecting of information and co-ordination within the field of country planning.

The sixth and last work group dealt with how *sustainable development* within tourism could be implemented. The report proposed that a steering committee be established with the goal of mapping the country according to: "1. *Regional characteristics*, 2. *Access and fundamental features*, 3. *Distribution of tourists by area*, 4. *Negative and positive influences of tourism on the environment, culture and nature*, and 5. *Area possibilities*. The



A proposal for culture-based tourism.

"The Minister of Transport shall demonstrate the initiative for the introduction of a country plan level in Iceland under the guidance of the Office of the Prime Minister, where all ministries shall be required to make a country policy for their operational field."

Goal no. 15 in the tourism plan on a country scale for Iceland.

1. Regional characteristics, 2. Access and fundamental features, 3. Distribution of tourists by area, 4. Negative and positive influences of tourism on the environment, culture and nature, and 5. Area possibilities.

The goal was to map these five features for the work on sustainable development.

Goals		Methods		Operations	Responsibility	When
The tourism aspect in a country plan						
Stefnumótun *Framtíðaruppbygging og skipulag staða og svæða taki mið af þörfum ferðaþjónustu.*						
15 Tryggt verði að skipulag í byggð og á óbyggðum svæðum taki mið af þörfum ferðaþjónustunnar, og að við skipulagningu sé tekið mið af hagsmunum ólíkra tegunda afþreyingar.		(Methods to achieve the goals)				
(A more thorough definition of policy)	15,1	Hvatt er til aukinnar áherslu á heildarskipulag þar sem tekið er mið af hagsmunum ferðaþjónustunnar. Einnig eru sveitarfélög hvött til að huga vel að landnotkun vegna mismunandi tegunda afþreyingar á byggðum og óbyggðum svæðum og umferðar		(What actions can be taken to realize policies and methods proposed)	(Who is in charge)	(Year month)
			15,1,1	Samgönguráðherra beiti sér fyrir því að koma á fót landsskipulagsstigi undir stjórn forsætisráðuneytisins þar sem öllum fagráðuneytum sé falið að móta landsstefnu fyrir sín starfssvið.	Samgöngu-ráðherra	Byrjun árs 1998
			15,1,2	Ákvæði sem kveður á um að leitað verði umsagnar ferðaþjónustuaðila við gerð skipulagsáætlana verði sett inn í skipulagsreglugerð og leiðbeiningarit Skipulags ríkisins fyrir ráðgjafa.	Samgöngu-ráðherra	Byrjun árs 1998
			15,1,3	Opnun hálendisins og leiða milli Norðurlands og Suðurlands verði flýtt og í þeim tilgangi verði Vegagerðinni falið að byggja upp þannig að hægt sé að opna helstu hálendisvegi, s.s. Kjöl og Sprengisand, eigi síðar en 1. júní.	Samgöngu-ráðherra	Byrjun árs 1998

This was the arrangement of proposals from the groups that were behind the various issues in the management plan. This picture shows 15. Objective, column 2 shows Methods, 3. Operations, 4. Responsibilities, and 5. When to be implemented.

steering committee was not established but it should be recognized that in some places in the country some work of this type has nevertheless been taking place.

The report of group 6 on sustainable development also contains the warning that: "The stress limits of the land shall be determined by studying the interplay of soil, climate, and landscape features. Based on the observations, a calculation will be made to determine how many visitors certain areas can take at any given time…."

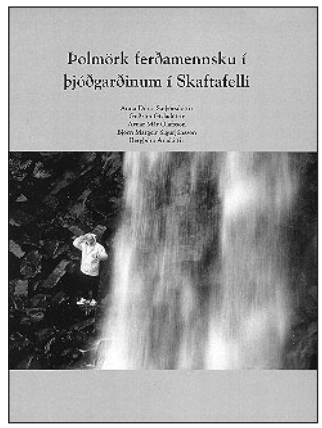
Within this area an extensive study has been started which was a three-year joint project by the Tourist Board, the University of Iceland and the University Akureyri and called *Tholmörk ferdamannastada á Íslandi* (Strain Limits of Tourist Places in Iceland). The research studied seven vulnerable natural and tourist areas in the country. To begin with, information was gathered for the Skaftafell, Lónsöræfi, and Landmannalaugar areas. The Skaftafell Report was published in September 2001.

In 2001, information was collected for the Mývatnssveit and Jökulsárgljúfur areas and in 2002 the work on the three last areas of Gullfoss, Geysir and Hornstrandir was carried out, with the findings presented at the end of 2003.

Given how extensive this research is, it is important to explain the structure briefly. The study is divided into four parts: 1. *Infrastructure* – here the services offered are registered, such as leisure activities, accommodations, food and beverages, and transportation to and from the area as well as within it. A study of the fundamental character of the area is also conducted.

Part 2 deals with *natural features*, i.e., the influence of tourism on vegetation and thus with the condition of the vegetation as well as of the hiking and horse trails.

Finally part 3 of the study deals with the *social aspects* and is divided into two parts: A. *The tourist experience* and B. *Outlook for the locals*. It is extremely important that the local inhabitants be in agreement with the extent of tourism and with the way in which it is carried out. Otherwise tourism will put strains on the social environment and therefore hardly be sustainable.



The first report on tourist carrying capacity in Iceland.

VII A Frame Plan for Energy Production

1 Basic Ideas of the Frame Plan

Various chapters of Book Four have dealt with the development of policy and planning that embraces the country as a whole. Some chapters have also traced work on a national plan for tourism and others on development work on planning transportation.

Some other chapters have revealed how ideas on nature and environmental conservation have gradually been developing in Iceland. The last big impetus in these matters was the great world plan, *Agenda 21*, which came out of the *Rio Conference* in 1992.

On page 290 a description was given of the work that the Icelandic state conducted after the Rio Conference on policymaking and implementing sustainability. This policy was approved of by the government in February 1997.

One of the groups that worked on the preparation of the implementation plans dealt with the environment, industrial development and energy. This group suggested that a *frame plan for utilization of hydro- and geothermal power* should be made. This proposal was well received at the *Environmental Assembly* in the autumn of 1996 and was then integrated into the government's implementation plan. As they started working on the preparation of this frame plan, Icelanders searched for a Norwegian model, as they often do.

In Norway, such a plan has been in operation for about thirty years and is called *Samled plan for vandskraft* (A Collective Plan for Hydropower). The Norwegian title does not indicate a *frame plan* because it is really dealing with a *master plan*, a term that Icelanders sometimes use in an English translation. Choosing the phrase "frame plan" for the Icelandic project probably stemmed from the desire to avoid criticism for dealing with an example of central planning ideology. The Icelandic government at the time did not in general embrace that kind of ideology.

The fundamental idea of the frame plan was to create a new classification of power plant alternatives in Iceland. In this case, the alternatives would not only be classified according to feasibility, but would include various other points of view, such as the environmental costs of each option and any possible reduction in tourism that might result from the options selected.

Those who study the concept of the frame plan project are generally rather surprised how wide reaching it is and how much money has been contributed to it. An initial estimation was about € 800,000 a year for five years. One of the reasons why the politicians were ready to launch such an extensive project was the discussion about the Fljótsdalur Power Plant, planned with a huge reservoir at Eyjabakkar.

During the discussion, people objected and asked if there were no other feasible sites that would be less damaging to the environment. The general perception was that by choosing the Eyjabakkar option, specialists had selected a power plant and reservoir alternative that was enormous in size, an option that could cause considerable environmental damage but was not necessarily more feasible than other options.

Another possible alternative soon emerged which seemed to be better; i.e., the creation of Háls Reservoir behind a power plant at Kárahnjúkar. It was a common opinion among environmentalists that by choosing the Kárahnjúkar option less vegetation would be flooded than with the Eyjabakkar Reservoir

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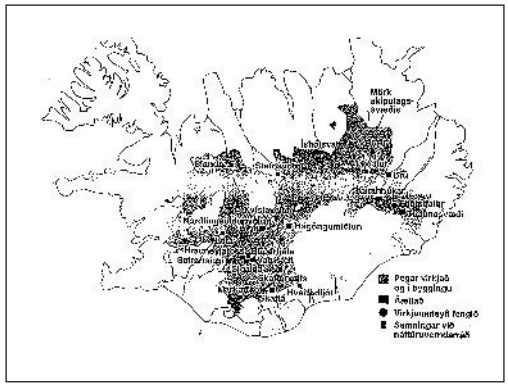
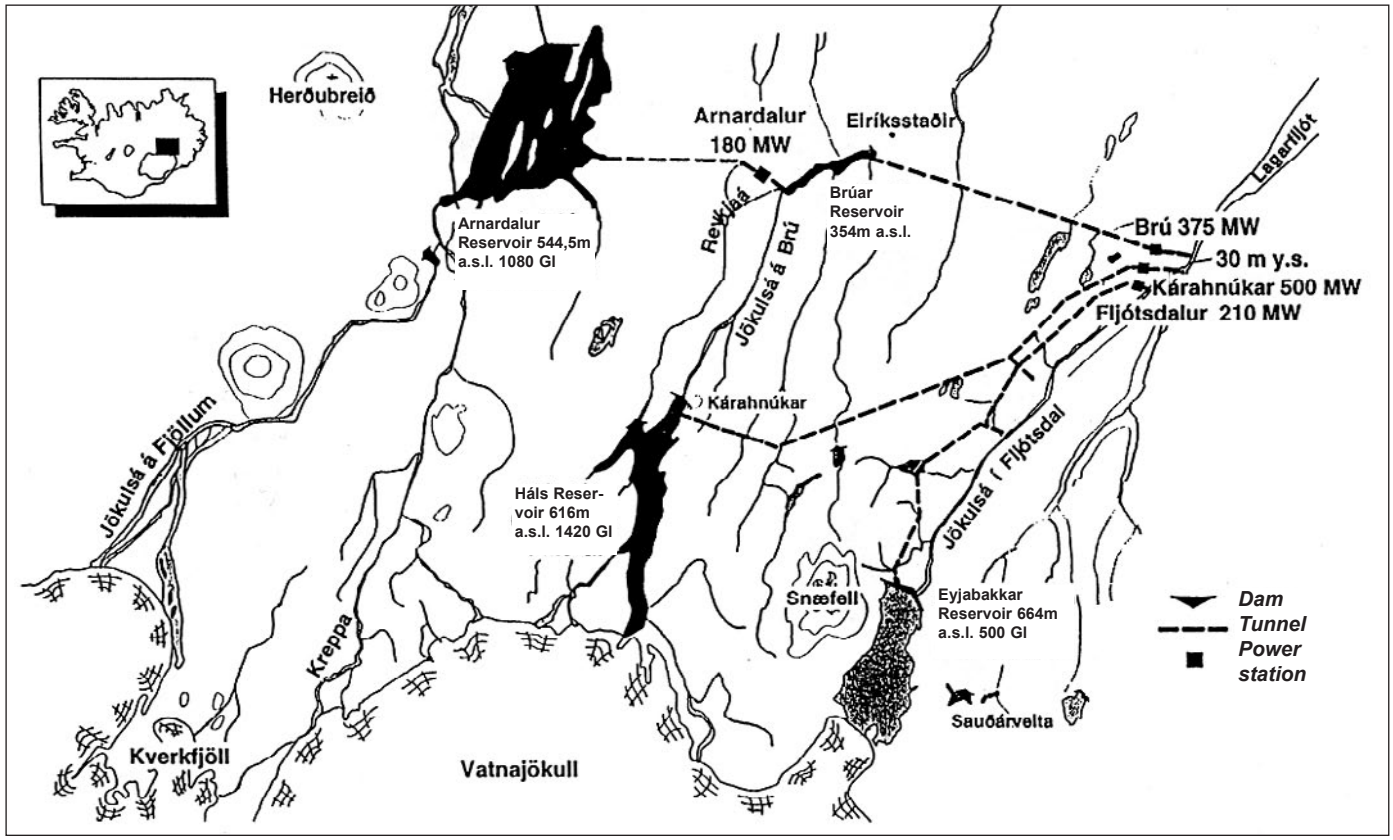


An overview of hydropower options in the highland made by the NPC in 1997.

Virkjanir á miðhálendi

Samkvæmt áætlunum LV/OS	Vatnsorka GWh/ár	Jarðhiti GWh/ár	Samkvæmt tillögu að svæðisskipulagi til 2015	Vatnsorka GWh/ár	Jarðhiti GWh/ár
Þegar virkjað eða í byggingu	5.500	0		5.500	0
Eftir að virkja			2000-2005	6.400	
	17.500	5.400	2006-2015	2.100	0
Samtals	23.000	5.400	Samtals	14.000	0
Vatnsafl og jarðhiti samtals alls		28.400	Vatnsafl og jarðhiti samtals alls		14.000
			eða um 50% af áætlunum LV/OS		

A comparison of the ideas of the NPC and the regional planning proposal of 1997.



The NPC idea for a scheme of harnessing hydropower north of the Vatnajökull Glacier in 1997. The idea of Eyjabakkar was abandoned in 1999 and Kárahnjúkar took its place. The Arnardalur reservoir needs to be built if the river Jökulsá á Fjöllum is to be harnessed.

option. However, various flaws were uncovered that made this option also rather negative in the view of many commentators. A great deal of glacial clay will probably be carried into the Háls Reservoir and as the water level gets low in early summer, people are worried that this clay will dry and thus possibly be blown over the area.

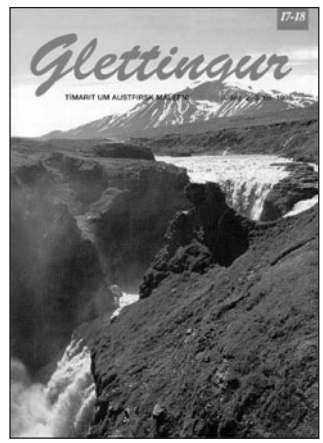
The decision to have the frame plan embrace parameters like the effect on vegetation, hydrology and zoology was certainly important in terms of creating a new order of preferences for power plants in general. It was also positive that the frame plan was a step towards more long-term thinking.

The lack of long-term planning in the preparation of power plant options has meant that relatively few of the planned options have been studied thoroughly. Therefore the National Power Company, in its response to the need for providing and marketing energy, has often had to embrace alternatives that have not been sufficiently researched in terms of environmental or other considerations.

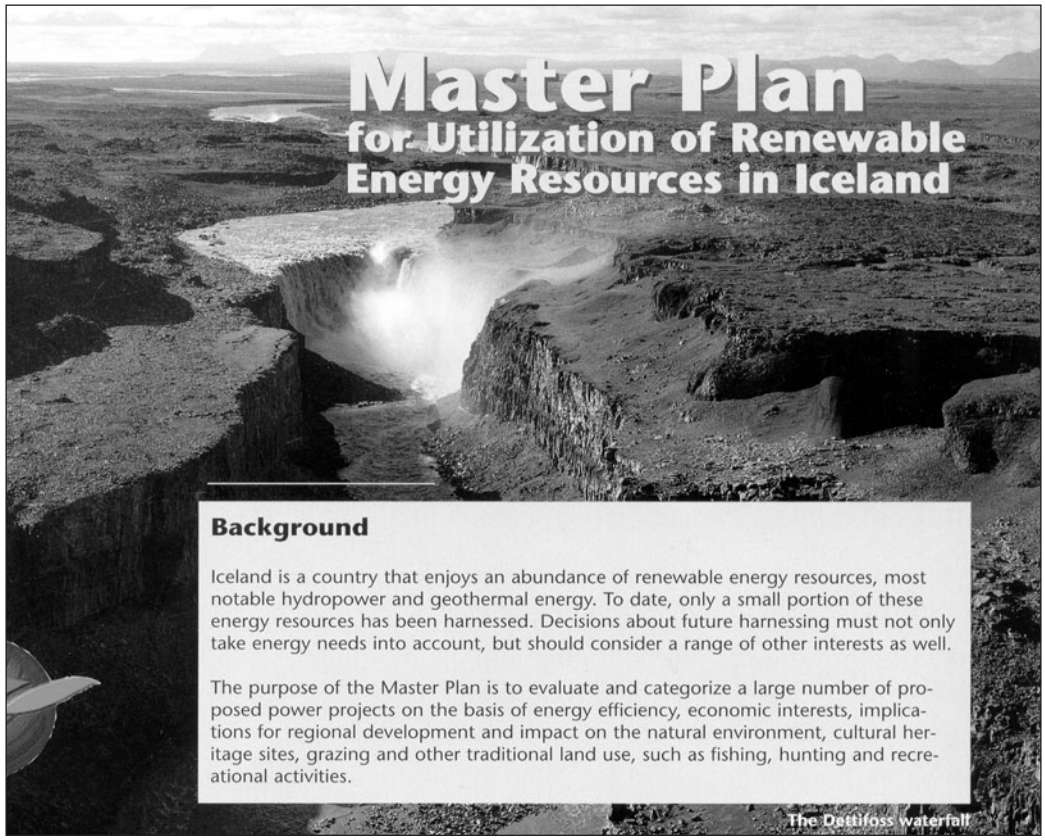
In the work on the frame plan the main idea was to make a master plan for energy utilization. This means that the design of almost all the hydropower options had to be worked out to some degree, and enough of the basic work on the environmental and economic questions had to be completed. This type of work means that already in the primary stages a raw estimation of all the options at hand needs to be available. This work helps eliminate options that people consider unacceptable so the focus can instead be on a further working out of the options that, in all likelihood, are in much less danger of not being acceptable to the public.

The *National Power Company* has often had great difficulty in having their proposals accepted and is therefore very much in favour of starting early to study the energy options so that it can invest in further design without spending more than is necessary. Several times the power company has spent large sums of money on research and design of energy options, only to face the need to alter the scheme or abandon the project altogether.

The fundamental flaw of the unplanned approach used earlier was that in many cases the company had started to invest a large amount of work and money into options before it was clear that the energy option in question would be able



Magazine Glettingur on eastern power plants.



The cover of an information pamphlet on the frame plan. The plan is meant to create a frame and to give priorities in the utilization of the energy resources of Iceland.

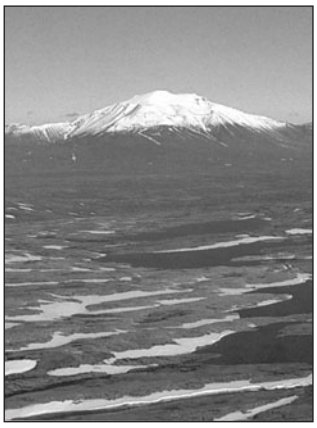
to pass a critical examination in terms of the environment and other related issues.

Conceptually, we are dealing with having this examination of the environmental feasibility of a project take place before large investments have been made. This means that the environmental impact assessment is moved to the front of the decision process so that large amounts of money are not spent unnecessarily on alternatives that will later be judged unacceptable. The central idea is that this kind of work will allow people to start the design process with the option that has the least environmental impact, assuming that the option can also meet the demands of the buyer.

In some cases, environmentally friendly energy production options are not much more expensive than other options. However, it should always be kept in mind that as a possible buyer for the energy enters the scene, the number of options is greatly reduced because the investor generally has a preference for a certain size category and an idea about a geographical location for his plant. Therefore there are often not as many feasible alternatives as people might think at first.

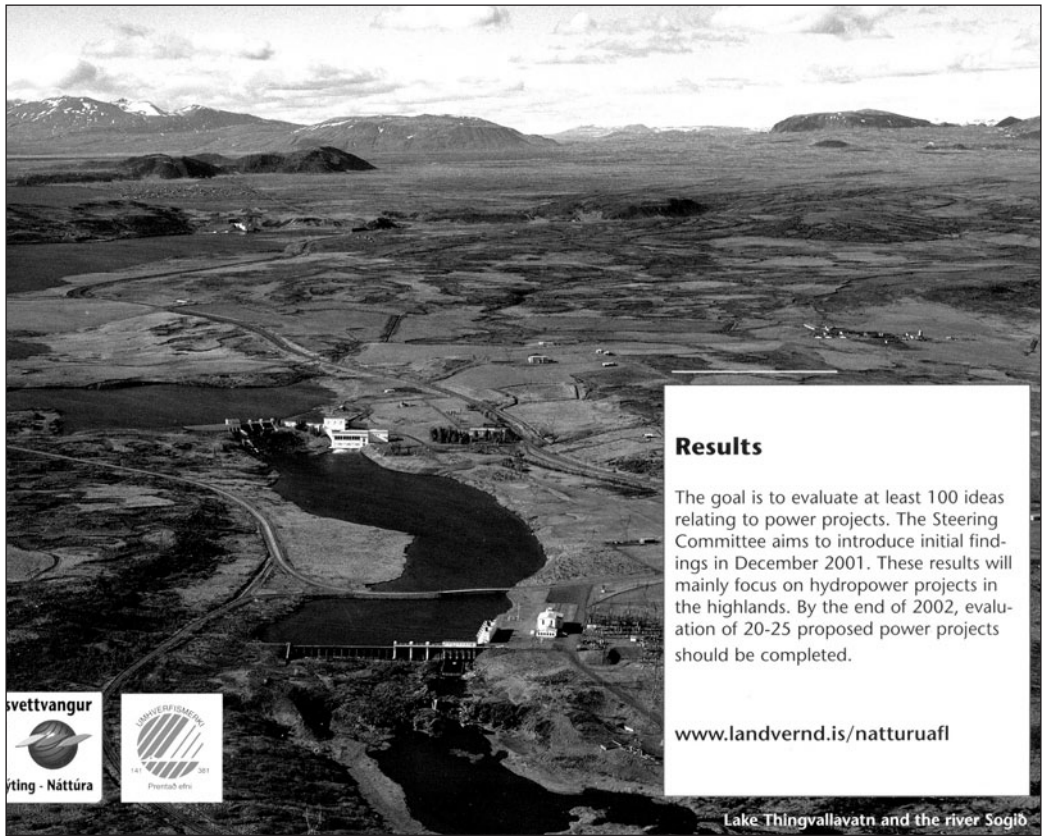
The work scheme for this large frame plan project for energy production from hydro- and geothermal power was as follows: first, a steering committee composed of sixteen members and with Sveinbjörn Björnsson, former Rector of the University of Iceland, as chairman. Then there were four working groups composed of a total of fifty to sixty specialists.

These specialists groups were meant to bring to the scene views and evaluations that are of most importance for an overview in the



Mt Snaefell: Iceland's highest mountain in the west.

The Blue Lagoon was created by an overspill from this geothermal plant.



An overview of expected results from the same booklet. Numerous changes have been made in the research programme, as discussed on page 327.

assessment of the power utilization options. The first group dealt with natural conditions and formations, the second group with outdoor life and resources, the third the national and local economies, and the fourth the energy resources themselves.

The task of this last group concerned the traditional work of defining options in the utilization of hydro- and geothermal power and to estimate the power capability and costs of each of the options. The next section will describe the methods and the projects worked on by all four groups.

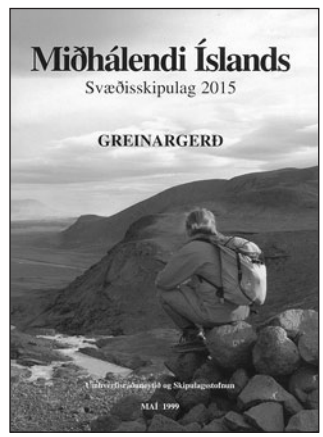
Earlier in this book, on page 244, the regional plan of the central highlands was described. This plan was confirmed by the Minister of Planning in 1999 and its time frame extended to 2015. This regional plan provided an assessment of land in terms of suitability for nature conservation or for tourism and energy production.

This work involved to some degree the same type of work as the frame plan was intended to do. The difference, however, is that in regional planning the basic idea is that all aspects that can possibly influence the planning and future activities in the area in question should be included, rather than only a few aspects, as in the frame plan.

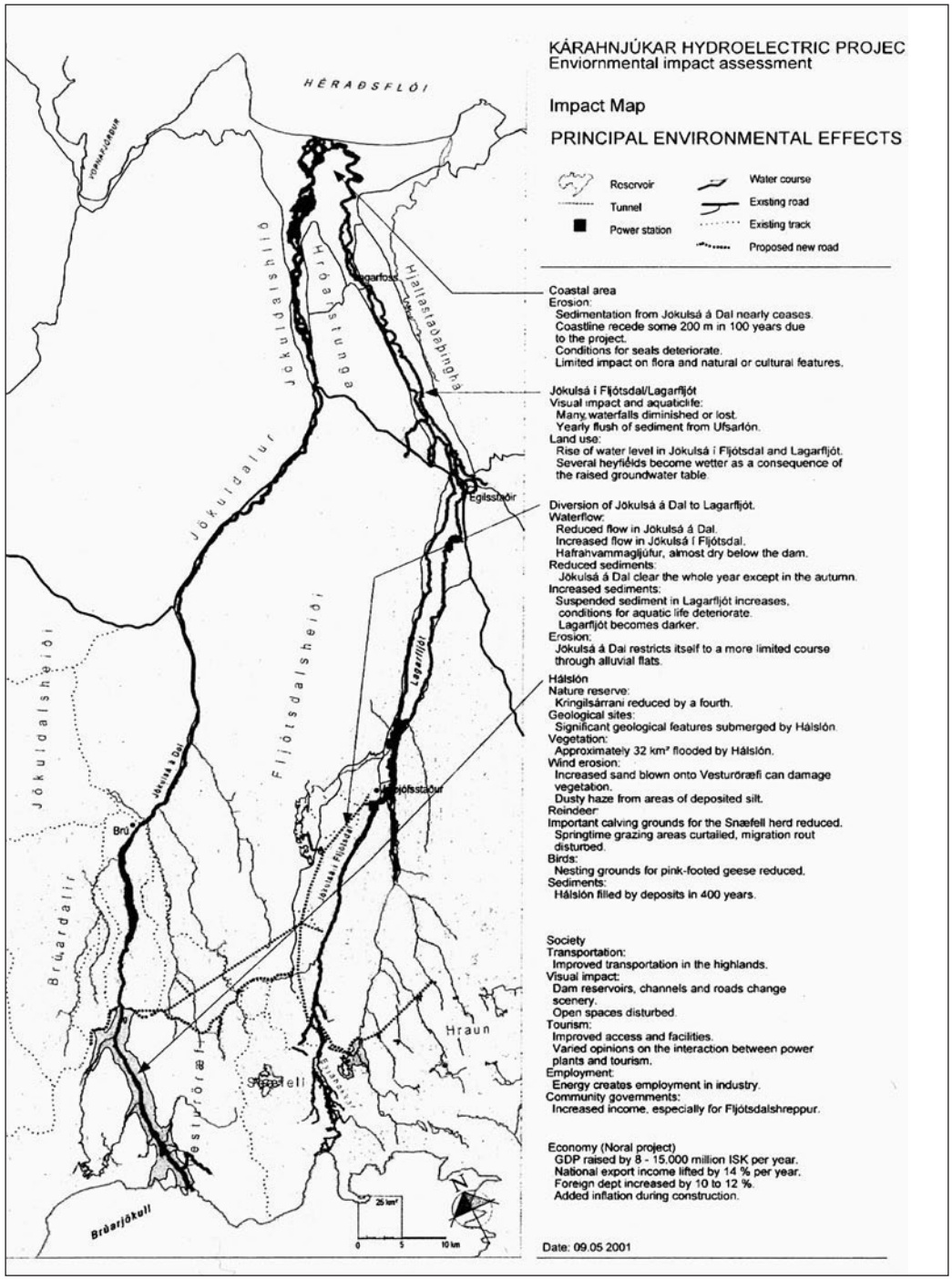
In a regional plan, for instance, assessment of the accessibility of areas is based on ideas of how the road system will be shaped. Such a plan must also include an estimation of the various types of natural hazards, which unfortunately was not a very visible factor in the regional plan in question. It certainly seems that natural hazards should influence which power plant alternatives will be selected as well as where to place the emphasis on conservation.

Most often planners try to avoid danger areas even though such areas might otherwise be profitable for energy production. It is a good policy in drawing up a plan to use the hazardous sites for nature conservation, tourist or wilderness areas – functions that all demand much space – even though these areas might be considered practical for energy production.

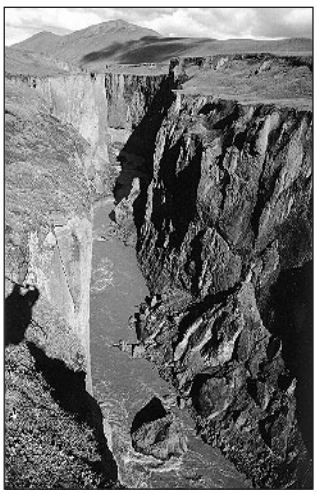
One of the points made in the chapter on the regional planning of the highlands was that, as this work was carried out for the first time, not enough money was available and therefore it was not possible to hire all the expert consultants



The first highland plan was confirmed in1999.



A summary of the main environmental impacts of the Kárahnjúkar power plant. The frame plan also evaluates power plant options, but more for comparison purposes.



The dam is being built at the head of this canyon.

that indeed were needed. Such expertise is necessary to establish a professional and scientific basis for such a plan to be both meaningful and feasible.

This lack of money resulted in complaints from various specialized institutions that they had not been consulted in the preparation of the plan. The tight financial situation is evident in the fact that the Regional Planning Commission only had about € 400,000 to cover all the work, obviously not even enough to conduct the basic research. For comparison, ten times as much or € 4,000,000 was provided for work on the frame plan.

The regional plan, however, was the best possible given the tight financing frame. It did provide an evaluation of several energy production alternatives in terms of the effect on

the natural environment and tourism and put some of the alternatives in sequence in terms of their realization.

This resulted in protests both from the National Power Company and the National Energy Authority, but their desire to be more involved in planning for the highlands probably had a lot to do with the instigation of the frame plan.

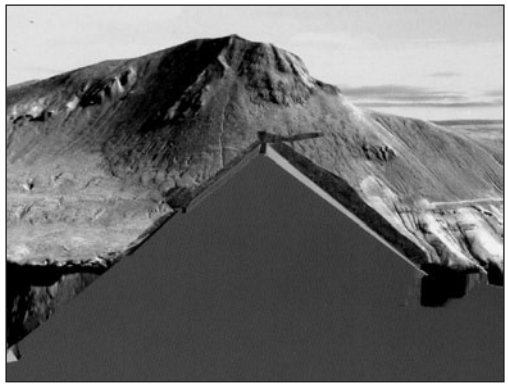
This plan actually repeats some of the work that the earlier regional planning had accomplished. It is also possible that the work on the frame plan was instigated by the need to prepare for a reconsideration of the decision on the power plant areas that resulted from the regional plan.

It comes somewhat as a surprise that the institution which, according to law, has the responsibility for power planning in the central highlands, namely the Regional Planning Commission of the Central Highlands, was not in fact the one leading the frame plan work but rather a special steering committee.

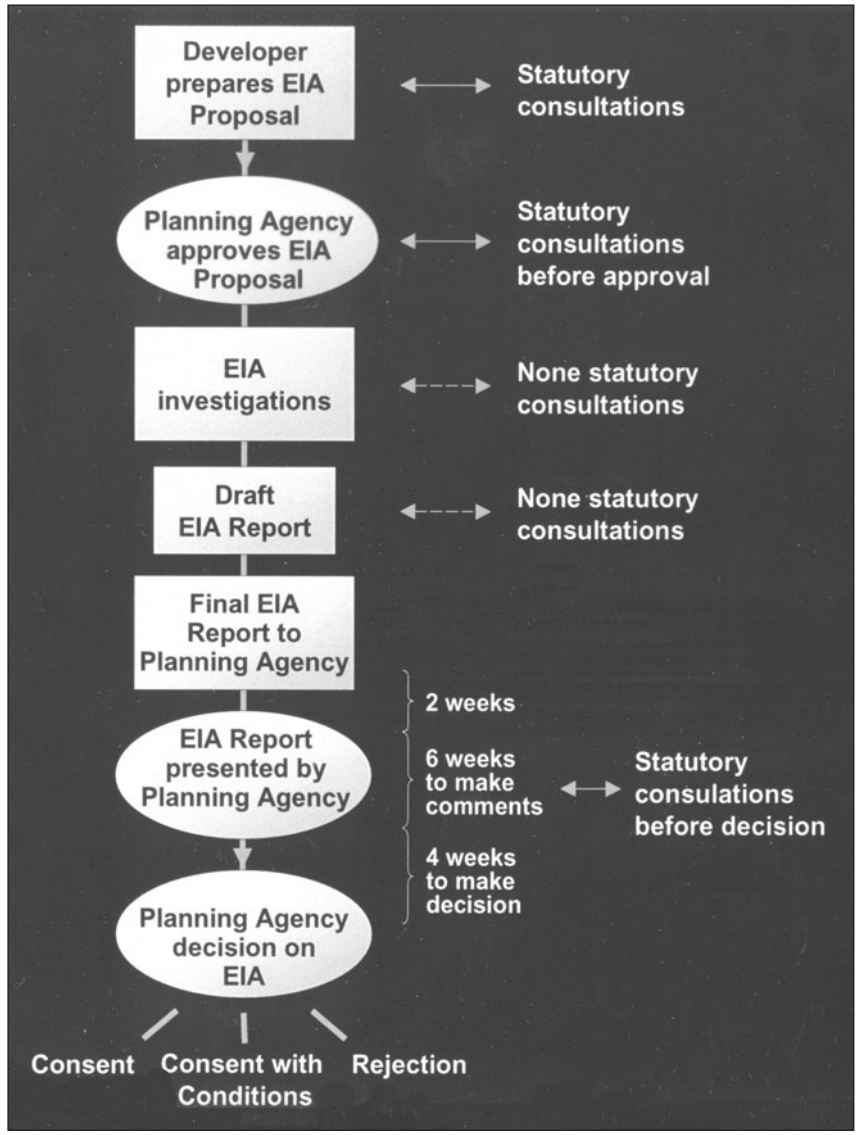
This brings up questions as to how the findings of the frame plan will be presented. Will they be presented along with a reappraisal of the first regional plan, or will this frame plan be given the position of a sector plan on a country plan level so that it has a superior position according to the planning law, a position that the regional planning level is obliged to follow?

The latter, however, cannot be done unless the law is amended to require a special country plan level, a plan level that is given tasks within certain areas that are to be carried out as sector plans, for example, for energy production.

Even though the work on a country plan would not start with a comprehensive plan which would weight, integrate and co-ordinate the various aspects of land use, a sector plan on a country scale could have such an overarching position that the regional plan of the central highlands – and of other areas where energy production would take place – would need to follow the policy created in the sector plan.



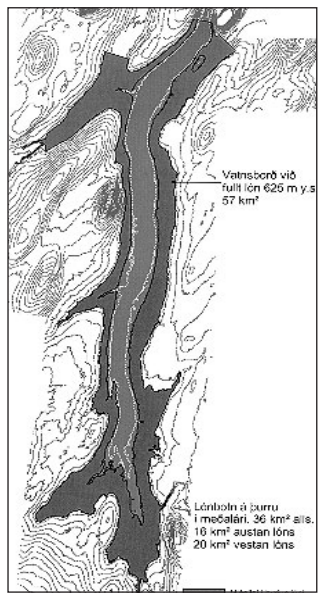
Fill material for Kárahnjúkar dam is obtained from a quarry. A concrete membrane will protect it.



The assessment process of Kárahnjúkar. Why does the frame plan not follow the same scheme?

Surprisingly, the initial document does not mention how the anticipated findings of the frame plan are to be presented, or how those findings will be interpreted in relation to governmental aspects. It is very important, in a project like this, to anticipate how the results of the work will be implemented by the government sector.

A plan like this appears very differently if the findings are meant to be presented as land-use categories in land-use plans or if they are only meant to be presented as a text with individual maps intended to serve as an evaluation of the feasibility of the various energy production alternatives.



Grey: Dry areas at Hálslón at the beginning of summer.

2 Research and Special Studies

On page 238 a rather short account of research on the central highlands was described, including the fact that most had been carried out in response to power plant concerns and to examine the feasibility of alternative locations. Of late, research into various aspects of the natural environment has been added to the standard procedure, which during the 1970's had become a regular part in the work of preparation for power plants.

Now a brief overview will be given of the tasks of the four specialist groups that assessed the various aspects concerning the plan, aspects that play a role in the making of the frame plan. In order to make the description more logical, this account will start with the work of group 4.

Group 4 dealt with energy resources, the task being to define all available options in the utilization of hydro- and geothermal power for the generation of electricity as well as assessing the power capacity and costs for each of the alternatives.

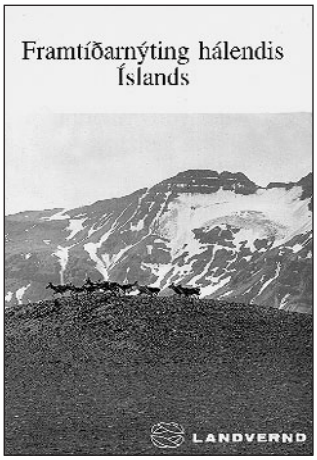
This group consisted of seven members, with Thorkell Helgason, the head of the National Energy Authority, as chairman. The task of this group was the simplest one compared to the other groups because in this area a great deal of research had already been carried out and also because the features and the costs that need to be assessed are objective. It is fairly easy to present an estimation of the options if the basic data are good enough.

Group 3 dealt with the national economy, employment and regional development, a rather complicated task given that profits from the work on the hydropower plants can extend only over a short time and are therefore highest during the time of construction. This group was meant to give an estimation of projected profit by regions and to name the parts of the country where most of the work and activities would be taking place.

When the power plants are fully operational, all the activities that surround them as they were being built are reduced to almost nothing. What remains in terms of income for the local communities is the various types of taxes and fees. In terms of the economic effect, it is of great importance to take into account the region where the power will be utilized. One case in point is the anticipated positive effect on regional development in the east after it was decided that an aluminium plant, which would utilize most of the energy generated, would be built there.

Considering the regional development gains connected to constructing the power plant and the aluminium processing plant, it is noteworthy that the work force is not primarily local. In the case of the Kárahnjúkar project the Italian company Impregilo won the bid for the main project and has imported many of the specialists and the workers from abroad. Furthermore, the several other projects involved are not necessarily worked on by local people because they are subject to bidding and the winning contractors may want to bring their own people to the site.

Another task of group 3 was to estimate what effect each energy production alternative would have on other types of activities, including tourism. Theoretically, there are two options: one, that the power plant alternative could increase tourism or on the other hand, that the project would reduce the area's attractive qualities and therefore lead to reduced possibilities for tourism. In general, many of the developments that accompany the construction



The highland debate started around 1990: a booklet 1991.

Work group IV

will identify potential projects, both for hydropower and geothermal energy, and evaluate these possibilities from a technical and economic point of view.

Group IV did the work conducted for any engineering project.

Work group III

will evaluate the possible impact of the proposed projects on both the national and local economy.

Group III had the difficult task of assessing economic benefits.

of power plants, such as roads, bridges and dormitories, can make the development of tourism in the area easier, as has been the case in the Thjórsárdalur Valley and the surrounding area.

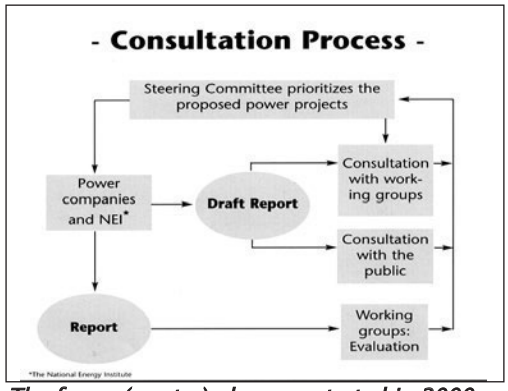
Group 2 dealt with outdoor life and wildlife resources. The types of outdoor activities that were studied by this group included hiking, jeep expeditions, pony trekking, and river rafting. As for natural resources, it was the task of this group to estimate the effect of the power production alternatives on agriculture, revegetation and forestry, and on salmon and trout fishing and hunting game.

That the group had forty members reflects the wide range of the required tasks. The chairman of the group was Haukur Jóhannesson, a geologist. Other specialists included those in the various fields of tourism, a member of a tourist association, a fish biologist, and a farmer.

Group 1 dealt with the preservation of nature and cultural heritage. The task of this group was also to estimate the effect of the various energy production options on the landscape, geographic formations, vegetation, fauna and historical artefacts.

This group consisted of thirteen members, the chairperson being Thóra Ellen Thórhallsdóttir, a botanist. Other members of the group included a specialist in range management, a water biologist and a zoologist. This group actually dealt with the most important aspects of the necessary environmental assessment once a certain energy production option is chosen.

It is important to point out that in some cases the effects of an energy option can be positive. For instance, there can be less sediment in the glacial rivers after the reservoir has been built, which can lead to increased fishing, and the reservoirs, as new "lakes", can increase the possibilities for fish cultivation.



The frame (master) plan was started in 2000. A draft report was published in April 2002.

Most often, however, the changes that come with the building of a power plant mean changes in biological aspects – in particular of the bird life. Sometimes quite extensive disturbances occur in areas where birds search for food, where they nest and where they flock, as large areas are flooded, as is the case with hydropower plants. Similarly, cultural remains can be in danger. It is very hard to save such remains in areas that go under water. The fact is, however, that there are not many cultural remains in the highlands of Iceland because so few settlements have been located there.

In order to help decide between options, it was decided in advance that the work of Group I, on nature and cultural remains, should have twice as much weight as the work of each of the other groups.

Objections have been raised that the weighting among the groups was determined in advance; only after the work has been completed can people really determine how they would like to weight the value of the work, as different features are involved. It is also critical what methods of evaluation are used and in addition,

Work group II

will evaluate the impact on outdoor life, agriculture, fishing in rivers and lakes, and hunting.

Group II mainly consisted of scientists who evaluated the impact in their field of expertise.

Work group I

will evaluate the impact on the natural environment such as landscape, geological formations, vegetative cover, flora and fauna.

Group I had the most difficult task because it included so many subjective judgements.

Research

Both research in methodology and empirical research is necessary in order to base decisions on scientific knowledge. The Working Groups take advantage of already existing research in their area of specialization; however, in the early stages of the project it was evident that lack of data could be problematic. Therefore, the Steering Committee has initiated and supported several new research projects that should prove helpful in the evaluation process, including:

- Methods to evaluate the conservation value of wilderness areas
- Tourism and the value of an area for outdoor recreation
- Methods to evaluate landscape
- Methods for comparing efficiency of power projects and their potential socio-economic impact

Much research was started to provide enough data.

how much the members of the specialist groups decided to weight certain factors. It is inescapable that the findings and evaluations of each group reflect the view of the individuals that are in the group, even though people try to be objective in their work.

It is common knowledge that specialists, in dealing with their area of expertise and interest, tend to value their own concerns more highly than those in other areas. It hardly matters what the specialist's area is: the love for one's own subject makes it stand out as most important. The final weighting of an evaluation, however, should try to circumvent such excesses.

Many countries have tried to involve the public in the evaluation process in order to reduce any imbalance. Various methods have been created to ascertain objectively the views of those questioned on the alternatives at hand. In some cases the public is shown maps that show the alternatives, but because people are most often not well trained in reading regular maps it is better to show pop-up pictures or computer pictures of the areas or construction in question.

Sometimes photographs are used, but the problem is that the camera angle can be deliberately used to slant the answer to favour one alternative over another.

Often sampling reviews have been worked out using methods similar to those applied in sociological research. This approach primarily means that the social background of those asked is taken into consideration. Application of this method is based on the view that it is right to take into account the knowledge and background of the respondents in interpreting the answers.

The respondent's salary bracket, for example, can have an effect because numbers and costs may weigh higher in the minds of those that have a lower income than of those who earn more.

In order to provide advice on what methodology should be used for the entire project a special *methods group* was established, directed by the planner Sigurdur Gudmundsson. The report of this group started by reviewing the methods used by the *Samled plan for vandkraft* in Norway. There the power plant alternatives were first classified into six feasibility groups and secondly the influences on the environment were evaluated in terms of thirteen different aspects.

Each of these aspects had one or more features that were taken into consideration and then were graded from +4 to -4. After this first part had been finished, the power plant alternatives were grouped into eight different categories according to the total number of points awarded.

This group especially studied two methods and recommended them as superior to the Norwegian method. These were the *AHP method* and the *Fund Voting Method*. Thomas Saaty originally proposed the AHP method 25 years ago as a way to choose between alternatives in cases involving numerous goals and scales. Such tasks belong to *Operation Research*. AHP stands for *Analytic Hierarchy Process* and, as the name indicates, refers to an analytical process divided into hierarchical steps.

The first step is that the criteria are compared to each other, two at a time, and in this way ordered according to their importance. The result of this step is a calculation of the value of the comparisons such that each value is accorded a number so that the sum of all the numbers is 1.

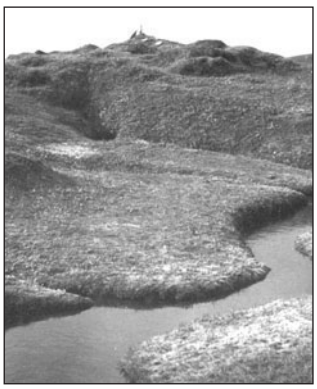
The second step is that the power plant alternatives are evaluated, each against one other, and then ordered according to each criterion separately. The comparison is based on several factors including size, richness of environmental quality, and amount of information. As before, the comparisons are made two at a time and the results yield grades for all the alternatives concerning each criterion.

The third and last step in this method is to calculate the final evaluation for the alternatives. This is done by taking the final grade for the alternatives that were calculated in the second step and the weights from the first step, yielding the weighted average.

The main characteristic of the AHP method is thus a comparison of only two aspects at a time, which means that this method, first and foremost, sorts the alternatives in order, in a rather confident way.

The scaling and assign-ment of weights, on the other hand, are rather uncertain. In this connection, it is often pointed out that there is always a great uncertainty as to what the weight of each of the criteria should be and therefore it is not justifiable to order the alternatives by a scale of weights, as does the Norwegian method.

In order to be able to assign and enter mathematical values into the evaluation process it is inescapable that monetary values must be assigned to environmental values. Three methods are available that can be of some help in the evaluation of the monetary dimension: 1. Ascertaining the number of people who will



A creek brought water into this house and carried wastes away.

The Torfajökull area in the middle of the southern highlands has by far the most geothermal potential. No power plants have been built there yet.

likely use the resource. An estimation can be made by counting those who visit the area in question. 2. Just knowing that an area exists can have value for some.

This economic value is called existence value. 3. By asking people whether they are willing to sacrifice certain current monetary values in exchange for keeping a resource untouched for future generations.

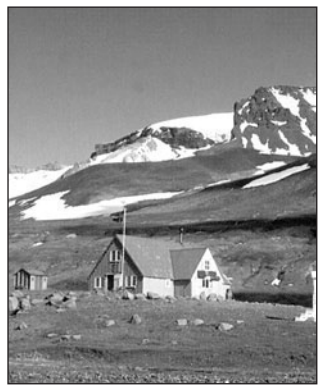
It is easiest to assess the first point, especially if there is tourism in the area, because visitors may be both questioned and counted to get some idea of the value they place on the site. As to the second point, existence value, there is a much greater methodological problem because in this case the value cannot be judged by people's actions but rather by using surveys, either interviews or questionnaires.

In such surveys, respondents are given information about the resource and the proposed use. Then they are asked to set a contingent valuation on the resource, i.e., to name an amount to show how much financial gain there would have to be in order to justify utilization. This is called *willingness to pay*, and can be understood, if turned around, by saying that it is comparable to possible compensation if the resource is destroyed.

The other main method studied by the *methods group* is the *Fund Voting Method*. This method was developed within the field of Operational Research for use where there are many varied alternatives that need to be put in a certain order, i.e., in cases where a decision could not simply be made for or against. To simplify, this method can be compared to casting votes at a shareholders' meeting where each shareholder's votes are in proportion to his share ownership. In the case we are discussing here each person would initially be given the same number of votes.

If we assume that each individual has, for example, 200 votes the individual can decide how many votes he wants to give for each alternative presented. Respondents might then be willing to give 30 votes for alternative A and 90 votes for alternative B.

In this method, respondents can save votes for later use in the evaluation process. However, there is no complete agreement on the use of this method for evaluating power plant alternatives.



The basic question is how the highland should be used.

16. What is your opinion about the following claims?

	Agree	Neutral	Disagree	Don't know
Road network planning in the area should be guided by the interests of tourism and outdoor leisure	☐1	☐2	☐3	☐4
Hydropower development is a precondition for improving the road network in the area.	☐1	☐2	☐3	☐4
Hydropower structures in the area would attract tourists.	☐1	☐2	☐3	☐4
Hydropower structures and tourism development are not compatible in the area.	☐1	☐2	☐3	☐4
Hydropower structures in the area would create more possibility for innovation in tourist and leisure services.	☐1	☐2	☐3	☐4
Iceland should work towards making the highlands north of Vatnajökull glacier into one of the largest nature parks in Europe.	☐1	☐2	☐3	☐4

17. What needs to be done to attract you to the area more often? *Tick every item you consider important.*

Improve the present roads	☐	Improve accommodation options	☐
Build new roads	☐	Improve the campsites	☐
Improve the horse riding tracks	☐	Increase organized leisure activities	☐
Add more marked hiking/walking trails	☐	Improve other services	☐
Improve/publish hiking/walking maps	☐	Nothing (status quo)	☐

Other action that needs to be taken:_____

18. How often have you been to the following places? ***Please give one answer for each option.***

	Never	Once/twice	More often
Lakagígar	☐1	☐2	☐3
Eldgjá	☐1	☐2	☐3
Landmannalaugar	☐1	☐2	☐3
Thórsmörk	☐1	☐2	☐3
Hveravellir	☐1	☐2	☐3
Jökulsárgljúfur	☐1	☐2	☐3
Dettifoss	☐1	☐2	☐3

Three questions from a survey on tourism and leisure in the highlands in a preparation for the frame plan on hydro and geothermal utilizing.

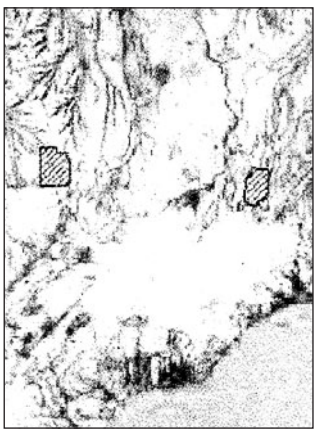
After the review of the alternatives, the AHP comparison method was chosen as the method to be used by all the specialist groups. The task then became to order all the power plant options in the study according to this method. Later it became the task of the steering committee to present the results and the final ordering or classification of the power production alternatives.

One of the biggest question marks in this evaluation process is what weight the results of the different specialist groups should have. The decision that the results of the first group on nature and heritage aspects should have double the weight of the results of the other groups is hard to justify.

As for the work on the frame plan, it is important to stress that there was no demand for thorough research into the various basic aspects that were to be evaluated. That would have been far too time consuming and costly so simpler methods were sought to justify coming to conclusions. The steering committee had professional backup in all of the scientists who were members of the specialists group.

In many cases the members of the groups were appointed by official research institutions, the largest being the National Energy Authority, the backbone in the field of energy production, and the Icelandic Museum of Natural History and the Nature Conservation Agency, which provided the strongest backing in the area of conservation of the environment. These institutions were meant to take the initiative in the groups they were responsible for, and various specialized projects that these institutions were working on had a positive value on the work of frame plan project. A sizeable amount of the activities that these institutes were working on during the time of the project was directed into this field. These were primarily projects that were connected to research on the central highlands, even though the tasks were not necessarily limited to the highlands.

In fact it would have been best if the frame plan work could have embraced the whole of



Research areas in SE Iceland. They need yo be expanded.

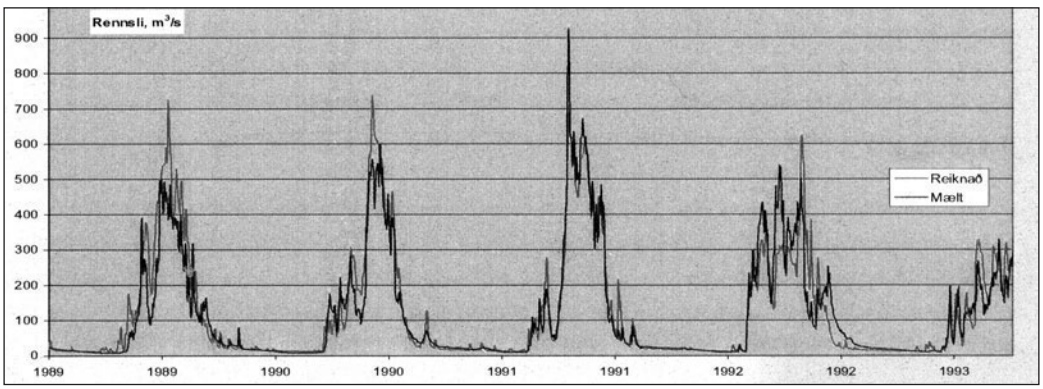
Virkjun									
Viðfang	Vogtala Undir-við-fangs	Áhrif						Vogtala við-fangs	Hluteinkunn viðfangs
Útivist		Jákvæð +3	Engin 0	Lítil -1	Nokkur -3	Mikil -5	Vegin einkunn undir-viðfangs		
Stuttar ferðir	0,10								
Langar ferðir	0,13								
Náttúruskoðun	0,17								
Ævintýraferðir	0,13								
Þjóðfræðiferðir	0,10								
Hestaferðir	0,10								
Vetrarferðir	0,10								
Upplifun	0,17								
Vegin meðaleinkunn								0,72	
Veiðar		Jákvæð +3	Engin 0	Lítil -1	Nokkur -3	Mikil -5	Vegin einkunn		
Veiðar í ám	0,37								
Veiðar í vötnum	0,46								
Skotveiðar	0,17								
Vegin meðaleinkunn								0,19	
Hlunnindi		Jákvæð +3	Engin 0	Lítil -1	Nokkur -3	Mikil -5	Vegin einkunn		
Grös og ber	0,05								
Beit	0,95								
Vegin meðaleinkunn								0,09	
Heildarmat áhrifa virkjunar									

A form that group II used to write down its evaluation of outdoor life and resources. The various fields were weighted and summed.

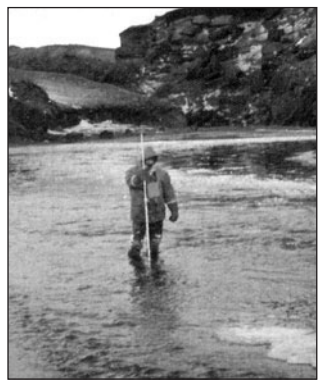
Iceland so the whole country could have been the *frame of reference* in assessing the alternatives available for energy utilization. If this had been done, the country scale frame of reference would have been the frame of reference for the evaluation of some important natural features.

This short section in this book cannot explain in any detail the huge amount of work that was conducted by the groups, but we will look at various examples of their work where the main characteristics of their tasks and exciting new review work projects are presented.

Let us first look at *Group* 4, which dealt with energy resources. One of the first steps was that the National Energy Authority presented energy utilization options in the primary study phase. This consisted primarily of model calculations that were based on the discharge and head of



Hydrographic series showing the peaks in the River Jökulsá á Dal. This creates the foundation for the calculation of discharge into the reservoir that is meant to even out the tops.



Various methods are used to conduct hydrological measurements.

Such rocks carried by a glacier into the sands are named for Grettir the Strong. This rock has started to erode, mostly because of frost and water.

water, in a single word: power. On the other hand, the calculation was based on average values of construction costs. Some of the most important basic data used for this work were hydrographic measurements where it is of primary importance to know rather well what the need for water storage is. The hydrographic series for the river in question has to be made for that purpose, preferably from data covering about ten years. This work is important so that it can be said with some certainty that figures for water flow and storage capacity can be trusted for the proposed power plant in question.

As to research into the feasibility of high temperature geothermal areas, certain minimum standards were set defining the needed information about the areas in question. A special map needed to be at hand for the areas to show where cracks and eruptive vents appear.

Furthermore, an estimation of permeability of the bedrock should be conducted. Secondly, certain research into the chemistry of water and steam had to be available, and thirdly various types of geophysical research were required for any area where a power plant might be built. These include electrical resistivity measurements, which are used for estimating how large the geothermal area underground is and to estimate the temperature of the geothermal water in the area in question.

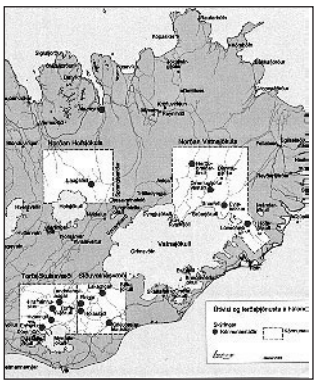
In specialist *group I*, on *nature and heritage conservation*, one of the biggest tasks was to divide all the areas into *habitat types*. This gave a framework for what types of plants and animals live in the areas in question.

The main method used for defining the conditions needed for habitat types is to search for the basic characteristics of the area in question, followed by a definition of what types of plants and animals can live in the various types of habitats. A basis for this was a classification used by the EU, but in Iceland some extra types had to be added because of the special types of landscape.

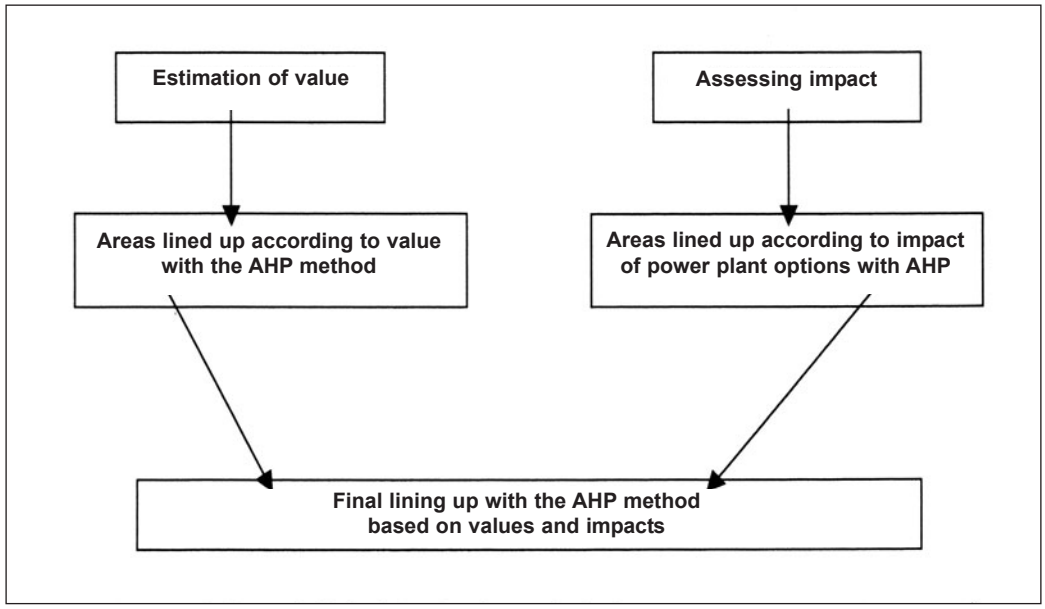
This method differs from the method most usually used by biologists, which is to define the research area in terms of what kinds of flora and fauna live in the area. The habitat type method is easier to carry out and also better in that it is based on characteristics that are more permanent than life forms, as the various species can increase or decrease according to changes in outer conditions.

The habitat types were defined based on vegetation maps that today are being produced directly from colour air photos that have been processed to show the form of the landscape.

This new technique, together with the computer, is actually what has made it possible to go into the highlands, which has been so little researched, and conduct such a classification in a short period. Earlier all map making and the processing of data took enormous amounts of time. This would have been a bottleneck that could not have been bypassed in the processing of this database only ten years ago.



Research areas for outdoor activities and tourism.



The work scheme of group I, evaluation and priority list based on values and impacts on nature and cultural remains. For preliminary findings see page 329.

The Icelandic Museum of Natural History was given the task of proposing a method and creating basic rules for estimating the conservation value. First, proposals about conservation criteria had to be created, which meant that the reference used is the uniqueness of the feature in question. The degree of uniqueness is estimated on three levels: within an area or a region, in the country and globally

Of these levels, it is probably most difficult to estimate uniqueness values in reference to the whole of Iceland because research on the natural features has not developed to the point where people can say with enough certainty how frequent the various types of animal or plant species are in the country. After land and water areas have been divided into habitat types, it is expected that this basic classification will also yield information on the range of scarce species and tolerance in the face of environmental disturbance.

The report of the Icelandic Museum of Natural History emphasized that the estimation of the conservation value of geological formations, habitation and landscape can vary tremendously in terms of how strongly people emphasize such factors as beauty, informative value, cultural value and occupational history.

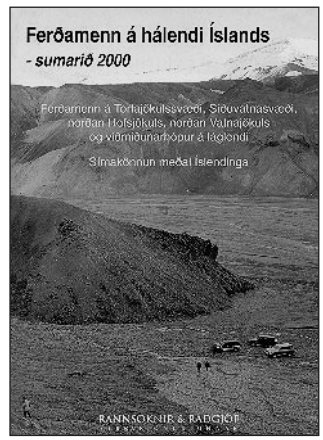
In estimating the uniqueness of natural features, people have to depend largely on the opinions of scientists and on the various data that exist, i.e., the distribution of such features on a country and global scale and also a general estimation of the scientific value of the natural features in question.

The area where least knowledge exists in Iceland is an assessment of the landscape. Assessment of landscapes entails various basic factors such as diversity, how unusual a landscape is, how well it illustrates basic types of landscape formations, and how well it demonstrates the effect of the forces that shaped it.

In order to get assistance in estimating *landscape values*, the American professor *Carl Steinitz* was hired. Steinitz went on a four day journey into the highlands and then wrote a report on the aspects that to him were the most characteristic of the highland landscape.

In his report, Steinitz emphasizes that the logical first step in such a work would be to assess the whole country before turning to the different areas. Only in this way can decisions be made in reference to the whole of Iceland. Steinitz pointed out that a possible method for a basic evaluation of areas is to establish what he calls *a wise men panel.*

Steinitz described a two week project in the US state of Arkansas, where two types of areas were marked on maps according to the evaluation of such a panel. On the one hand, there were conservation areas and on the other, areas that were suitable for construction. In his report, he further pointed out that conservation should not necessarily mean that nothing could change about the feature in question because



A survey on attitudes on the highlands in 2001.

The flat terrain and the clear air of the highlands give a sensation of vastness.

nature is constantly changing and the effects of weather, man and other elements are always causing such changes.

On the other hand, he pointed out that landscape that has remained more or less unaltered is getting ever harder to find, as well as large landscape units. What Steinitz saw as one of the most important positive features about the Icelandic landscape was that many types of landscapes exist in a relatively small area, all of which can be experienced over a short time.

Tourists and others can experience lava, mountains, highlands and lowlands – all in a single day. In many other countries the same landscape types sometimes extend over thousand of square kilometres before the traveller encounters another landscape type.

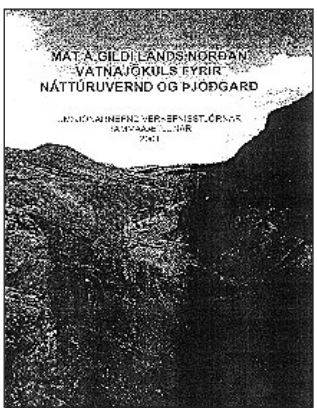
Steinitz' basic findings were that the landscape in the central highlands was very valuable and that its value consisted primarily of four features:

1. In Iceland there are still very large areas that seem to be undisturbed, with almost no visible signs of human intervention or modern technological advances.

2. Even though Iceland probably does not have any landscape types that are unique and that cannot be found anywhere else, the great variability of landscape found in Iceland can hardly be found anywhere else.

3. Steinitz declared that he has never seen landscape where the natural forces that shaped it are as visible as in Iceland. All four main forces of land formations are still at work here: glaciers, volcanism, water and wind.

4. Finally, he said, that the wide vistas provided in the central highlands have great visual value.



A report on a possible national park.

All these aspects are important when it comes to the estimation of the value of the central highlands as a unit, from the point of view of landscape and visual factors. On the other hand, it seems that much more work is needed to be able to evaluate the various areas of the highlands in terms of landscape and visual features.

Group II, which dealt with *outdoor life and resources*, was most in need of primary research in the area of tourism because such research has only just started in Iceland and no comparable large research institute is operational in this field as in the fields of energy and the natural sciences.

Therefore *Rögnvaldur Gudmundsson*, a tourism specialist, was given the task of surveying tourism in the highlands. Gudmundsson conducted these surveys among local and foreign tourists and asked what they considered most important in terms of the natural environment and what their opinion was on various possible projects in the highlands such as power plants, roads and power lines.

Group III, which dealt with the *national economy, employment, and settlement development*, also conducted several surveys, some of which were carried out by the University of Akureyri. This group also dealt partly with tourism because jobs created by tourism can affect regional development. This group commissioned several reports, such as *Efnahagslegt umfang thjódgards nordan Vatnajökuls* (The Economic Dimensions of a National Park North of the Vatnajökull Glacier).

The question of the economic importance of a national park was studied, with the respondents given alternatives such as a national park and no power plant or a national park together with a power plant. The latter case demonstrates clearly that the various costs involved in establishing a national park can be lowered if, at the same time, a power plant is built because then roads and various other construction can be used for the national park.

Various parties provided basic material for this report, for instance, the Nature Conservation Agency that contributed a description and made cost estimations of establishing a national park north of the Vatnajökull Glacier. In addition, the National Economic Institute estimated the national economic value of various uses that accompany establishing and operating a national park in the area.

3 The Proposals of the Frame Plan

The two previous sections described the frame plan in general. The description is given in the past tense even though the frame plan proposals were not ready before this book was published in the autumn of 2003. It is, however, more natural in reading the book to read about the plan in the past tense as in a few years this will be so.

This third section on the proposals on the frame plan can only describe proposals that were presented by the autumn of 2002 because after that the presentation of the findings of the work groups were laid aside waiting for the parliamentary elections of 2003 and a new government to be chosen.

The first time schedule for the frame plan was that an evaluation of 25 hydropower options should be ready by the end of 2001. A minor delay occurred, but in April 2002 the steering committee published a 41-page report with an experimental evaluation of 15 hydropower plant options. This section is primarily based on that report.

According to information from the National Association for the Protection of the Icelandic Environment, which was in charge of the public relations aspect of the project, the steering committee plans to give a report by December 2003. This report will contain a more thorough description of the methodology applied, as well as some changes and even additions to the 15 alternatives that the experimental edition dealt with. To this there will be added an evaluation of the nine geothermal areas, in all a total of twenty-two power plant options. An overview of these alternatives is given in a text box on p. 330.

In the final report of this first phase of the project, the steering committee is going to give an idea about how the work could be continued for the next 5-10 years. That work would be able to give a rather good overview of all available energy options in Iceland. The work on the hydropower options that until now have taken place have primarily focused on the glacial rivers, but the next group will focus on energy plant options in clear water rivers. Later phases will take into account power plant options in the high temperature geothermal areas, mainly in the highlands. It is expected that one hundred power plant options will be assessed.

The *hydropower options* included in the first part of the project – i.e., in the group of 25 power plants that were to be studied first – were located within six study areas, but within these areas, numerous alternatives for building power plants were given. The following description of these areas is taken from the first phase of the work.

The six study areas are: 1. The glacial rivers in Skagafjördur. 2. Three options at the Skjálfandafljót River. 3. Several options at the glacial rivers north of the Vatnajökull Glacier. 4. The western part of Síduvötn Lakes, i.e., the larger part of Skaftá and Hólmsá Rivers, in addition to the idea of having the Skaftá River flow into the Tungnaá River. 5. Markarfljót River. 6. Thjórsá River, but in that area the sixth phase of Kvíslaveitur is to be studied, the Búdarhálsvirkjun Plant and the Nordlingaalda Reservoir, as well as two power plant options below Mt Búrfell, i.e., the Núps generating plant and the Urridafoss generating plant, together with the Bjalla generating plant on the Tungnaá River above Sigalda.

The glacial rivers in the highlands were first studied because they make up rather uniform units in terms of preservation ideas and also because they provide the most important power plant options.

There were also six *geothermal areas* that were to be included in the first part of the first phase of the project: 1. Reykjanes Peninsula, including the tip; the Krýsuvík area (Sandfell-Tröllad yngja); another area in the Krýsuvík (Sveifluháls-A-Engjahver) region; and the Brennisteinsfjöll Mountains east of Lake Kleifarvatn. 2. The Hengill Area, which includes the options of Graenidalur Valley and the Ölkelduháls Mountains as well as Hveradalir, where Reykjavík Energy is working on the search drilling. 3. Bjarnarflag in the Lake Mývatn area, if this option has not already been initiated. 4. The Theistareykir area. 5. The Öxarfjördur area. 6. The Torfajökull Glacier area, with at least have four power plant options.

These study areas are mostly close to settlements, which are in accordance with the interest of power companies for suitable options. The only area that is not close to settlements is the Torfajökull Glacier area, but in that area the National Energy Authority was completing primary studies at the time.

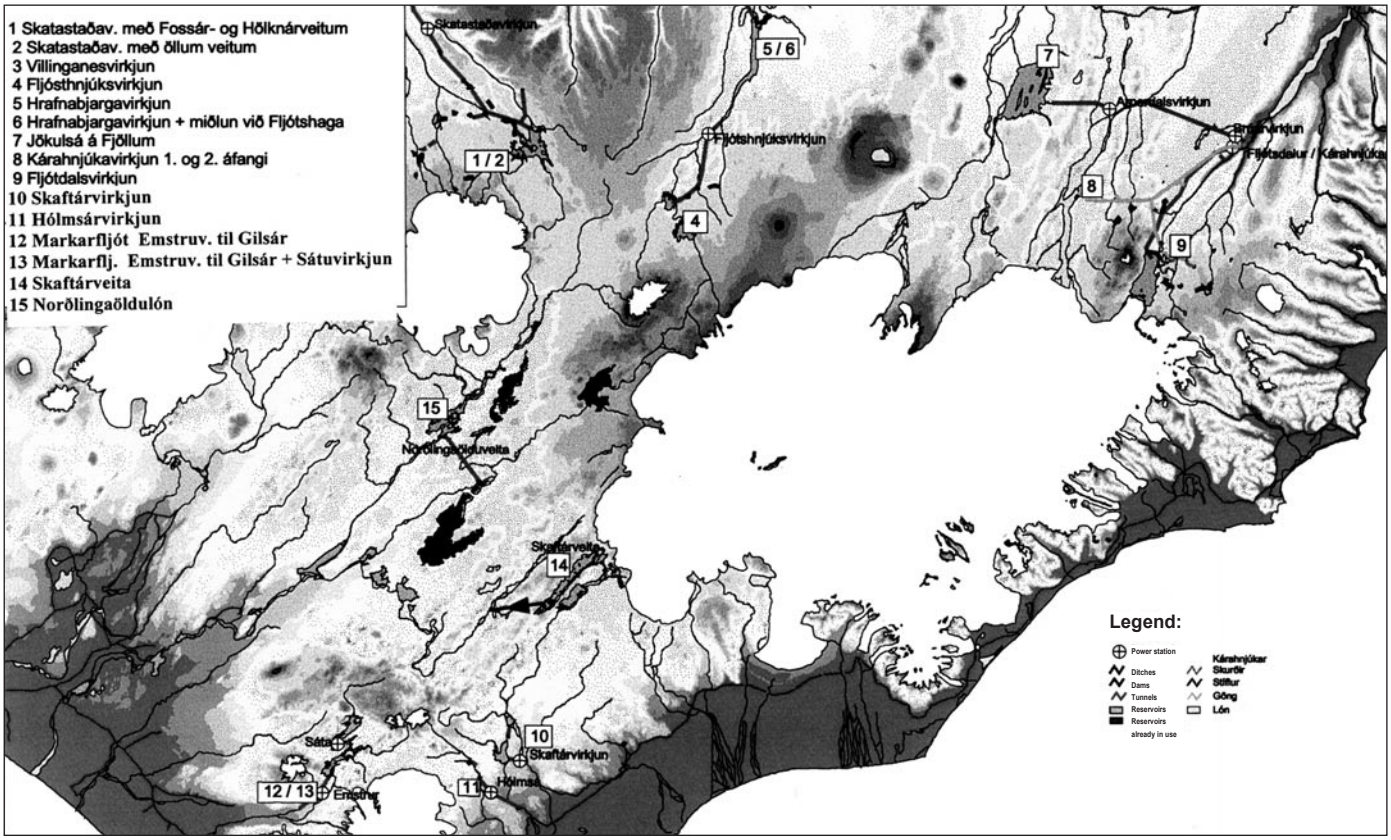
Let us now review the findings of the report, which were based on the experimental estimation of 15 energy plant options that was published in April 2002. The large map above shows the location of these energy options with


Verkefnisstjórn um gerð rammaáætlunar um nýtingu vatnsafls og jarðvarma

Tilraunamat á 15 virkjunarkostum í vatnsafli

April 2002

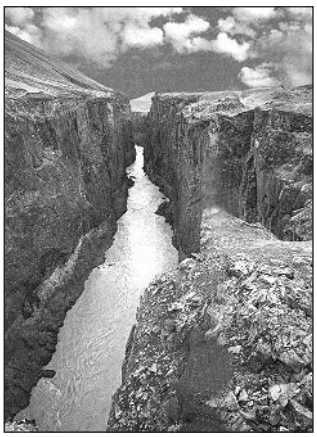
A preliminary evaluation was issued in April 2002.



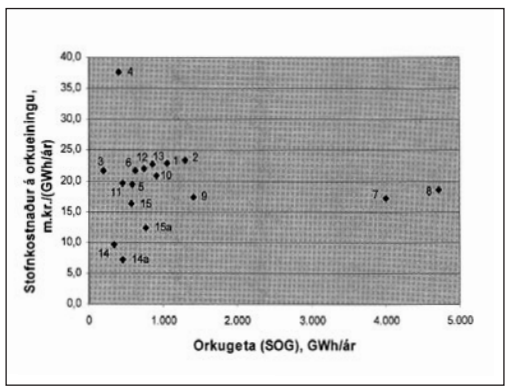
The numbers on this map show the location of the 15 power plant option studies in the experimental evaluation. In the box in the corner the numbers are given again and they are used in the two charts below.

a number, and in the right upper corner is a list showing the numbers and the names of the power plant options. As can be seen on the map, these plant options are, on the one hand, in the central highlands north of the Vatnajökull Glacier, and on the other hand, in the Thjórsá River area and the rivers in the mid-south region.

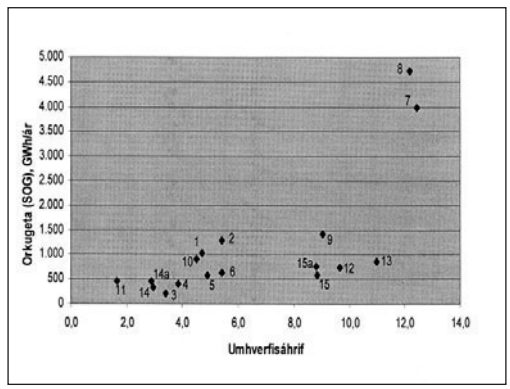
The two graphs below analyse these 15 hydropower options, with two extra options, 14A and 15A, added. The first graph shows how the 15 options line up in terms of *the initial costs per energy unit in relation to the power production*. There it appears that the initial cost per power unit is the lowest in Skaftárveita and by far the highest in Skjálfandafljót at Fljótshnjúkar. The large power plant options in this evaluation, i.e., the Jökulsá á Fjöllum River and its watershed, followed by the Kárahnjúkar Plants I and II, do not have the lowest initial cost per power unit but the energy potential is by far the largest in these two options. These two options have the



The site of the Kárahnjúkar dam at the top of the canyon.



The initial costs of a power unit are the least in Skaftárveita, but most in alternatives 7 and 8.



The environmental impacts are greatest in options 7 and 8, as they are by far the largest.

Weights:	0,25		0,25		0,2		0,2		0,1				
	Earth remains and hydrology		Landscape and wilderness		Types		Habitat types and soil		Cultural remains		Balanced Evaluation:		Final succession
	Value	Impact	Value	Impact	Value	Impact	Value	Impact	Value	Impact	Value	Impact	
	1	2	3	4	5	6	7	8	9	10	11	12	13
Kárahnjúkavirkjun I & II	7,8	17,7	8,1	13,7	12,8	17,6	13,9	13,4	12,3	6,8	10,6	14,7	14,1
Jökulsá á Fjöllum - allt vatnasvið	17,0	13,7	14,1	13,7	6,4	6,0	9,3	10,0	7,8	14,4	11,7	11,5	14,1
Norðlingaöldulón	3,5	3,8	8,1	7,7	18,4	11,8	21,1	16,1	6,5	3,4	11,5	8,8	10,8
Fljótsdalsvirkjun Markarfljót Emstruv. til Gilsár + Sátuv.	3,5	6,3	8,1	10,4	11,2	14,5	11,4	16,1	4,5	2,8	7,9	10,6	10,8
	11,3	7,3	14,1	13,7	3,2	6,0	3,5	4,7	2,6	3,4	8,0	7,7	9,8
Skatastaðavirkjun með öllum veitum	7,1	10,2	3,7	5,0	6,4	6,0	5,9	6,9	7,8	4,3	5,9	7,0	6,1
Markarfljót Emstruv. til Gilsár	11,3	5,7	14,1	12,2	3,2	3,8	3,5	3,5	2,6	3,4	8,0	6,3	8,1
Skatastaðavirkjun með Fossár- og Hölkárveitum	7,1	10,2	3,7	3,0	6,4	6,0	5,9	6,9	7,8	4,3	5,9	6,0	5,1
Skjálfandafljót Hrafnabj. með miðlun við	5,0	4,0	3,7	5,1	5,6	4,2	3,5	4,9	12,3	14,4	5,2	5,5	4,5
Skjálfandafljót Fljótshnjúkur	5,0	3,8	3,7	4,5	5,6	3,9	3,5	4,9	12,3	14,4	5,2	5,3	4,5
Skjálfandafljót Hrafnabjörg	5,0	4,3	3,7	2,6	5,6	4,3	3,5	3,4	12,3	14,4	5,2	4,7	3,7
Villinganesvirkjun	3,5	3,7	2,2	2,1	7,2	8,8	3,5	3,3	5,2	6,8	4,1	4,6	2,9
Skaftárvirkjun	8,5	3,6	5,2	2,1	3,2	2,2	5,9	2,1	1,9	2,6	5,4	2,5	2,3
Skaftárveita	2,1	2,9	5,2	2,1	2,4	1,8	3,3	1,9	1,3	1,9	3,1	2,2	1,7
Hólmsárvirkjun	2,1	2,7	2,2	2,1	2,4	2,9	2,3	1,8	2,6	2,8	2,3	2,4	1,5
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

The preliminary evaluation of group I. The power plant options lowest in the chart have the least environmental impact and those on the top the most, according to the group. The power capacity of the plant should enter the picture according to weights.

positive element of being in the eastern part of the highlands, closest to the site of the aluminium smelter in Reydarfjördur, a plant that is now in the process of being built.

The graph to the right shows *the power potential* versus *environmental impact*. On the graph, the power potential of options 7 and 8 is by far the largest but we also see that the environmental impacts of these large power plants rank highest.

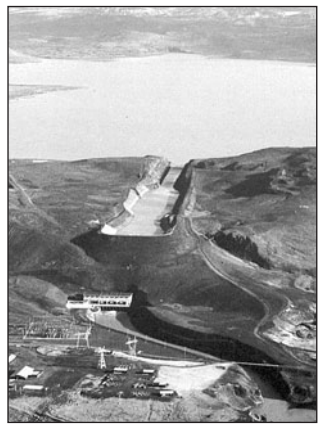
Here a critical question surfaces, namely whether this is the right method to show environmental impact because this ordering of the options does not take into account the amount of power that will be produced in the area in question in relation to the size of the power plant.

A direct result of the size of options 7 and 8 is that a much larger area and therefore more natural features will therefore be affected by them. The question therefore arises whether evaluation of the environmental aspect should not be changed so that it would take into account *the size* and *the power producing capacity* of the power plant option in question. However, this would without doubt complicate the process of evaluation because at this time we have no fully suitable way of measuring the options against the potential effect on the environment.

The large chart above presents the findings of *Group I* that dealt with *nature and cultural artefacts*. Here the power plant options are ordered with those where the environmental impact will be the greatest listed first, and the power plants having the least impact are the lowest in the first column. Then there come nine columns showing the weights for the nine aspects studied by this group.

At the top of these columns are the weights that were used in calculating the final evaluations. The grey column to the right presents the weighted averages of those natural features and cultural artefacts that will be lost in the case of each power plant option, and the thirteenth column presents the final ordering of the options.

As we study this chart, we see what has already been described: that those plant options that have the most power potential – and therefore reach over the largest areas – are judged to have the most environmental impact.



Main units of a hydropower plant.

Geothermal areas that will be assessed in the frame plan. In many cases there are several locations within each geothermal area that will be studied.

The following nine areas are being studied:

- Reykjanes,
- Krísuvík – Trölladyngja (hugsanlegir virkjunarstaðir eru Sandfell, Trölladyngja, Seltún, Hveradalur á Sveifluhálsi og Austurengi),
- Brennisteinsfjöll, Hengilssvæði (hugsanlegir virkjunarstaðir eru Nesjavellir, Hellisskarð, Ölkelduháls, Grændalur og Hverahlíð)
- Torfajökulssvæði (hugsanlegir virkjunarstaðir eru Landmannalaugar, Jökulgil, Kaldaklof, Austari – Reykjadalir og Vestari Reykjadalir)
- Köldukvíslarbotnar,
- Námafjall,
- Krafla (hugsanlegir virkjunarstaðir eru Krafla og Hveramór) og
- Þeistareykir.

In these nine areas there are about 22 possible power plant locations. The size of each power plant will be 30-120 MW in each location and the power that can be harnessed will be between 210-840 GWh in each location.

Notice of work plan of September 2002. List of geothermal areas that are to be evaluated. Geothermal power plants will grow in number in the future.

Therefore, the general rule according to this method is that the smaller the power plant, the less the environmental impact.

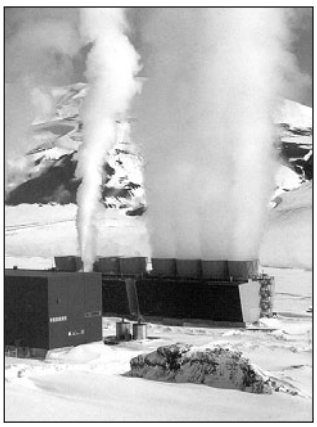
In the chart on this page a time schedule from September 2002 is presented. This time schedule gives an overview of the geothermal areas that will be evaluated in the frame plan. These power plant options have already been described briefly.

The reason why these geothermal areas in this first phase are mostly located close to settlement areas is because they are close to the market and to the distribution system for electricity. They also have the positive feature of having more options for making use of the spill hot water from these geothermal steam plants.

Interest in the use of geothermal steam has been on the increase lately, not least because prices for geothermal energy production in Iceland will be freed from government constraints according to regulations that already exist in the EEA agreement. A positive feature of geothermal power plants is that rather small companies can work on the development of such plants. Furthermore, the preparation generally takes somewhat less time than is the case with hydropower plants and in many cases two things are gained at the same time, i.e., electricity is produced from the steam, and secondly the hot water that results can be used for space heating or industry.

The Nesjavellir power plant is an example. It was first built for space heating, a plant that was able to meet costs because of the large market in the Capital Area. Later, steam turbines were added, which are steam powered and produced electricity very cheaply. In general, it can be said that if both the steam pressure and the heat of the excess water can be utilized, then the profitability of the plant is high.

Therefore, such power plants will primarily be built close to urban areas because they provide a market for the hot water. The high temperature areas in the highlands are therefore less valuable than those near urban areas in terms of the technology that is now applied. In addition, people are generally more sensitive to envisronmental impact in the highlands than they are to any impact close to urban areas.



Krafla is Iceland's second largest steam power plant.

VIII Plans for Ocean Areas

1 Ocean Areas Close to Urban Areas

The ocean has always played a large role in the history of Iceland. The first settlers came to the country over the open ocean and the fact that they owned good ships meant that it was easy for them to travel along the coast with people, animals and goods, which was very important before conditions for land transportation became better.

Right in the beginning, the resources of the ocean and the coastline played a large role in the livelihood of the people – fish, birds and eggs, the seaweed known as dulce, and shellfish. In the nineteenth century when fishing took off as a means of creating products for export, the ocean and the coastline were again of prime importance.

The result was a coastal settlement structure that is still the norm for the most part. Urban development primarily began closely connected to fjords, islands and bays, in areas where natural harbour conditions could easily be utilized. Therefore, most towns in Iceland take their names from coastal features: Reykjavík (Smoke Bay), Hafnarfjördur (Harbour Fjord), Kópavogur (Seal Pup Cove), and Akureyri (Field Peninsula). For most of the twentieth century, the ocean was of no less importance than the land itself.

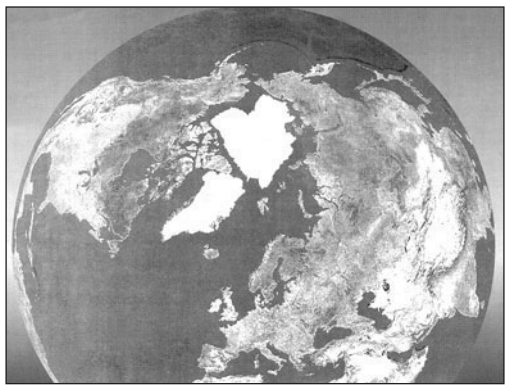
In the last few decades, people have mostly focused on settlement conditions that are connected to the land, and then primarily on those occupations that are connected to urban areas – industry in general, as well as the knowledge and service industries. In addition, the land resources have gained new and important roles because of the increased interest in outdoor activities and tourism. Hydro- and geothermal power are also land resources and today are very much the subject of planning. Despite this importance of land resources people can argue that the ocean will again regain its importance because of a global development towards ever better technology for researching and utilization of the ocean and ocean areas.

Many resources are to be found in the ocean, both in the seawater itself and in sediments, as well as in the deeper layers on the ocean floor. Areas that are under the ocean are fundamentally not different from areas on dry land. There are mountains, valleys, stretches of sand, plains, geothermal areas and mining areas. In many areas of the world, the utilization of minerals from the ocean water and from the bottom of the ocean has increased because we are running short of the equivalent resources on land.

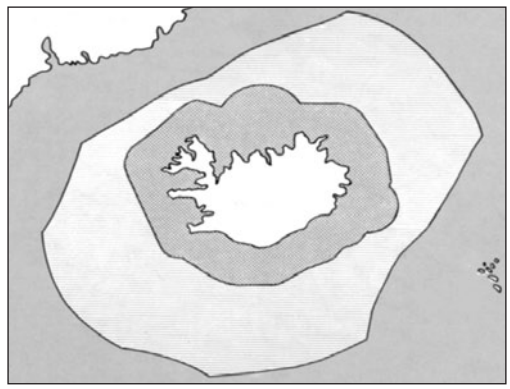
It is important to keep in mind that the ocean covers 70% of the globe. This says a lot about the enormous opportunities for finding metals and various minerals. Furthermore, it says a lot about the importance of the ocean areas for Iceland in the future, as the territorial waters are more than seven times larger in square kilometres than is the country itself.

This section will attempt to sketch a picture of how the ocean areas are likely to enter into and affect planning and settlement in Iceland. Even today, there is more varied use of ocean areas in Iceland than most people realize. For instance, planning methods have been developed that deal with the utilization of the fish resources, as will be described in the following section.

In many areas on the surrounding shelf and on the ocean floor close to the shore, telephone and electrical cables have been laid. Pumping of building materials from the ocean floor has also become extensive, and finally there are some



The ocean is a big part of people's lives in the Northern hemisphere due to fishing, etc.



The area controlled by Iceland got seven times bigger as the economic zone was increased.

A Swedish report on the planning of coastal and ocean areas.

clues to show potential oil close to Iceland, as the neighbouring countries have been extracting oil from the bottom of the ocean in the last few decades. This anticipation of the use of the ocean will be dealt with in the third section of this chapter.

This present section will deal with ocean areas close to urban areas. We will review how they have developed in the last few decades and a picture will be given of how it is possible to plan logically for activities in these ocean areas.

The use of an ocean area close to a settlement has a long history in Reykjavík and its environs. Because of the importance of the harbour activities for the Reykjavík community, the scheme developed very early that the Port of Reykjavík Authority would be in charge of the ocean areas by the town and of the areas of activity along the coast. Concerning planning, the Port Authority is like a state within a state.

To start with there was little planned thinking about how harbour-related activities were distributed over the city's coastline. For example, four oil harbours were built in Reykjavík: on Laugarnes, on Klöpp, in Skerjafjördur Fjord and on Örfirisey Island.

These oil stations had a negative impact on other uses of the coastline and lessened the outdoor recreational quality because of potential oil spills. Additionally, this oil harbour plan became very expensive, especially when oil imports with large oil tankers started because then the same ship had to move between anchorages to offload the oil by pumping it through pipes laid on the bottom of the sea.

Lack of funds made proper landing conditions at each of these oil stations difficult and therefore the offloading of oil was very dependent on wind and weather, which often delayed the pumping. The bottom pipes were also susceptible to spills and pollution of ocean areas.

In the 1970's, it was agreed that three of these oil stations should be closed down and the final decision was to bring them all together in one place on Örfirisey Island. There a landing pier was built with the pipes running alongside. Now that the tankers dock at this pier, offloading of the oil is safer and faster.

The location of the oil harbour on the far end of the Reykjavík Peninsula has many drawbacks in terms of transportation of the oil, gasoline and gas, among other things because the tank trucks then have to drive with this cargo for long distances through densely built city areas. It was therefore short-sighted not to remove all of the oil imports and storage out of the city, not least in light of the pollution danger that hovers over all the north coast of Reykjavík. This planning mistake becomes more apparent in light of the increased interest in using the city's coastline for recreation and residential areas.

The same can be said about the cargo and fishing harbours in Reykjavík. It should have been easy to recognize that there is a general tendency in all older harbour cities of the world to move such space consuming and polluting activity out of the cities. Spacious areas outside of the cities with low land costs are also much better suited for this type of activity.

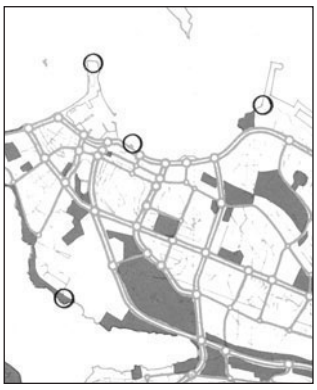
The reasons why this shake-up of harbour activities in Reykjavík did not occur is that the city obtains considerable income from the harbour and the companies that are connected with the harbour activity. Furthermore, the fact that the Capital Area is divided into economic units as defined by the various municipalities means that the separate communities try to keep income-generating activities within their own jurisdictions.

In light of this, it is a primary prerequisite for logical planning that all the settlement areas be united into a single economic zone. It could also be right to extend this zone up to the north coast of Hvalfjördur as well as to the Thorlákshöfn Harbour in the south.

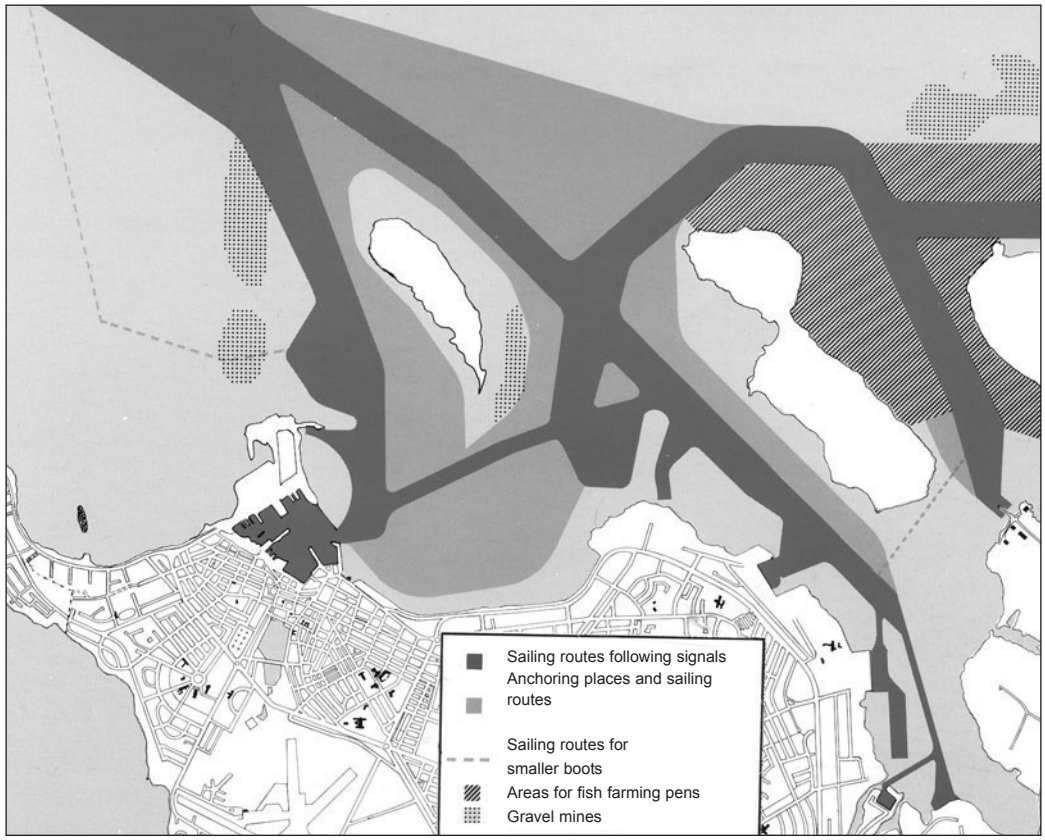
If such a planning vision were drafted, it might well be that harbour activities that are now being thrust into the centres of residential areas, as at Eidsvík, would be best located outside of the Capital Area. It is clear that some of the untidier harbour activities would be much better located, for example, in the Grundartangi Harbour in Hvalfjördur, and trawlers could just as well be located in Reykjanesbaer or in Akranes.

Many other activities besides shipping take place in the ocean areas close to the urban areas, such as sewer pipes from the settlements and the dredging of channels where the ocean is too shallow to allow passage by ship. Telephone and electrical cables are also laid there, as well as the mining of minerals. Finally, there are the spawning grounds of some fish species.

These functions can clearly be in conflict if planning and execution are not properly handled. The sewer pipes that are laid on the bottom of the ocean to transport the sewage to deeper areas where the undercurrents carry the sewage out to the ocean are in some cases areas where people may later want to deepen channels for sailing or where gravel is to be pumped for use on land. A third possibility is a future decision to use landfill to create new building areas where now the sewer pipes are laid.



There were once four oil harbours in Reykjavík.



In the 1988 plan, this map on the utilization of the ocean north of Reykjavík was published. This planning of ocean areas is almost as important as the planning of the land areas.

Besides the necessity of determining the use of ocean areas by urban areas there is a great need to co-ordinate plans about where ocean and land areas meet. A point in illustrating this is that it is not right to place an industrial harbour outside of a beautiful recreational and residential coastline. In such areas the ocean needs to be used for water sports.

Similar arguments apply to the places where cables have been laid on the sea floor. In fact, there was such a conflict as the channel to the Samskip harbour at Holtagardar needed to be deepened, which required taking up and disconnecting one of the largest electrical cables to the city and then laying it deeper after the channel had been deepened. All this would not have been necessary if there had been proper planning in advance.

One of the largest construction aspects in the harbour areas in Reykjavík has been landfill that has mostly been added to meet the increasing demand for space and for the harbour itself. The harbour areas north from Hafnarstraeti Street to Midbakki and all the way to Grandi area, and also a large part of Örfirisey Island, have been built up with landfill.

The same applies to the areas of the Sundahöfn Harbour and Vogabakki. These landfills total about 125 ha and have a value of € 60 million if we calculate each ha at € 1/2 million. Here one has to consider that this land is relatively cheap for developing neighbourhoods because the landfill used is made up of good gravel. Profits generated from creating land with landfill in some of the best locations result from activities like warehousing and oil tanks that yield rather little income but provide enough to reimburse the harbour for creating the land.

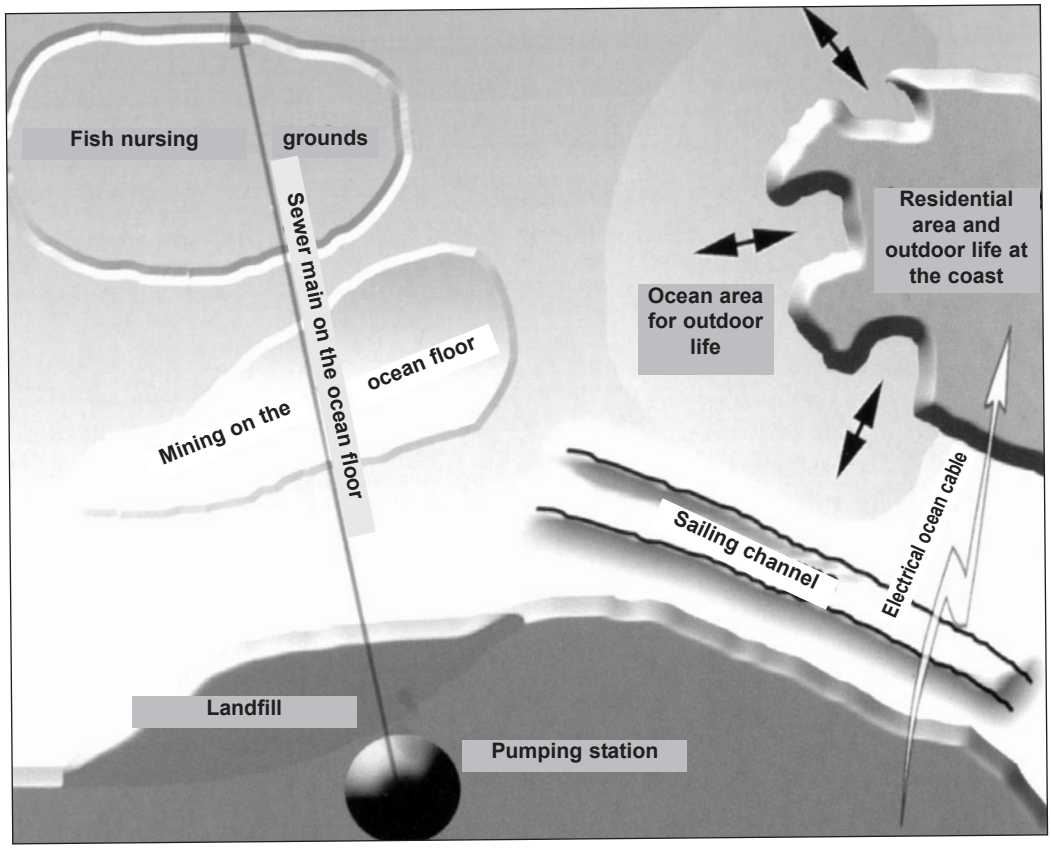
The Port of Reykjavík Authority has actually been quite ingenious in the conception of these landfill areas because they have mostly been built where material or rubble has been created in the city itself, material that the city needed to get rid of, totalling about 2-3 million m^3.

A similar amount of landfill material has come from excavations for deepening the harbours and channels. In addition, a similar amount of material has been produced by blasting rocks that used to stand by the harbour in areas like Sundahöfn and the Geldinganes area.

The fourth source for this material needed for the landfill, or about 3 million m3, has been bought from Björgun, the company that pumps gravel from the bottom of the ocean close to Reykjavík. This quality material is most often in the upper layers of the landfill to lessen the danger of variations in subsiding. In total some 10-12 million m^3 have been used for landfill over a span of about 20 years in Reykjavík, or about 100 m^3 (250 tons) per citizen.

Oil tanks are surrounded by walls to protect against pollution.

There is great need to plan ocean areas, especially where they meet the coast. In this way the residential areas by a coast can enjoy the special opportunities that can be realized from their interplay with the water, but only if the water areas are planned for this purpose.



If ocean areas are not planned, conflicts arise, e.g., locations of ocean cables and sailing channels. Mining on the ocean floor is difficult if sewage mains have been placed there.

When the need arose for gravel for concrete or for other construction uses in the Capital Area, people started to look for this material on the bottom of the ocean close to the area. Unfortunately, the planning erred in not making better use of the gravel banks in the area before building started.

This lack of foresight is still more serious because in the whole south-western part of the country there is little such material available because lava flows have covered so much of the area. Furthermore, in the south-west there are no big rivers or strong wave activity that can break up rocks, processes that create gravel, as in many other places in the country.

Material derived from under the ocean proved not to be a good solution because after some time it became clear that it was necessary to wash the gravel thoroughly with fresh water because the residual salt caused problems in the concrete.

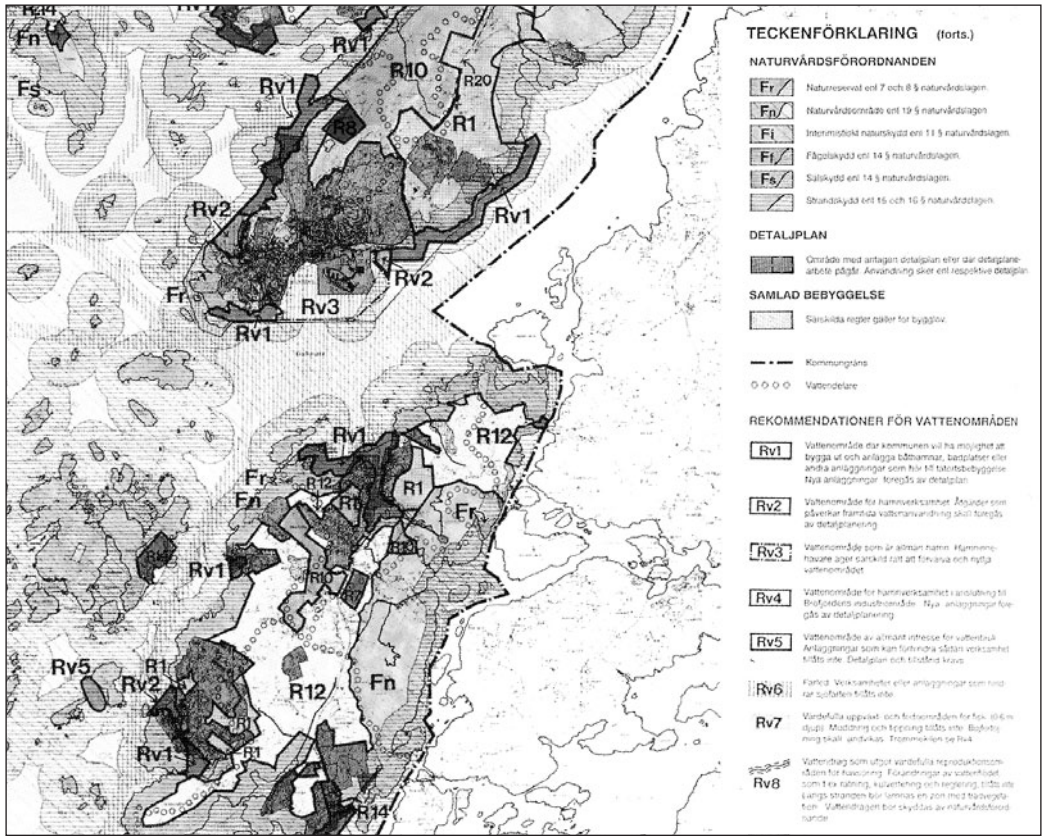
Only one company, Björgun, has been working on pumping this material from under the ocean. When the company was initially granted a licence, there were no regulations defining how this activity should be conducted even though the licence was granted for 30 years.

In accordance with Act no. 73/1990, on the property rights of the Icelandic state to resources at the bottom of the ocean, this has now been changed, so that Björgun is now only allowed to pump up material outside of areas where people can put nets from the shores. The line that defines this area is 150 m outside the limit of the strong coastal currents.

It is estimated that by 2000, Björgun had already pumped about 10 million m3 of material, and because it is most profitable to pump up from little depth, much of this material has been taken too close to the shore. This has meant that material has been slipping down the slope of the coastline onto the pumping area, especially during heavy weather.

This has meant a retreat of the coastline in some places in the Reykjavík area, such as at Engey Island and at Kjalarnes. This eroding is a direct consequence of poor planning. So much extraction of material can also have caused changes in currents such that the currents hit the shore at different spots or different angle than before, and thus also contribute to erosion.

Statue showing the order of landfills at the harbour.



In Sweden there is much experience in planning coastal areas because of heavy use and the sensitivity of eco systems in fjords and by skerries. To protect such values people must plan.

One of the biggest problems with this lack of planning in the taking of material from the ocean is that no research was carried out as to what types of materials were found in each specific area. The profitability expected by this private firm has of course meant that the material has primarily been taken where it is easiest to get it. This has often meant that the best material, the material that should not have been wasted because it is, like other resources, a finite resource has been used up.

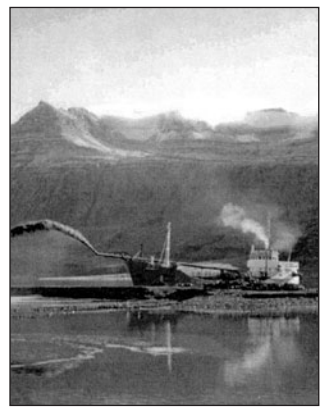
It is now estimated that the easiest to get and best gravel types have almost been depleted in the Reykjavík area. If economical rules of resource management had been applied, the valuable types of material would have cost more. Since this was not done, this valuable material for making concrete has been used in an almost uncontrolled way, even for fill under streets and houses where other and much poorer material would have been sufficient.

The result is that very soon, it will be necessary to go farther out to get the material and in fact pumping started long ago in Hvalfjördur. Ocean areas close to Borgarfjördur will probably also contain the valuable material that is now scarce closer to Reykjavík. Borgarfjördur is, however, a considerable distance from the Capital Area and shipping material from there is not likely to be very profitable.

Another alternative for taking material from the bottom of the ocean is to buy larger ships that can pump material from a greater depth. This, however, will lead to added costs, and experts think it may not be as good material. In addition to the construction material, much mining of shell sand in the bay has been conducted, mostly for the cement factory, or about 130,000 m^3 per year.

The problem has been that basic information about the quantity and the scope of these mining areas is not available. The companies that have been doing the mining have investigated and drawn maps, but these are private data not available for those who want to create planning ideas about the use of the mining areas on the bottom of the inner part of Faxaflói Bay.

Earlier chapters of this book have referred to the growing interest in beautiful coastal areas, as well as in outdoor activities on the ocean and on the islands – and also the interest in building residential areas along the coast.



Dredges ships have a home base in Grafarvogur.

Nauthólsvík is an example of how important the beach can become for inhabitants.

Rough breakwaters destroy the possibility of using the coast.

This development – and the vision that is now opening up – creates totally different ideas about the use of coastal and ocean areas that are close to urban areas in Iceland. In order to allow recreational areas to be located along the coast, the coast must be clean, which again means that oil storage areas and other polluting activities do not belong there anymore.

The same can be said about activities linked to large freight harbours and the passage of large cargo ships, which is now the case along the north coast of Reykjavík. This kind of activity does not go well with residential areas and outdoor life because the outdoor activities call for the ocean areas to be used for boating and other types of water sports.

It can therefore be argued that it would be sensible to create a completely new policy for the planning of coastal and ocean areas in Reykjavík, as well as other urban areas in Iceland.

This policy would be characterised by moving polluting and untidy activities out of the urban areas so that the coastal and ocean areas again regain as much as possible of their former beauty. In this way, people would be given the opportunity to enjoy the "resource" that such areas in fact are, if they are planned in the right way.

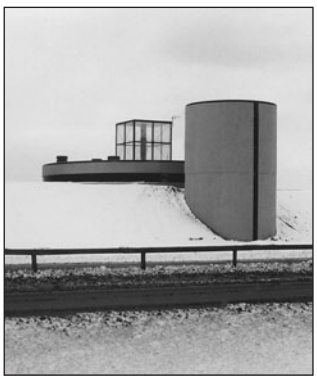
This vision also calls for much more responsibility on the part of planners and builders as all coastal construction is being decided. It is, for example, rather unpleasant to place highly visible sewer pump stations by the coast, and also major arterial roads and rough breakwaters. Totally new and more sensitive planning work has to be introduced for these areas.

In the case of other types of activities that have a connection to the shore -activities that are primarily taking place in the countryside – such as fish farming, it should be a fundamental principle not to operate fish farming close to urban areas because of the pollution danger.

We have one bizarre example of this from the Eidsvík area in Reykjavík. Haflax Ltd. was allowed to install aquaculture pens in that inlet, and then one fine day all the fish were killed in a pollution accident.

It turned out to be hard to determine which was actually the source of the pollution because there were so many different types of polluting agents in the area. The pollution might have come from the fertilizer plant or from the rubbish tip located right by the ocean. The polluting agents could simply have washed out of the tip or they could have come from the city sewer pipes or from ships in the harbour area.

Another important aspect worth consideration in the planning of fish farming is that such activity should not be placed where there are important salmon rivers, such as in the Borgarfjördur region, as any escaping salmon can then mate with the wild breeds and change the genetic structure.



Temples of the godess Fecalia guard the coast of Reykjavík.

2 Plans on Utilization of the Fishing Resources

The patterns of utilization of fishing resources in Iceland since large-scale fishing started in the latter part of the nineteenth century directly affected the settlement structure in the twentieth century. Changes that happened within the fishing trade in the late twentieth century steadily contributed to changes in the settlement structure.

In the beginning there were many small fishing towns because the boats were so small. Many of these small villages and towns were located out on points and on peninsulas in order to reduce the rowing and sailing distance to the fishing grounds. As larger fishing ships were built, the distances to the fishing grounds became less important.

In the second half of the twentieth century the importance of closeness to agricultural areas and later to the road system for overland travel resulted in the development of the largest fishing towns primarily in the inner parts of fjords and bays.

In the late twentieth century, as *onboard fish processing on factory trawlers* entered the picture – together with their seeking distant fishing grounds because of reduced fish stocks close to Iceland – fishing close to the home harbour became of lesser importance. Instead, the trawlers simply made port in the nearest harbour as well as in harbours where the best services were provided. Gradually the harbours that handled fish products for export were reduced in number.

The next stage in this development in the occupational foundation of the settlement patterns was the appearance of the fish markets in the 1980's. Now it suddenly had become of extreme importance that the ships bring the catch to a harbour where there was a fish market where most species and sizes of fish were sold at a good price.

The introduction of the quota system also helped in getting rid of the enticement of home harbours and the quotas also meant that a development towards larger trawler operators had emerged, as the stronger ones bought up quotas, or with the merging of trawler operators.

This has paradoxically meant that some fishing towns that are actually well placed in terms of their closeness to fishing grounds can no longer provide the new requirements for a fishing town so that many have started to lose their quotas and the market for fish processing.

This has meant an extensive shake-up of the settlement structure of fishing towns in Iceland in the last decade. This shake-up has resulted in fierce discussions and in economic crises in many places. In order to help some of the smaller towns, small inshore fishing boats have been given certain privileges.

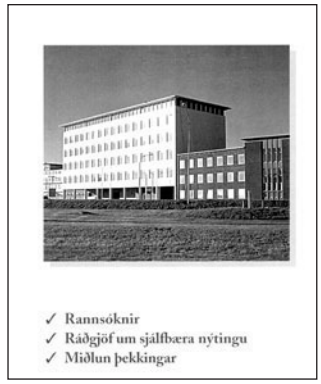
In addition, the state has awarded some settlement quotas for the towns that are most dependent on fishing. It has frequently been pointed out that the new system of large trawlers may stand on shaky ground despite the fact that it is certain that the large-ship system has meant increased profitability for the industry and thus an increase in national income.

Three things especially make the use of large ships and factory trawlers precarious. To start with, these ships use highly effective but destructive fishing gear like *bottom trawls* and *pelagic trawls*, which are likely to be limited in use in the future.

The pelagic trawl, for instance, is already prohibited in Norway because it catches fish indiscriminately and thus kills many small fish. In addition, the bottom trawl has the disadvantage of altering the bottom of the ocean where it is dragged, and some scientists maintain that in the long run in some areas these changes lead to less productivity of the ecosystem of the ocean floor.

Aesthetical points of view also enter the picture because the bottom trawl destroys various geological features and other flora and fauna besides the fish on the ocean floor, including coral. In the last decade of twentieth century, Norwegians set aside certain coral areas for preservation, which means that a bottom trawl can no longer be used there. It is not un-likely that similar ideas will surface in Iceland in the future.

Fish markets economize fish processing operations, which leads to increased value.



The Oceanic Research Institute in Skúlagata Avenue.

No natural wonders in the ocean are preserved in Iceland except two *submarine geyserite pinnacles* that have built up from a geothermal area in the bottom of Eyjafjördur and were only recently discovered. The larger of them is 33m high, similar to a 12-storey building, and the smaller one is15m high. There is no doubt that such treasures of nature can be found in many other Icelandic ocean areas and modern submarine cameras will soon make these wonders of nature accessible to us, which will mean our increased interest in enjoying and protecting them.

There are various geothermal areas on the ocean floor around Iceland, like those on the Reykjanes Ridge and at Kolbeins Island, where a few years ago very unusual life forms were discovered around the opening of the hot springs.

Another negative aspect of the gear used by factory trawlers is that they only process onboard about half of the weight of the fish caught and the rest, too small or by-catches, are thrown overboard. Some people maintain that if there is a very heavy catch the filleting machines are only adjusted to the type of fish they can best manage, which means throwing away all larger and smaller fish.

The third negative aspect about using large trawlers and their heavy-duty fishing gear is that they are enormously energy consuming, both the fishing itself as well as the processing of the fish. The processing plants on land can use clean renewable energy sources whereas the trawlers use only fuel oil for energy production.

If the price of oil rises considerably – which is likely to occur in the future – these ships would instantly be much less economical to operate than a coastal fleet that uses less power and only needs to go short distances to the fishing grounds.

It is to be expected that a hike in petroleum prices will be accompanied by the imposition of *pollution quotas*. The *Kyoto Agreement* has created an outline for pollution quotas for countries as concerns CO2. Because of this it has become important for countries to shape their economic activities in such a way that they use as little as possible of their limited quotas.

A review of all these features taken together leads to the conclusion that likely, within a short time, critical voices will be raised against the use of factory trawlers, which will mean a push towards returning to coastal fishing with smaller ships. If this happens, the effect may well be that the settlement structure in Iceland – that has recently changed to adapt to the large-ship policy – will to some degree be turned around. Therefore, an economically sound foundation might be created again for some of the smaller fishing towns.

A very important feature in minimizing the costs of fishing is to have as good data as possible on where the fish can be caught at each given time. Captains of trawlers have lately individually collected and entered such information into their computers. This saves them time and lessens the sailing costs because they can go to the areas where the fish are more likely to have congregated.

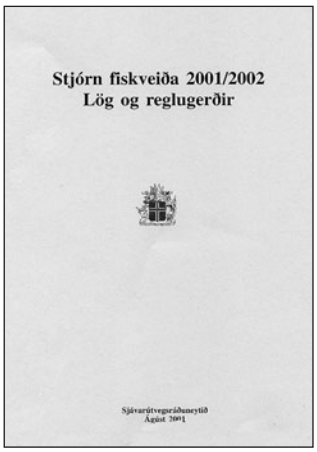
Today, information like this is almost a commercial secret kept by the outfitters in question. It is, however, to be expected that in the future common sense will rule so that there no longer will be unplanned competition in fishing, but rather an optimized computerized system will be introduced to better plan the fishing.

As can be seen on the map on the following page the main fishing grounds have already been mapped. Such a database would be used for an optimization software model with maps like this available for all species of fish and for all seasons of the year. Such scientific planning could prove to be very important in the creation of future settlement policy in Iceland.

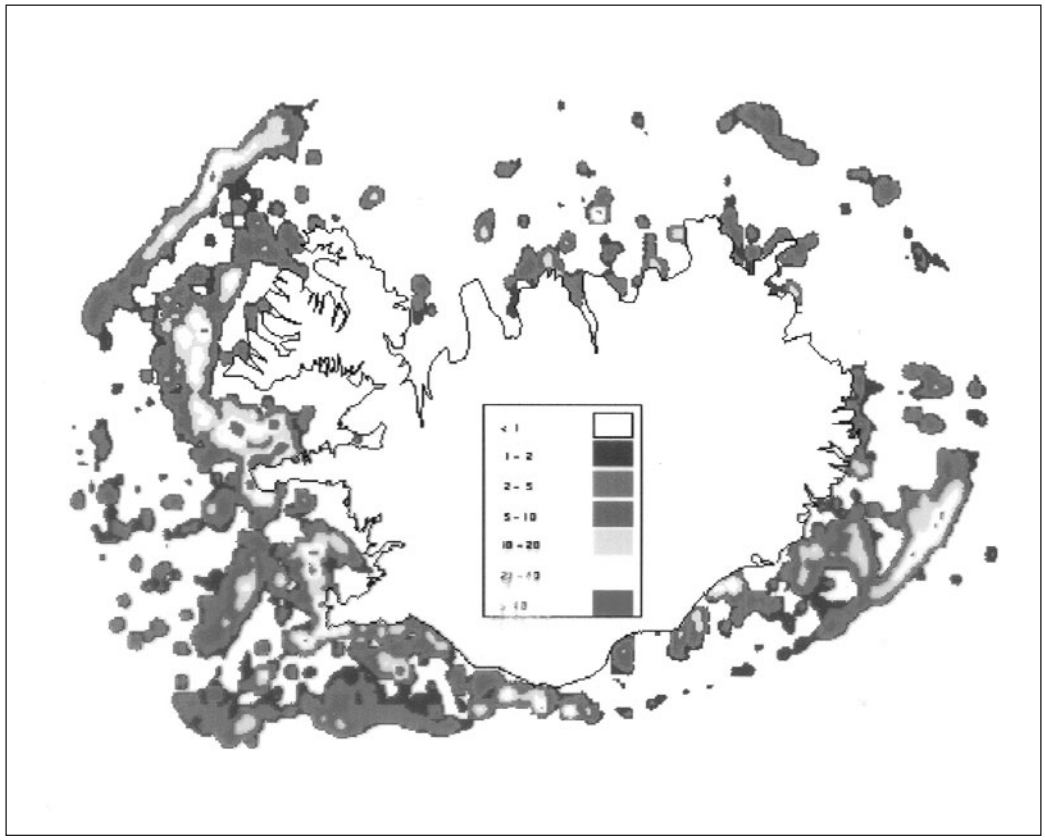
The management of the fisheries has of late become highly developed in Iceland. The Icelandic state understood rather early the necessity to develop various types of regulations to prevent the disruption of spawning grounds and to close fishing grounds if the catch contains too small fish. In addition, there are regulations about the mesh size of the nets. It is highly informative to review what has supported the improved scientific study of ocean resources.

The approach taken in this area has two parts. The first measure taken in order to protect the shallow waters of Iceland was to extend the *fishing zone* in four steps. The first step was taken in 1952 with the extension from 3 miles to 4 miles while at the same time the closing of all fjords and bays in Iceland was finalized with a line that was drawn between basic points.

In 1958, the fishing or economic zone was again enlarged, then to 12 miles. In 1972, it was extended to 50 miles and in 1975 to 200 miles. With this step, the fishing zone in some spots had reached the central dividing line between Iceland and Greenland and between Iceland and the Faeroe Islands. These enlargements of the economic zone were in accordance with what was happening in general on the international scene.



A document including laws on fishing zones and quotas.



Cod catch, in tons, per square mile. According to this map, the best locations for cod fishing are the West Fjords, the Reykjanes Peninsula, the Westman Islands and Höfn.

A comparable map exists for all main types of ocean life. Fish processing plants have not always been located at the best locations. It is not unlikely that in the future economic reasons will lead to optimizing choice of locations.

This, however, meant disputes with those foreign nations that had been fishing for a long time off the coast of Iceland. It was primarily the British who did not like to be told to get out of their traditional fishing grounds and therefore they sent naval vessels to Iceland to protect their trawlers. This dispute has since been called the *Cod War*.

What pushed Icelanders to demand the extension of the fishing limits and to enter the fight against Britain was that at this time it had become obvious that the size of the fish stocks in Icelandic waters had diminished. Icelanders had learned earlier the bitter lesson that excessive fishing destroyed certain fishing grounds when in 1968 to 1969 the Norwegian-Icelandic herring stock collapsed almost completely because of overfishing. Icelanders therefore fully understood the necessity of being able to manage the fisheries in a better way. This was the incentive that made them take the last and largest steps to extend the fishing limit to 50 and later to 200 miles – in the face of great opposition.

What probably helped Iceland the most was the military importance of the country vis-à-vis the then USSR and Iceland's membership in NATO. The decision to push for extension of the economic zone or fishing limit was backed by convincing data provided by the fish biologists that demonstrated that various species of fish were enormously endangered unless the fisheries were sensibly managed.

Icelanders were thus able to push foreigners out of their economic zone after a certain adjustment period so they could increase their own share of the fisheries. Given the dependence of the Icelandic economy on fish exports, this was a necessary move to sustain the standard of living. It also led, among other things, to the purchase of a large number of stern trawlers after 1972.

Even though Icelanders were now the only ones in charge of fishing in Icelandic waters, they almost went too far, as the cod stock during this time was on the brink of collapsing. Such a collapse occurred in other countries around the North Atlantic, like Newfoundland and the Faeroe Islands, countries that did not sufficiently reduce their catches in time.

If such a collapse had occurred in the cod stock in Iceland something similar would have

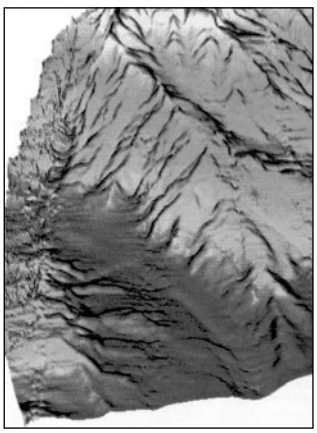
Drift investigations
Pollutants in ocean
Growth of cod stock
Ecology of Eyjafjördur
Mapping of habitats
Sizes of fish stocks
Sea urchins research
Pedigreeing of halibut
Life cycle of halibut
Year intake of cormorants

Examples of ocean research in 2001.

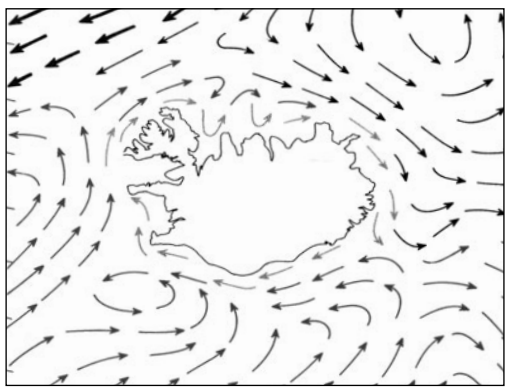
Árni Fridriksson ***is a very well equipped oceanic research vessel.***

The multi-beam echo sounder creates new possibilities in mapping the ocean floor.

happened: the seaside settlements in the countryside would more or less have gone under and even the whole the Icelandic economy. In order to be able to avoid making mistakes in the planning of the fish catch and to be able to use the various fishing grounds in the best and most economical way, Icelanders have carried out a huge amount of research on the ocean and marine biology. The main institute working on this is the Marine Research Institute, which runs three marine research ships.



Map of sub oceanic terrain close to Mýrdalsjökull.



The warm Gulf stream are south of the country and cold streams come from the north.

The newest, acquired in 2000, is the *Árni Fridriksson*, a ship of about 2200 gross tons. To facilitate research the ship is equipped with various specialized equipment, for example a drop keel with an echo sonar meter used for measuring fish stocks. She also has a multi-beam echo sounder that can map the bottom of the ocean in high resolution in a rather short time. The equipment gives a three dimensional picture of a 6 km wide belt on the ocean floor as the ship is sailing over the area. The echo sounder can also discern various types of ocean floor. In addition, the sheer size and strength of the ship and the trawling equipment can make research possible at a much greater depth than before.

With this ship, large areas within the *200 mile economic zone* will be more accessible for research, including benthic and deep sea fish and ocean floor zoology. In addition to the scientific equipment, the ship is equipped with three trawl winds and can go with two trawls at the same time. This makes all compression research easier, as well as calibration of fishing gear.

With the new multi-beam echo sounder it will be possible, in a rather short period of time, to collect information and to make rather good maps of the ocean floor around Iceland. These tasks were almost impossible to conduct earlier, except with an enormous amount of work taking decades to conduct.

These new topological maps of the ocean floor in Iceland's economic zone will, for example, help to locate the best fishing areas. The new ship will also be of great use in the search for valuable minerals on the ocean floor and it will be able to gather information on the geology of the floor, information that can be of use in the search for oil.

These techniques, coupled with other new techniques that are developing fast within the area of ocean research – such as unmanned submarines with cameras – will cause a complete revolution in opportunities to make use of the resources of the ocean and its floor in a much more focused and economical way than heretofore.

All this new technology means that the utilization of the various types of resources of the enchanting world of the ocean will be available to Icelanders, as well as to other nations that possess vast ocean areas, and will open fascinating new development possibilities in the future.

3 Cables, Mining and the Search for Oil

During the twentieth century, many nations whose borders were contiguous or close integrated their economic and planning units and gained the advantage of more efficient operations. Actually, co-operation among countries in order to reap the benefit of greater efficiency is considerably older than this as all types of communication and transportation have, in fact, been steps in the direction of intertwining the mutual concerns of many countries.

After World War II, a considerable interest arose in increasing co-operation among the nations of Western Europe. This led to the creation of some of the basic treaties of the EU.

Primarily two things pushed the nations into this development. On the one hand, an increased interdependence of economic pursuits, which made borders less important, and also the realization by various politicians in Europe that with further co-operation the countries would be still more dependent on each other, thus reducing the danger of war.

The first steps toward increased co-operation on the continent were technical in nature, namely, the introduction of the railway and the telegraph around the middle of the nineteenth century.

Iceland, for various reasons, lagged far behind in the development of this modern technology. Railways never came to Iceland except for a short track in Reykjavík used temporarily for making the harbour, and the undersea telegraph cable was not opened until 1906.

The actual success, however, followed previous failed attempts. In 1854 an American named Shaffner was granted a monopoly by the king of Denmark, who reigned over Iceland at the time, to lay a telegraph cable over Iceland as part of a telephone cable that was to connect Europe and America.

Another company was, however, ahead in the competition and in 1857 the Field brothers succeeded in laying an undersea cable. This cable, however, broke and for some time nothing further could be done.

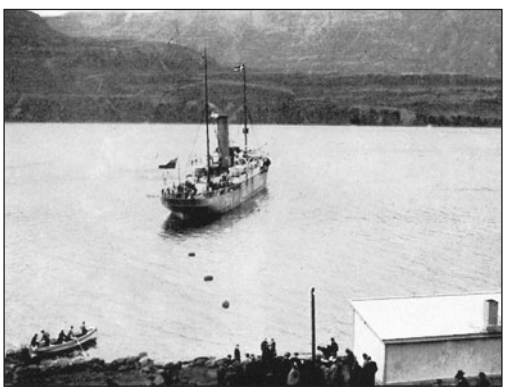
Shaffner therefore continued studying the possibility of a northern route and in1860 came to Iceland to conduct research. Because Shaffner was not able to bring his ideas to fruition, he lost his monopoly. The way was then paved for The Large Nordic Telegraph Company, which was established in 1869.

It was not until many decades later or in 1904 that the Icelandic minister Hannes Hafstein entered into a contract with TLNAS Nordic for laying an *undersea cable to Iceland*. The project was finally completed in the autumn of 1906. From this description we can see how close Iceland came to be connected to the world's modern communication net many decades before the twentieth century.

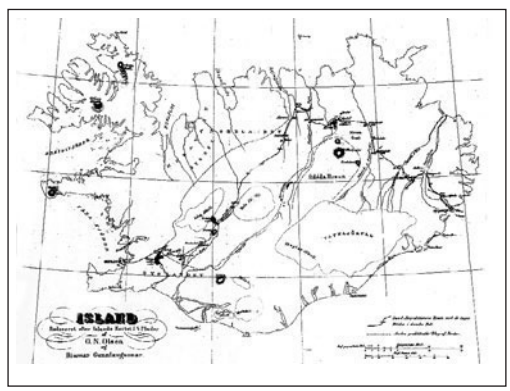
If we compare the geographic situation of Iceland to the island of Jan Mayen, which lies still farther north and where almost no people live, Iceland was rather close to the outer border of the area that had any potential for becoming a telegraphic service area at the time.

The marine cable to carry telegraph and later telephone messages caused a revolution. Since then many cables, with ever increasing capacity, have been laid and the history of progress in Iceland can almost be traced by the steps taken in connecting the country with the world that were realized with these new cables.

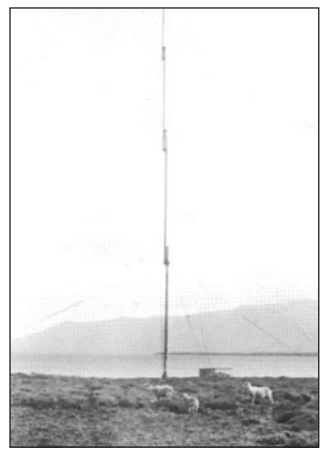
In recent decades, the technology for laying undersea electric cables with the capacity of carrying electricity for long distances has been



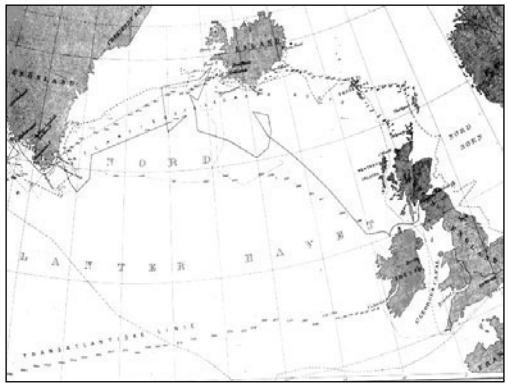
Ocean cable ship Cambria *putting the cable on shore in Seydisfjördur in1906.*



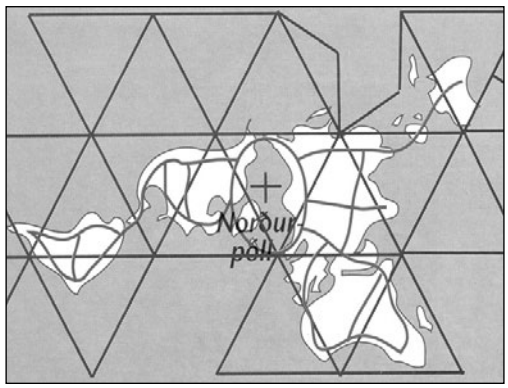
Shaffner investigated a route for a telegraph cable ca 1860. A highland route was considered.



A radio mast was built at Hlemmur in1905.



Research expeditions for studying routes for the Atlantic Ocean cable in1860.



Fuller's idea was to connect the electric systems of the world to increase their use.

developing and various studies have been made on the possibility of laying an electric cable from directly from Iceland to Europe.

The advantages that would come with this cable could be tremendous. First, it would be possible to export non-polluting, renewable Icelandic electricity.

This "green" electricity could be sold directly to the user market in Europe at much higher prices than are now paid by heavy industry plants in Iceland. Another positive feature of this cable would be security in the case of natural disasters or lack of water in Iceland, because in that case energy could be brought from Europe to Iceland.

With the advent of an undersea cable, there would also be no more excess energy, as is now the case when a new power plant has been built, or a shortage of electricity in the periods of low production between constructions of power plants.

The cable would also mean three million tons less discharge of CO_2 per year, compared to the pollution caused by use of the same amount of electricity by heavy industry. Last, but not least, this cable would create certain possibilities for extending this electrical network so that the cable could be continued to Greenland and Canada. This would allow Iceland to take part in marketing energy in North America and could become an important link in co-operation in energy concerns between the two continents.

If the technical innovation of superconductivity can be realized, undersea cables would not have a 20% loss of energy, as is now calculated for such a cable, because with superconductivity there would be almost no loss. This innovation would have an even greater positive consequence because with it the technological foundation would be available for interconnecting all the electrical systems in the world, as Buckminster Fuller has proposed.

This would mean a much better use of global energy because the energy produced in the night-half of the globe could be transported over to the day-half at each given time. This would save costs in building power plants because they would be fully used during the entire 24 hours.

Another feature that could also completely change the position of Iceland globally would be the discovery of valuable minerals on the ocean floor. It is anticipated that the mining of such materials will soon be technologically profitable. These materials could become important as many of them are being depleted in the land areas of Europe. Considerable amounts of manganese have been found along the deep ocean Reykjanes Ridge. The active volcanism of the ridge is the engine that powers a continuous production of this material on the ocean floor.

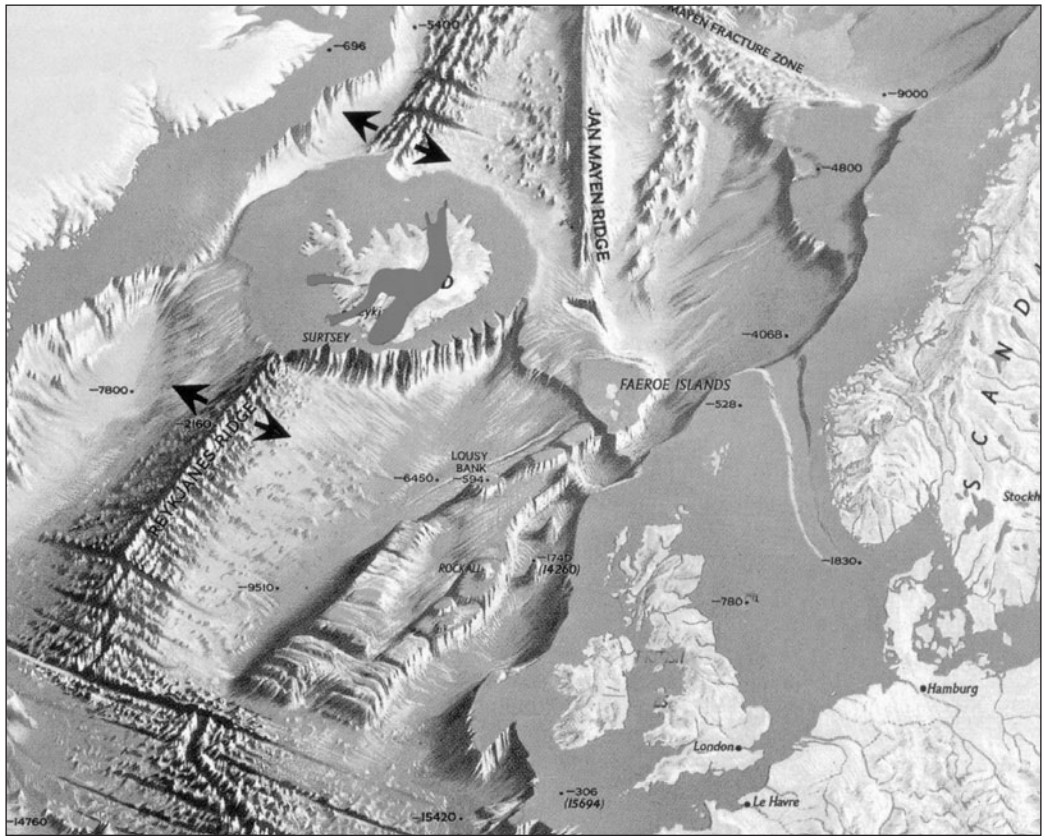
Currently Iceland exports some mineral production to Europe, primarily pumice, but also some diatomite, perlite and sulphur. The news that oil was found in the Faeroe Islands insular shelf in 2001 caused great excitement in Iceland. The news has made people more hopeful that oil might be found in the Icelandic ocean areas in the future.

Some research has been carried out and it is considered most probable that oil can be found along the *Jan Mayen Ridge* in sediments that stretch out from the Icelandic shelf. If oil is found there, floating drill platforms will have to be built or specially built ships as the ocean is deep in this area.

It is almost certain that this activity would be serviced from Iceland. Helicopters would be used for the service and therefore the flight distance is of great importance. Therefore, it is likely that a base would be built where the distance to oilfields would be shortest, i.e., in

Safety in catastrophes
Safety in water shortage
No excess energy
Lower cost fluctuation
Better bargaining positions
More flexibility
Smaller reservoirs
Less CO_2 emission
Inexpensive night time electricity

The advantages of oceanic cables are many.



Most likely areas for oil that Iceland has a right to: Jan Mayen Ridge, Eyjafjördur channel, and the much-debated Hatton-Rockall area.

the northeast of Iceland. It is possible that oil will be transported by tankers to shore and that a refinery could be built somewhere in the northern or eastern part of the country. It is less likely that the oil could be pumped through pipes on the ocean floor, as is most often done in the North Sea and in the coastal waters of Norway.

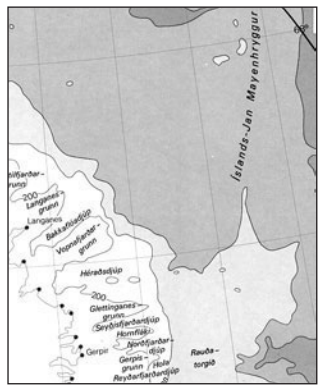
Another possible oil area is *Eyjafjardaráll* north of Iceland. There the sediments are younger than the gas that has been found there, and which is not the product of decaying vegetation, thus indicating that there are some plants or soft coal layers in the depths of the ocean floor.

Thirdly it is considered a possibility that oil may be found in the *Rockall area*. Iceland is one of the nations that have claimed the area but the uncertainty about the outcome of the dispute over ownership has delayed research for oil in that area.

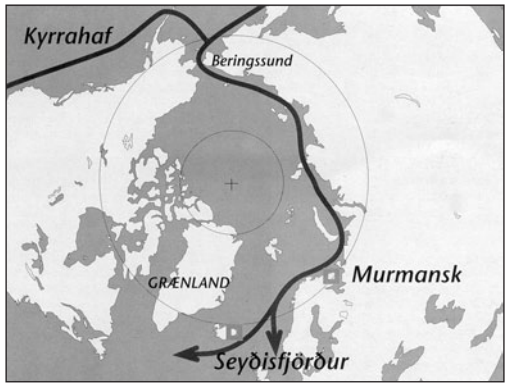
For a while, the Russians were investigating the possibility of locating an oil processing plant in Iceland, possibly because Iceland is within the EEA area. Studies were conducted to determine profitable locations for such a plant, for example in Reydarfjördur, but there has been no further work as yet. In connection with oil transportation from Russia along the north coast of Siberia, it is right to keep in mind that, because of global warming, it is not unlikely that the sailing route along the whole north coast of Russia to Asia and America and on into the Pacific Ocean will be easier in the future. The Russians today keep the arctic sea route open three to four months a year with icebreakers, and specially built cargo ships can use this service and sail in their wake.

In 1987, a conference took place in Iceland about the *North Arctic Ocean Route*. There people argued that if this sea route were open to general traffic it would put Iceland close to some of the mainstreams of ocean transportation between the countries of the Pacific and the North Atlantic because this route is much shorter than the other routes. It is, however, likely that the opening of the route north of Canada into the Pacific Ocean would be even more important for Iceland.

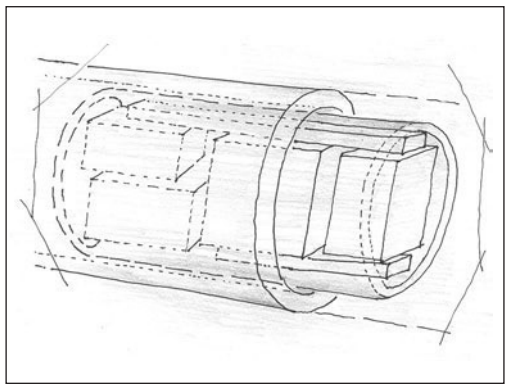
Thór Jakobsson, a sea ice expert, has said in an interview that many specialists believe that if the forecasts about the continued warming of the climate come true one can expect this route



North-east Iceland is closest to the Jan Mayen Ridge.



If the artic sea route opens, Iceland would be in the mainstream in transport from Asia.



If large water pipes were laid to Europe, they might be used for floating containers.

to open after a few decades. From these examples we can see that the basic conditions for a viable economy in the various settlements in Iceland can change in the future as they have before, as for example when capelin were first caught in large quantities off the eastern part of the country.

It is of particular interest how the north and east in Iceland are well placed in terms of the possibilities of finding oil, as well as the opening up of shipping lanes in the northern Arctic Ocean as the ships would enter the Atlantic Ocean between Norway and Iceland. The eastern part of Iceland would therefore be a logical place for a potential hub service harbour for that sea route.

The undersea electric cable would be laid from the eastern part of the country in order to take advantage of the shortest distance to Europe, and the continental ridge runs from there over to the Faeroe Islands and then on to Europe.

Perhaps the potential laying of water pipes is an idea worth studying, comparable to studies for an electric cable, to transport drinking water from the east of Iceland to Europe. It might even be possible that the stream of water in these pipes could transport small containers, for example for exporting fresh fish.

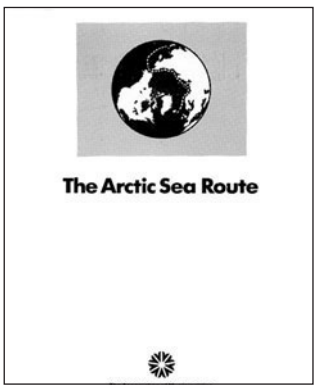
The study of such possibilities might well lead to drastic changes in the importance of certain regions of Iceland, given new and unexpected developments. Such new visions can thus completely change the outlook for Iceland as a whole or for specific parts of the country.

Today, however, the discussion about the future of the various regions in Iceland takes place from a far too narrow perspective. Other examples that already have been discussed in this book – examples that can affect future perspectives – are features linked to new maritime technology and developments in global environmental concerns and technology. These changes will most certainly take place, and it is wise to start early to interpret what these new developments may well mean for Iceland.

In the light of this broader way of thinking, and the certainty that new and rather unexpected possibilities will open up, it is logical that in the discussion of Icelandic settlements that the so-called "distant parts" of the country are not ignored. It is very reasonable to point out in the discussion that new opportunities and technology have constantly been changing throughout the history of Iceland, as well as in other parts of the world.

It is quite possible that current difficulties in settlements areas like the East Fjords could – as soon as in a few decades – be turned around so that the East Fjords could possibly become the part of Iceland where most things are happening.

In the future, this could mean a positive development, not only in one area as now, with the building of the aluminium smelter in Reydarfjördur, but also in many other areas. However, it is probably too bold to suggest that one of the larger harbour cities in the North Atlantic could develop in the East Fjords, though this would not be impossible if the arctic sea route opens and becomes one of the most frequented shipping lanes in the world in the future.



A conference on the artic sea route was held in Reykjavík in 1987.

IX Steps Towards a National Plan

1 The Idea of a National Land Use Plan

This ninth and last chapter of Book Four will describe various steps towards the development of a national plan for Iceland. The earlier eight sections have also dealt with the step-by-step development leading towards a national plan.

The various types of programmes and plans on a country scale that have been developing in the last few decades – and some of them even throughout the twentieth century – are a part of a net of infrastructures that together create the settlement structure of Iceland.

The country-wide systems that have already been described are the social and technical systems, the systems of nature conservation, tourism and energy processing and now in this last chapter: system of utilization of the ocean areas.

In Iceland, it is especially important to include the ocean areas in considering any country plan because the nation is still a coastal island nation, living primarily off of what the ocean provides. In addition, we also started to recognize the possibility that the ocean and ocean areas can become a still stronger factor in the future economic development of the country.

What characterizes a national or a country plan is that it drafts pictures of the future, pictures that describe a likely or a desirable development of a country. This is not only done to show economic aspects but also to help analyze the many spatial and geographical factors in terms of how they may influence settlement.

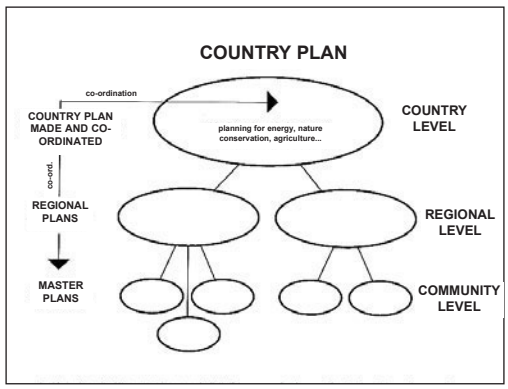
The discussion of settlement devel-opment in Iceland has primarily taken place in the sphere of economics and politics, focusing on special problems or conditions in certain given areas. The physical aspect in the shaping of settlements and the countrywide systems has, on the other hand, been left out to a large degree.

A part of the reason for this lack of connection between the economic and physical aspects of planning is that they are dealt with in two different institutions: the *Institute of Regional Development* and the *State Planning Agency*. Both of these institutions have been working on planning future developments in certain areas, but not enough care has been taken to co-ordinate these two types of plans. If that were done, the economic plan and the physical plan would support each other. Both these settlement and planning institutes have primarily been working on plans for separate regions, but not much in areas that involve the whole country.

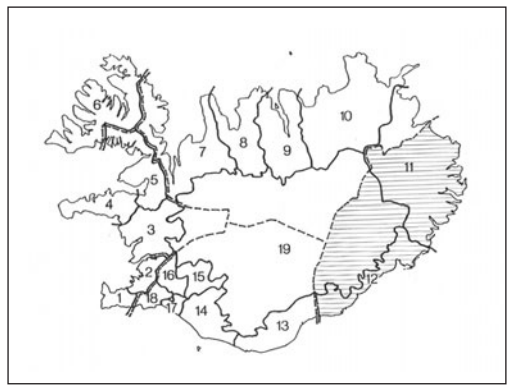
Work on a country scale primarily takes place in ministries and in institutions connected to them, but mostly in the area of sector planning. Some of the sector plans on a country scale have already been described, such as plans on transportation, tourism, the education system and the planning of various types of health services.

This book has also described to some degree the work that has taken place recently in the co-ordination or integration of these plans, like the integration of the road, air and harbour plans into a single, integrated transportation plan for the whole country. This type of co-operation is an important step towards creating an overall view and a general policy. If we see this decision making as a pyramid, these newest steps are moving us further upwards in the pyramid in the direction of a co-ordinated country plan.

Some might say that this kind of work resembles the old East European national planning methods. This is not so because here the task is primarily to co-ordinate programmes in order to get better results and to save money and work. If, on the other hand, people go too



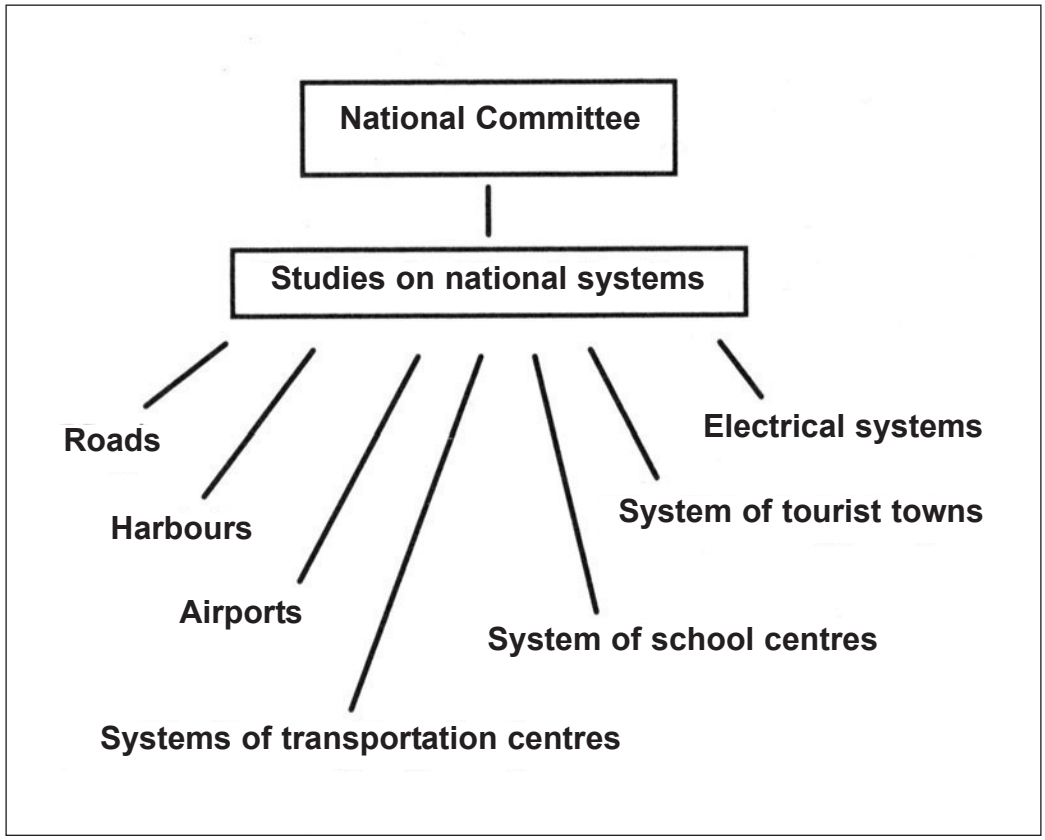
The figure shows how other planning levels relate to a country plan.



Development and planning areas unfortunately often do not match.

Road plan
System of airports
Harbour system
Power line system
Telecommunication
District heating
Fresh water supply
Sewage system
Street grids

Types of technological sector plans.



In 2001 work took place on the integration of the three transportation plans into one unified transportation plan. It would be easy to continue integration of the infrastructures above.

far towards drafting one particular picture of the future, there is certainly a danger that some ideological points of view will start to surface, the expression of those who lead the work in order to increase their own power and influence.

Theories of planning have recently moved away from ideas that aim to shape the future according to ideological parameters towards the idea of seeing planning as a neutral tool primarily used for investigating likely future developments in order to be able to realize ahead what the consequences will be if some particular policy is followed.

Possibly it is even wrong to talk about planning in this connection; perhaps the discussion and research should centre instead on "what means or conditions offer themselves" in planning for the future.

In some ways the needs can be compared to the material that today is produced to guide those who want to travel, for instance maps and descriptions of conditions and routes. In the case of future development, politicians should make use of comparable material that can guide us "into the land of the future" in order to be able to direct the development of society better if given a better overview and the increased security that can result from access to more and better information. This would mean that our leaders would not be as if blindfolded, like some are today, but that their leadership would rather be based on a study of the "landscape" that awaits us in the territories of the future.

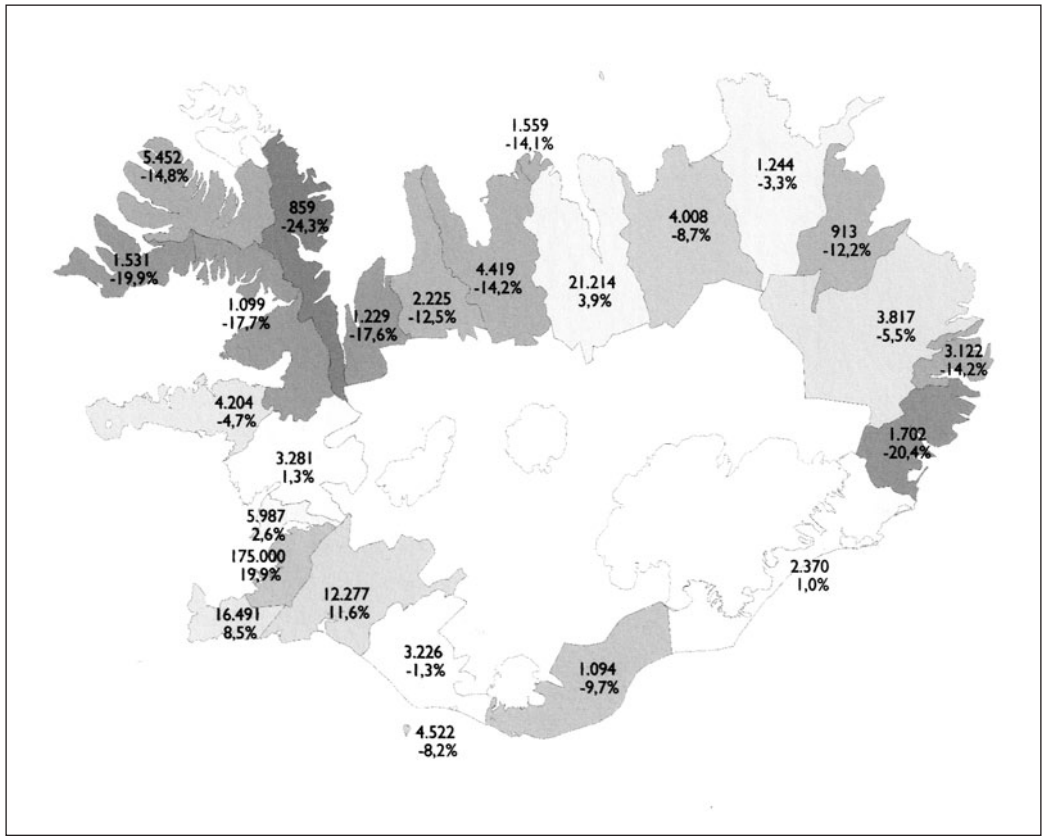
The mistakes that have been made in the too centrally and party-oriented regional planning systems in Iceland, as well as in the older economic systems of Eastern Europe, have given almost everything connected with the term *plan* a bad reputation. The truth in this case is probably that most of the time it is right to seek a balance between opposites. People need to make use both of the automatic workings of the market economy and of planning methods. How these tools are used should be decided in each case, and it is important not to make the use of either of the tools a religious doctrine, as some people do.

For some time now in Iceland there has been a considerable amount of apathy towards planning, and market forces, for the most part, have been given free rein. These ideological extremes, however, seem to be declining. As has been


VIÐ ÞURFUM LEIÐSÖGUGÖGN UM LENDUR FRAMTÍÐARINNAR

Ö

Planning info should be seen as a guide.



The population Dec. 1, 2000 by regions. Below that number the percentage change from the 1990–2000 is given. This is the best way to show how settlements are developing.

described earlier, a considerable amount of work has taken place in regional development plans and regional land-use plans in Iceland. Much work has been put into studying where it is most important to induce growth in terms of the settlement structure as a whole.

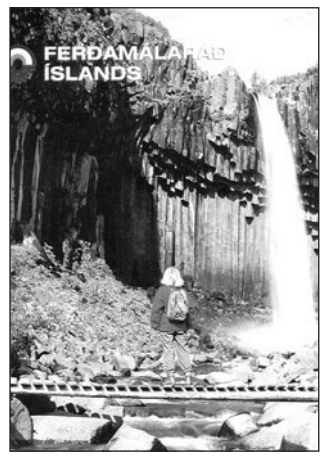
Earlier in this book two cases were described where such *country visions for the future* became a major force in the development of Icelandic society. First, there was the work of the Land Commissions in the eighteenth century, where a policy was formulated of gathering the dispersed institutions of the country in the south-west and of building up a few, but strong, trading stations. The other case was the policy of Jónas Jónsson from Hrifla and the Progressive Party, who were against urban developments along the coastline and instead emphasized building up settlement cores in the countryside (see p. 277).

After the Danes had given Icelanders the right to create their own laws in the late nineteenth century, the members of parliament tried to build up too many communities. This policy meant in due time that the nation was weakening its power by distributing it too widely, a policy that had a very negative impact on settlement concerns in the twentieth century.

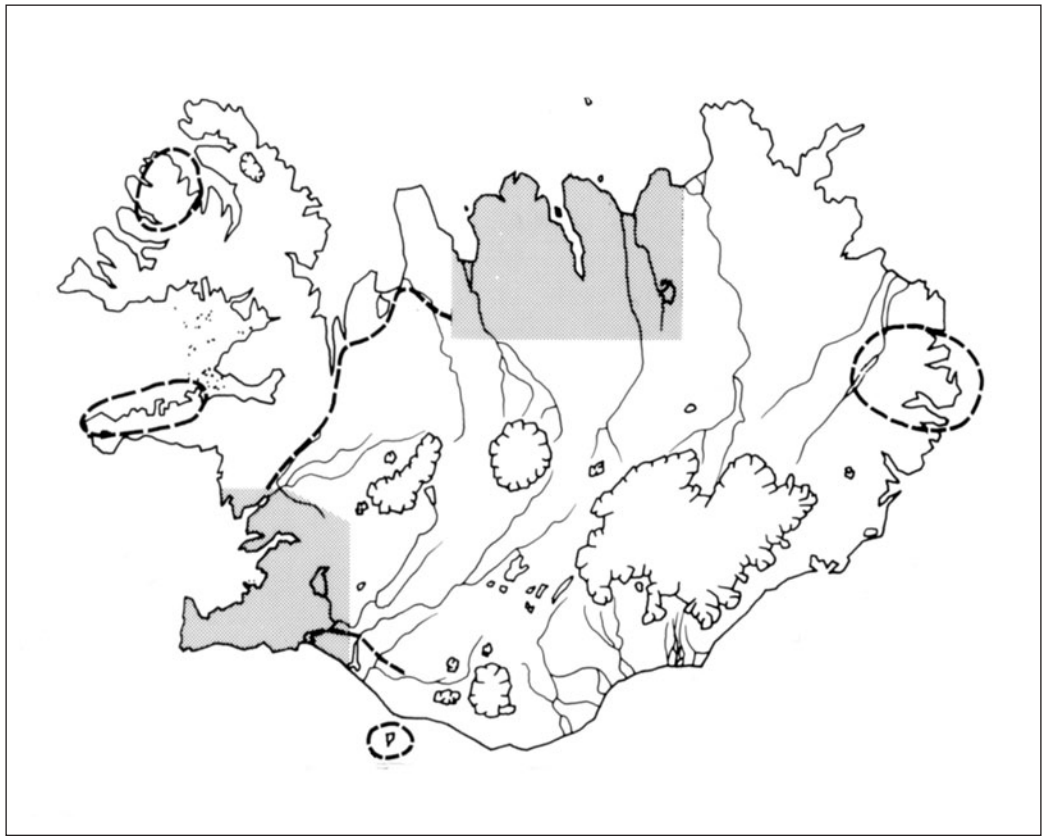
As *regional development planning* became a viable concept in the politics of the late twentieth century, many politicians agitated for the great advantages of distributing state services around the country.

In some cases, this ideology of dispersion was presented as a just action because the whole nation paid for the development of state institutions. In line with this policy, politicians have moved several institutions of central importance to the countryside, even though most people realize that in this way the services of the institutions in question will thus be less accessible. Various aspects of this reg-ional policy, however, have been positive, such as moving some of the control of primary schools out to the settlements.

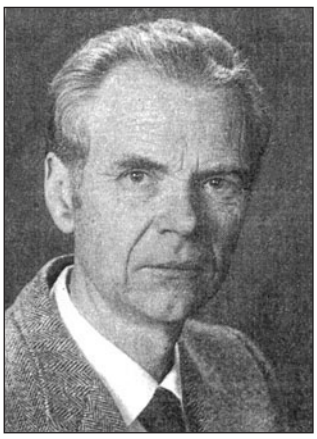
The biggest flaw in the structure of the government of Iceland is that a middle government level did not exist in Iceland during the last century. This is especially bad because of the numerous and too small local communities that in general have too few inhabitants to be able to take on larger tasks.



Solution in offices both in- and outside of Reykjavík.



Kristinsson has done important research on settlement development. This map from 1988 shows the areas he argued are most likely to be the developing areas of the future.



Kristinsson put forth ideas on a holistic view of the future.

The creation of governmental units of sufficient size would have been possible if the state had decided on a more viable minimum number of inhabitants per community, such as 1000 inhabitants instead of 50, as today. If this had been done, the transfer of services for the inhabitants from the state to the settlements would have progressed much faster. It was decided first to try efforts at voluntary merging, but this has meant that the development into larger communities has been progressing too slowly.

Two of the reasons for this are that Icelanders are individualists and are also very much tied to the historical roots of their communities. The considerable advantage that the countryside could have gained from enlargement of the communities has come, in many cases, too late to save them.

There is a fundamental need to strengthen settlement areas and their urban cores so that they can meet the current demands for a higher level of services. This obviously translates into a need to strengthen a few powerful towns in each part of the country. The north is the only part of the country where this has been successfully achieved, with the strengthening both of Akureyri and of the Eyjafjördur region.

Disputes and lack of understanding have, on the other hand, meant that elsewhere, for example in the West Fjords and the East Fjords, people have not been able to agree on one central place that can offer a good enough service level: a town that at the same time, could be able to back up various activities in the regions in question. Around 1960 some theoreticians had already started to point out this need, the primary spokesman being *Valdimar Kristinsson*. Kristinsson described in a clear and graphic way the need to make a decision about certain *development areas* in the country and of having certain *main cores* within these regions. Kristinsson published essays on his views, e.g., in *Hagtídindi* (Economic News). Subsequently, these ideas were also presented clearly in the public discussion that took place.

Another theorist that has been dealing with the importance of the *main core policy* is *Áskell Einarsson*. Einarsson became the first person to write a book on settlement matters in Iceland, called *Land í mótun* (The Forming of a Land). In his book, Einarsson traces the historical

THE SOCIETY AND THE CREATION OF A REGIONAL POLICY
Development and impact of public authority – The scheme of the governmental aspects
THE ECONOMY AND REGIONAL POLICY
Adoption of the economic plan – The role of the national economy – The economic capabilities of the local community system – Economic policy and settlement development
ADOPTION OF NATIONAL LIFE TO THE SETTLEMENT POLICY
Policy making for projects – Social impact on the overall national economy
DEVELOPMENT OF THE REGIONAL STRUCTURE
The role of the regional unions – The role of counties – Where the communities stand – Co-operation among the districts.
ANALYSIS OF THE SETTLEMENT STRUCTURE
The influence of the governmental structure on the settlement system – Analysing the individual regions – A realistic policy for resource utilization – The impact of localization

A part of the index from the book "The Forming of a Land" where proposals are made for a settlement policy and settlement planning. It underlines importance of locations and resources.

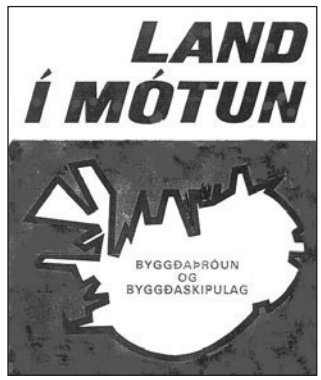
background of settlement development and points out that the lack of permanent county magistrates has contributed to the lack of creation of power centres in the settlements. Einarsson also describes what it meant that both the Skálholt bishopric and the Althing meetings at Thingvellir in early centuries were abandoned as regional and power centres.

Einarsson furthermore describes how the military occupation of Iceland during World War II and the wealth created by this occupation, as well as the foreign loans and development assistance that were subsequently obtained, contributed to further strengthening the Capital Region during the war and subsequently in the 1950's, whereas at the same time not much thought was given to supporting or building up comparable centres of power in the countryside. Finally, Einarsson argues that it was a mistake to give up the intermediate government level of the amt-districts that existed under Danish rule and proposes that a new middle government level should be implemented.

A year after the publishing of his book in 1971, the planning law became 50 years old. A conference was held in which Zóphanías Pálsson, the State Planning Director, gave a speech about the importance of regional plans: "A logical continuation of the regional plans seems to be that these plans will be co-ordinated and will then, together with state development programmes, form the core of an all-embracing plan for the whole country."

In this quote we can see a misunderstanding of the value and the nature of the overall plan for the country, namely, that the country plan level should first and foremost be used for the co-ordination of ideas that have already been created at the lower planning levels. It is essential that people realize that ideas must be created on the forming of systems and plans as concerns the whole country *before* a further execution is conducted at the lower levels of planning.

The Planning Director has probably been fully aware of these key features but has thought that it would sound too much like central government domination to propose that at the country plan level ideas on future development be created, which the various regions of the country were meant to adjust themselves to.



The first theoretical thesis on settlement matters.

Einarsson described historical roots of settlement problems.

During this time, little discussion had yet started to take place on the need to survey the nation's resources. Furthermore, little emphasis was put on the potential hazards, such as natural aspects, in the work of developing ideas about how future spatial development would be best guided in Iceland.

In 1973 the author of this book started to develop an idea about a study of such natural features in Iceland. In the process of this work ideas about future schemes started to develop and the first articles about a future country plan based on this work were published in the spring of 1977.

In 1979, the author received a one-year scholarship from CCMS in Brussels to plot this analysis of environmental features in Iceland on a map. This work created the foundation for writing *Ideas on the First Icelandic Plan*, which was published in 1987. This work and later developments and proposals by the author in the area of country planning will be described in the following section.

In 1988, the Danish theoretician Kai Lemberg came to Iceland to study the characteristics of the Icelandic planning system. He had received a grant to write a book describing and comparing the planning systems in the several Scandinavian countries. The chart on the opposite page, which describes the structure of planning in the north, is from his book. The chart shows clearly that at this time Iceland was the only Nordic country that had not established a national plan level, and now, twenty-five years later, this is still so.

Denmark was the first of the Nordic nations to start work on a national planning level with the establishment of the National Planning Committee in 1961. In the book 27 *slags planer* (27 types of plans) the following definition of a national plan is given: "A national plan is integrated by official institutions as a physical plan under the auspices of the National Planning Committee, a plan that covers the whole country and functions as a co-ordinating organ for various issues."

Icelanders have observed developments in Denmark rather closely ever since Iceland was an integral part of the Danish kingdom. The establishing of this National Planning Committee and the issuing of a report on its work meant that Icelanders also started to study this matter.

Icelandic officials made several proposals for amending the planning law to include the *country plan level*, but for some reason the country and regional politicians stood against it. Several more steps were taken, however, towards the development of a country plan. The State Planning Institute and the Regional Development Division of the Development Institute together started to collaborate on a report on the main prerequisites for a country plan. This was primarily in the form of maps and charts dealing with the issues: resources, government, demography and industry. This 94 page report, titled *Landsskipulag og áaetlanagerd* (Country Planning and Programmes), was published in 1984. This report must have had some influence because in the spring a bill was presented to the Althing on a *land-use plan for Iceland*. The law was enacted and the Minister of Agriculture was given the task of carrying it out.

A committee of fifteen members from the main institutions in the country was established to discuss land-use concerns on a country scale. These institutions included, among others, the Nature Conservation Council, the National Power Company, the Farmers' Union, the Iceland Forestry Service, and the National Energy Authority. The committee employed people and various institutes carried out several special investigations. Like the earlier report, the report that resulted from this work was primarily a description of the status quo in land use.

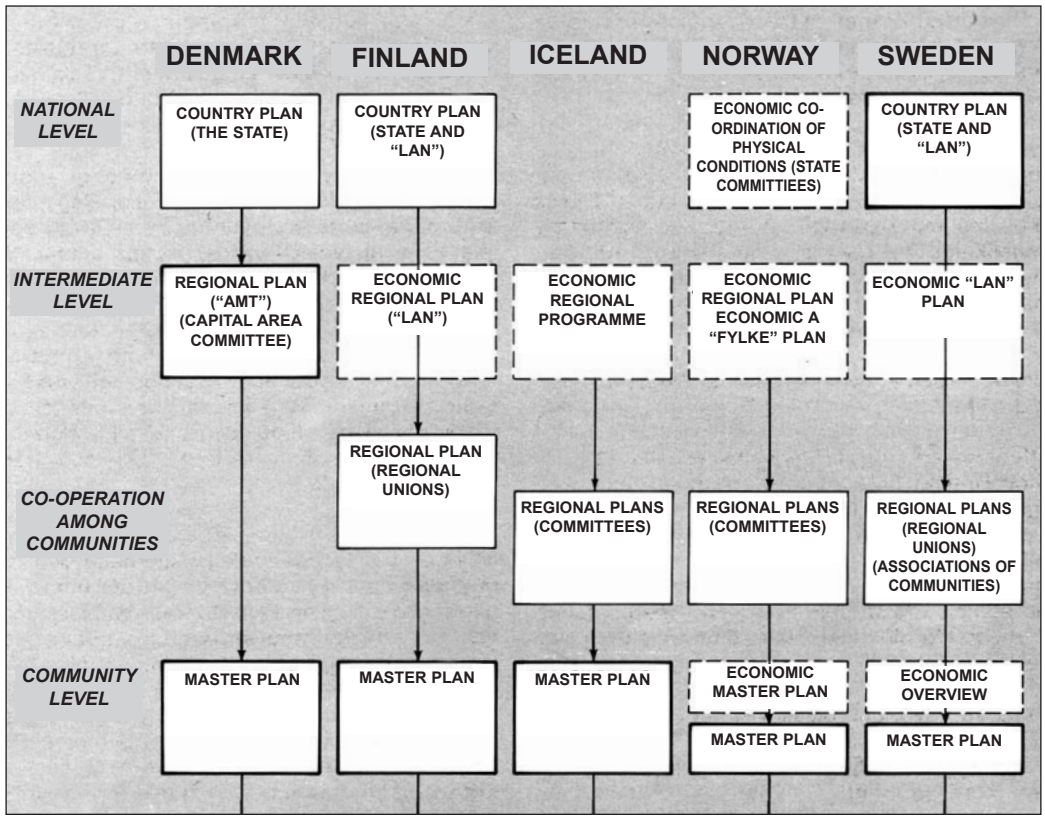
Both these reports presented estimates of some future demographic characteristics of the population and predicted continued migration from the countryside into urban areas, which at that time was rightfully seen as one of the biggest problems. The 105 page report of the land use committee – which contains a great number of maps and graphs – was published in May 1986 and was called *Landnýting á Íslandi* (Land-Use in Iceland and Preconditions for a Land-Use Plan). The closing section of the report presents a proposal to add certain clauses to the law on country planning.

Such a land-use plan should primarily describe the development of the settlements and deal with economic pursuits and land use in general. The committee therefore proposed that the State Planning Institute should be given the task of creating a land-use plan based on the policy presented in the report. The report also proposed that two committees should be established to follow up on this venture and act as advisory groups.

The first group should consist of representatives of the Althing and the other group of representatives of ministries, state institutions and other institutions that have a stake in the making of such a plan.

A document providing basic information a national plan.

The Ministry of Agriculture prepared a national land use plan.



Planning in the five Nordic countries in the 1980's.
Still today country planning is missing in Iceland, exept for the technical sector plans.

Unfortunately, these proposals for a legal provision on a country plan did not materialize. Therefore the State Planning Institute did not begin any formalized work on a country plan though it has tried to carry out some work in this area.

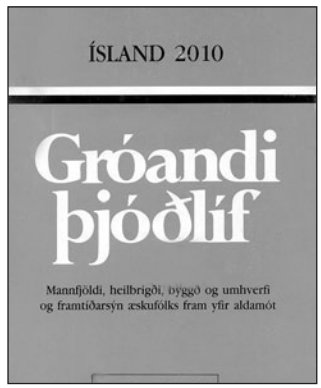
The planning law of 1988 contains a paragraph that deals with the collecting of data on a country plan level. This paragraph is sufficient to give the State Planning Institute -now called the Planning Agency – authority to carry out work that can pave the way for the preparation of a country plan, or at least some investigation into the disharmonies that exist among sector plans on a country scale.

The global development towards environmental assessment will mean that Iceland has to make an account of various aspects of the society, both on a country scale and on a global scale.

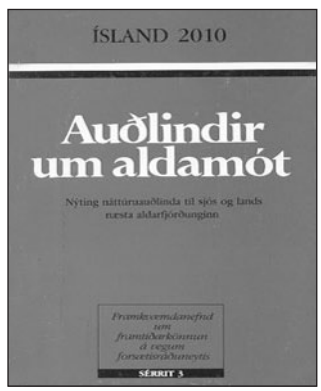
Beginning in 2004, a new law on environmental assessment makes it mandatory to write reports on the impact of a project on a country scale. Ásdís H. Theódórsdóttir now works on creating procedures and methods for this work for the Planning Agency.

Future research on behalf of the government in the past few decades started in 1984 with an executive committee that the Prime Minister appointed in the spring to initiate a future study for Iceland to cover the period 1985-2010. Sixteen groups were established to work on the various aspects of this future study, including a group on population prediction, a group on settlements and the environment, and a group on the future expectations of young people. The reports of these three groups were published in one book in 1987 called *Gróandi thjódlíf* (National Life in Progress). Another book in this series was also published in 1987 called *Audlindir um aldamót* (Resources at the Turn of the Century). That book contained the reports of the three groups on ocean resources, land resources and energy.

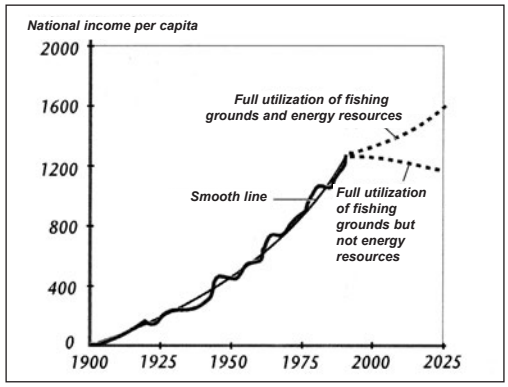
The reports of the other groups were not published, but some of them were distributed as photocopies within the government sector. It was a pity that not all the reports of the groups were distributed to the general public, but it is, nonetheless, certain that this work has at least been very useful for the representatives of the various ministries and institutes as concerns



This study on the future was made around 1990.



The study reached into many aspects of society.



Prediction of energy utilization as maximum fish catches have been reached.

their need to get an idea of what the future may entail. It was also very useful that ideas about future development were presented in this way.

Unfortunately, this work has not been continued by the government, with the exception of work done in connection with the *policy-making settlements programme* that was started in 1994 and which was described on page 269.

One more independent theoretician should be mentioned concerning the study of future settlements. This is the engineer *Ágúst Valfells*. In 1979 he published the book *Ísland 2000* (Iceland 2000 – Production, Population and the Standard of Living).

The work was supported by a grant from the National Power Company. The book presents studies by the author on the historical development and potential future development of the standard of living in Iceland. Some of these studies had already been published in articles.

Valfells divided the history of Iceland into the period of agricultural production, where there certainly was a limit to how many inhabitants the country could support.

Then, around 1900, the period of utilization of fish resources commenced. This period has been characterized by a steady increase in the use of this resource and an increase in per capita national income. Valfells pointed out that the increase in number of inhabitants has followed rather closely the increase in national income.

Valfells also pointed out that there would be a point where the full capacity of the utilization of the fishing resources would be reached and he put that point of time at about 1985. In the book, he furthermore claimed that if new income possibilities did not open up after that time, this would lead to a lowering of per capita income, assuming that the number of inhabitants continued to increase.

If, on the other hand, a further and larger scale utilization of the energy resources of the country were started, the national income per capita could continue to increase (see graph on top of page).

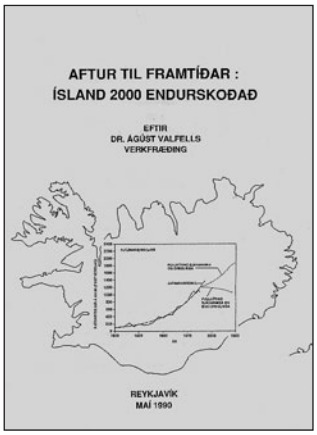
In 1990, Valfells published his book again and now called it *Aftur til framtíðar: Ísland 2000 endurskodad* (Again to the Future – Iceland 2000 Reviewed). This edition of the book included the text of the earlier book and added new paragraphs in bold type with his estimation of how well his prediction about the future had stood up after eleven years. He admitted that the growth period of the increase of income from fishing resources proved to be longer than he had predicted. He claimed, however, that although the critical point had been delayed, this did not alter his main statement that there will come a time when Icelanders will need to utilize their energy resources in order to be able to increase their national income.

What has happened since 1990 is that the increase in national income provided by new economic pursuits has entered the stage. Tourism is one of them, as well as the knowledge industry. Because of this it can be claimed that Icelanders now have more options than the utilization of energy resources in order to increase national income after maximum utilization of the fishing resources has been reached.

How this claim should be assessed has in fact caused great disputes as to what kind of future Icelanders could be offered instead of the energy and heavy industry option – in particular, after the National Power Co. and the government put forth their idea on the construction of Kárahnjúkar power plant in 2001.

In assessing future economic alternatives, factors like a possible increase in petroleum prices in the future will have to enter the picture. This possibility could seriously reduce the very optimistic predictions on the increase in tourism to less than we would like to hope for. Furthermore, it is still not clear whether the knowledge industry in Iceland can take off to such a degree that it can equal energy production and heavy industry in terms of national income.

In the conference of the Planners Association in 2001, Thórdur Fridjónsson, the head of the National Economic Institute, talked about the likely sources of the national income in the future. There he predicted that the income percentage provided by tourism would not increase in the near future. In addition, he was very circumspect concerning the estimation of how much the knowledge industry can contribute to national income in the years to come.



Valfells' report on the future promotes heavy industry.

2 An Idea of the First Iceland Plan

As described earlier, the author of this book was the first to put forth an idea about a country plan for Iceland. The idea was presented in a report with maps in 1987, as developing ideas to work in the most logical way on such a country plan has always been one of the largest aspects in his career as a scholar and planner.

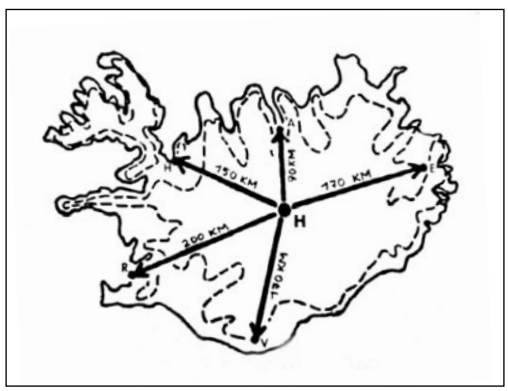
In 1975 the author conceived the idea that it would be necessary to aim for a plan for the whole country: a *country plan*. Such a plan like would have to present the best settlement areas, the structure of the road system, the structure of the electrical power system, the structure of air services and harbours. The preparation process included collecting maps that show areas in the country best fitted for settlements – such thematic maps showing, for example, areas of geothermal energy and the best areas for obtaining fresh water – to name a few factors. This work also involved collecting maps and information about the worst conditions, including areas that are dangerous because of earthquakes, lava flows and pumice fall.

In 1973 two dramatic events occurred. One was the oil crisis and the other the eruption on the largest island of the Westman Islands, the island of Heimaey. These two events pointed out very clearly the necessity of such mapping so that planning measures could be applied to help avoid disasters in the planning of settlements and to be able to guide new settlements into areas where the best conditions are to be found.

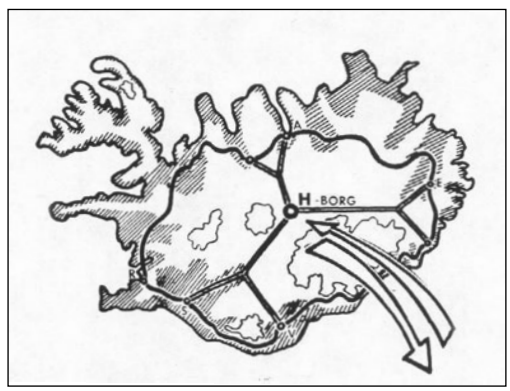
In the spring of 1977 the author published the first two articles with the findings from his country plan work. These articles included the presentation of an idea about a future road system in Iceland where the highland roads play a large role. In the centre of the Sprengisandur Desert, which is the geographic centre of Iceland, the construction of the new town of *Háborg* was suggested. From there roads would go to the three directions, north, east and south. Each of these roads would in turn divide into two roads. The North Road would divide into a road into Akureyri and another to Lake Mývatn. The East Road would go down to Egilsstadir and another branch to Lón, east of Hornafjördur. The South Road would divide into a road connecting with the Thjórsárdalur Valley and Skeidavegur Road, which would go down to Selfoss and secondly to Fjallabaksvegur Road, which would connect with the Ring Road not far west of Kirkjubaejarklaustur. These last two roads were actually under construction at the time of the planning.

In 1979 a grant was awarded the project by the CCMS in Brussels. This grant helped continue the mapping of the best and worst areas in the country for settlements. The method employed was the *overlay method* and the map series contains 25 maps that were drawn on transparencies. The most positive areas in each transparency got the darkest shadowing so that as the transparencies are laid over each other, the area that appears the darkest is interpreted as the area with the best conditions for settlement. Similarly, the summation of the negative features connected to land use appears by overlaying the transparencies.

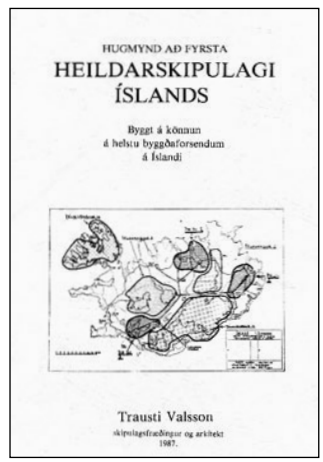
In 1987 the result of this work appeared in the book *Ideas on the first Iceland Plan*, which will be described better on page 358. The publication of this book was followed up by three articles on settlements and the country plan in *Morgunbladid*. In the autumn of 1988 the author obtained a position on the Faculty of Engineering of the University of Iceland. The



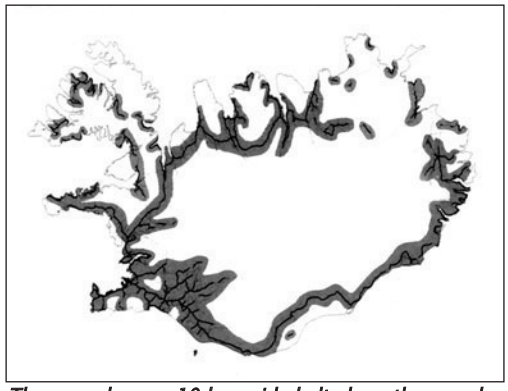
From a central location, all domestic distances would be short.



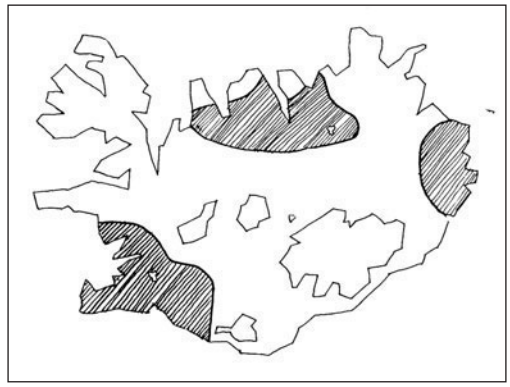
A highland road system idea from 1975. For fun Háborg is placed in the middle.



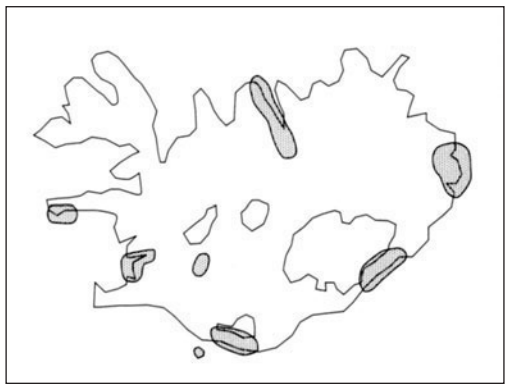
An idea for an overall plan for Iceland.



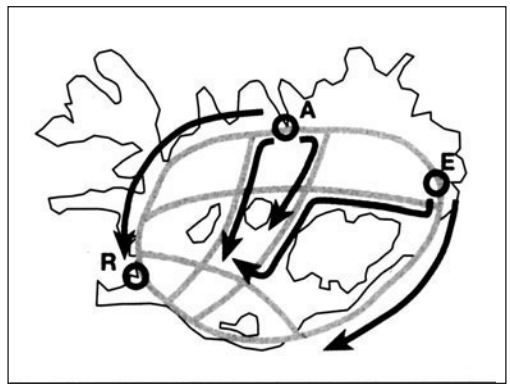
The map shows a 10 km-wide belt along the paved roads in 2000. These are the best tourist areas.



Areas of easy access from the three places where tourists enter the country.



The country's best tourist areas, judged from nine tourist activities.



The arrows show how the highland routes may be used as back-up in case of emergency.

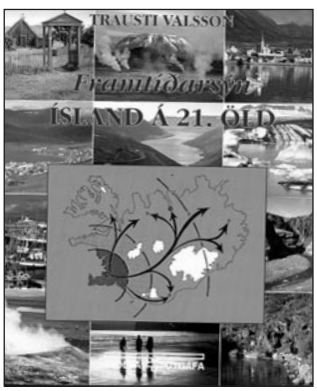
work of the students became an important part in the study of various aspects connected to the country plan, mainly aspects of the highlands. In the next few years these concerns became a frequently discussed topic in Iceland. Many conferences took place, for example on the planning of the highlands, and a number of theses were written at the university.

The next step was the publication of the book *Framtídarsýn – Ísland á 21. öld* (A Vision for Iceland in the 21st Century) in 1991, a book based on the work carried out at the university. Then in 1993 came *Land sem audlind* (Land as a Resource), which included maps on the south-west based on the overlay method. This map series focuses on positive and negative features for tourism. It also provides an historic account of how the settlement structure has developed in this area through the centuries – and also in the whole of Iceland.

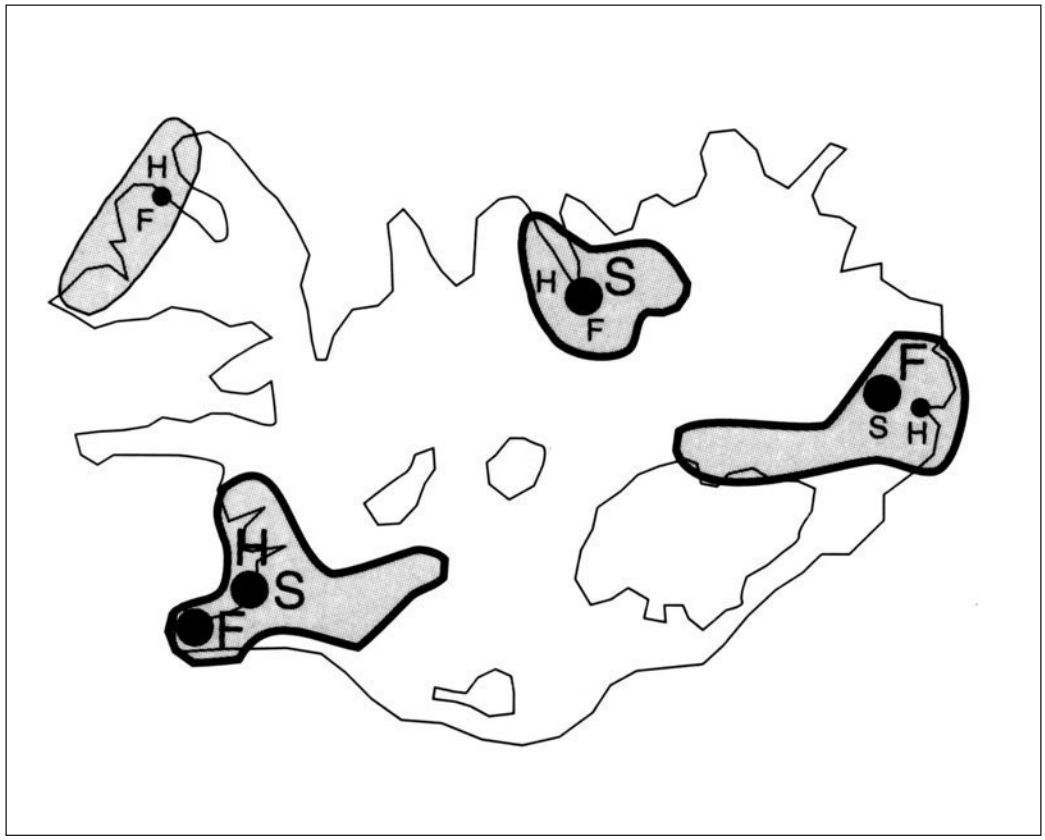
The next step after that was the starting of a similar mapping project for the whole country, but in the meantime the fourth book, *Vid aldahvörf – Stada Íslands í breyttum heimi* (At the Turn of the Century – Iceland´s Position in a Changing World), was published. This book came out in 1995 and was co-authored with Albert Jónsson, the special adviser to the Prime Minister on foreign affairs. This book was useful for the country plan work, for instance in the way it clarified the importance of the global environmental movement. It also presented some alternative scenarios for Iceland´s development in the view of how things were developing elsewhere in the world.

In 1997 the fifth book was published, *Ísland hid nýja* (Iceland the New), co-authored with Birgir Jónsson, a geo-engineer. The largest part of that book goes into describing the process needed for creating planning ideas about the future. The book is divided into three main parts: 1. The necessary assessment of the strengths of Iceland in view of international developments – questions such as whether Iceland is well placed as a country for economic pursuits like heavy industry and tourism. Based on this assessment the second step was taken: 2. A rough sketch for a county plan for each alternative policy, for instance, for Iceland as a country of heavy industry or tourism. Of special interest here is how these two options can go together in the highlands.

Only after these two first steps have been completed can the Icelandic government decide



Creation of a vision has become important for the future.



Three areas in Iceland have all three means of transportation: harbours, airports and land transport, and are therefore suitable tourism core areas in the future.

on: 3. A country plan policy. When that has been done a solid foundation for regional planning for the various parts of the country will have been provided – not least important in the central highlands.

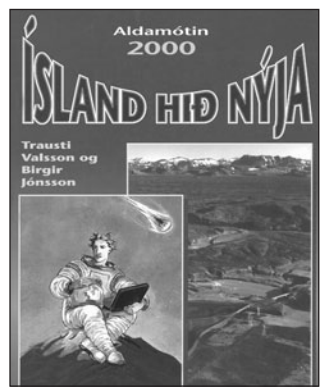
In 1998 work started on the regional plan of the central highlands, led by a joint committee. This committee was given the authority for this work by a special clause in the planning law in 1993. When the work had been started it became very clear – as already described on page 244 – that the policy frame on the country plan level, provided by the state, was pretty meagre. This lack of the necessary preceding steps for the regional plan became the focus of the criticism in *Ísland hid nýja*. This lack obviously meant that the plan was flawed in many ways, as detailed in the book.

The next book was a contribution to the further development of certain aspects of an Iceland Plan. The book is called *Vegakerfid og ferdamálin* (Roads and Tourism), published in 2000. The main task of that book was to lay out the foundation of the integration of roads and tourism planning on a country scale. The first part of the book demonstrates how close a connection there is between the development of transportation facilities and the development of tourism. Because of this it is obvious that ideas on the future of tourism need to be created in close co-ordination with the development of future ideas within transportation planning for the country.

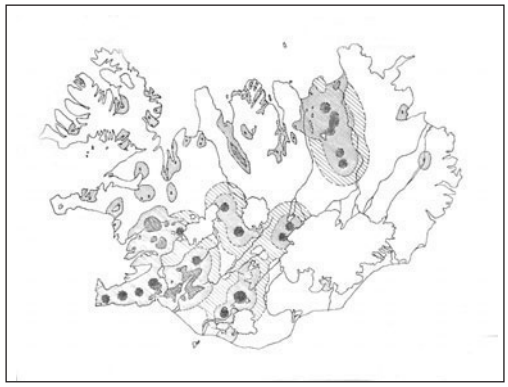
Although the book mainly deals with the road system and tourism, most other parameters of a country plan and settlement policy enter the picture. The book therefore actually presents a rather comprehensive vision of how the settlements could develop – a vision that in this case originates in a special study of roads and tourism.

The main findings are that it would be sensible to create a policy that settlement in the country shall rest on three pillars, i.e., that there should be three main settlement areas (see map above). The first area is the cluster in south-west Iceland, secondly the north central cluster, and thirdly in the mid-eastern area. As will be described afterwards, this *triangular settlement structure* fits well for all the main three industries: fishing, tourism and the energy-based industries.

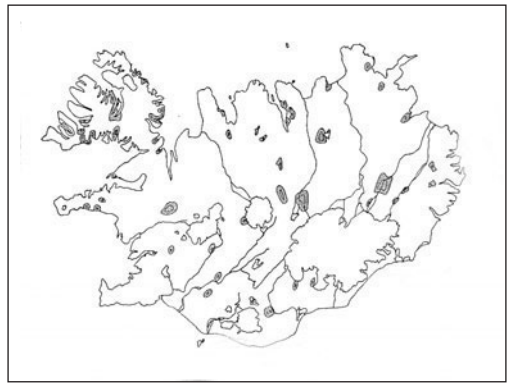
The importance of the third pillar in the east for the fishing industry becomes clearer as we realize that in the eastern half of the country,



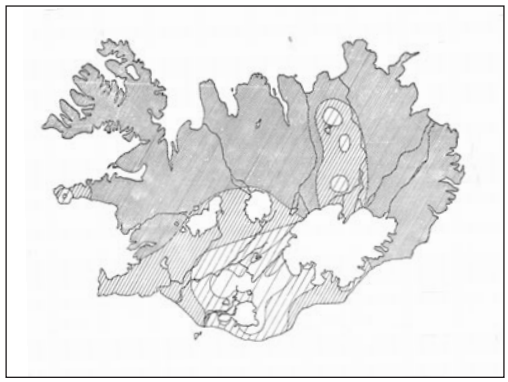
The book describes the planning idea process.



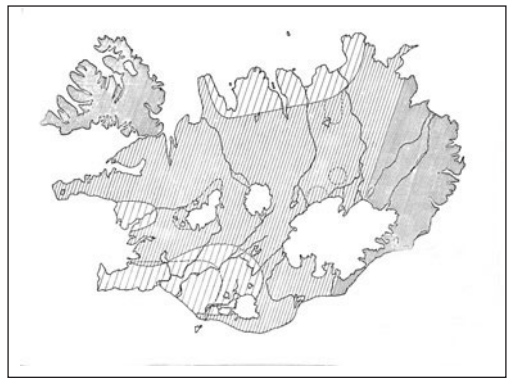
Dots: high temperature sites; grey: warm areas and areas of distribution.



Even low temperature geothermal areas are advantageous for settlements in the vicinity.



Darkest: least pumice fall danger; lightest: areas of most danger.



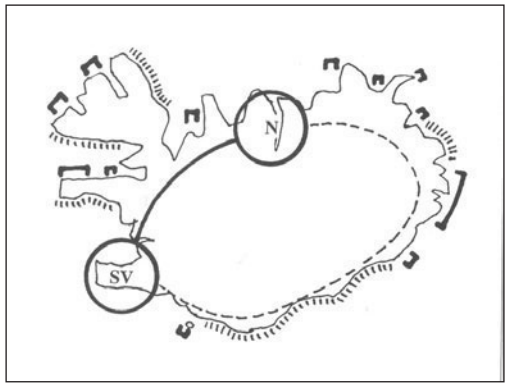
Darkest: areas of least earthquake danger; lightest: most danger.

running from Húsavík in the north to the Westman Islands in the south, the Mid-East Fjords is the only place on this coastline where there is an urban cluster of a size sufficient to be able to meet the demands made on a major centre for fishing and human settlement in the future.

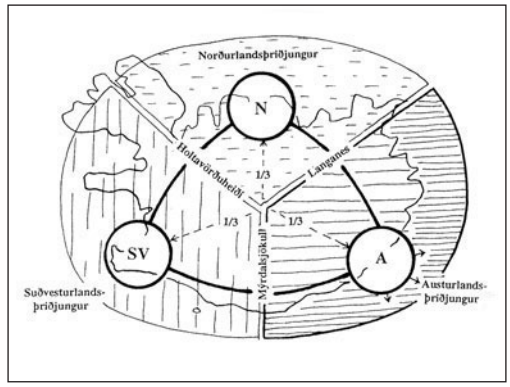
As concerns tourism, the book points out that the east is no less important for being the third corner of the settlement triangle. This location is important as a gateway because of the ferry from Norway and the Faroes to the East Fjords in the summer and because the Icelandic reserve airport in Egilsstadir will also be able to strengthen this function as a base for direct tourist flights to and from Europe in the future.

As concerns the third main industrial base, energy, it is a fact that 35% of the unused hydro-power energy of Iceland is located in the east. As we look at how much more it costs to build a power line to send power over the highlands to the south-west than to a fjord in the east, or € 120 million compared to only € 7 million, respectively, it is clear that the eco-rule – to use energy close to its source to reduce waste and environmental damage – is valid.

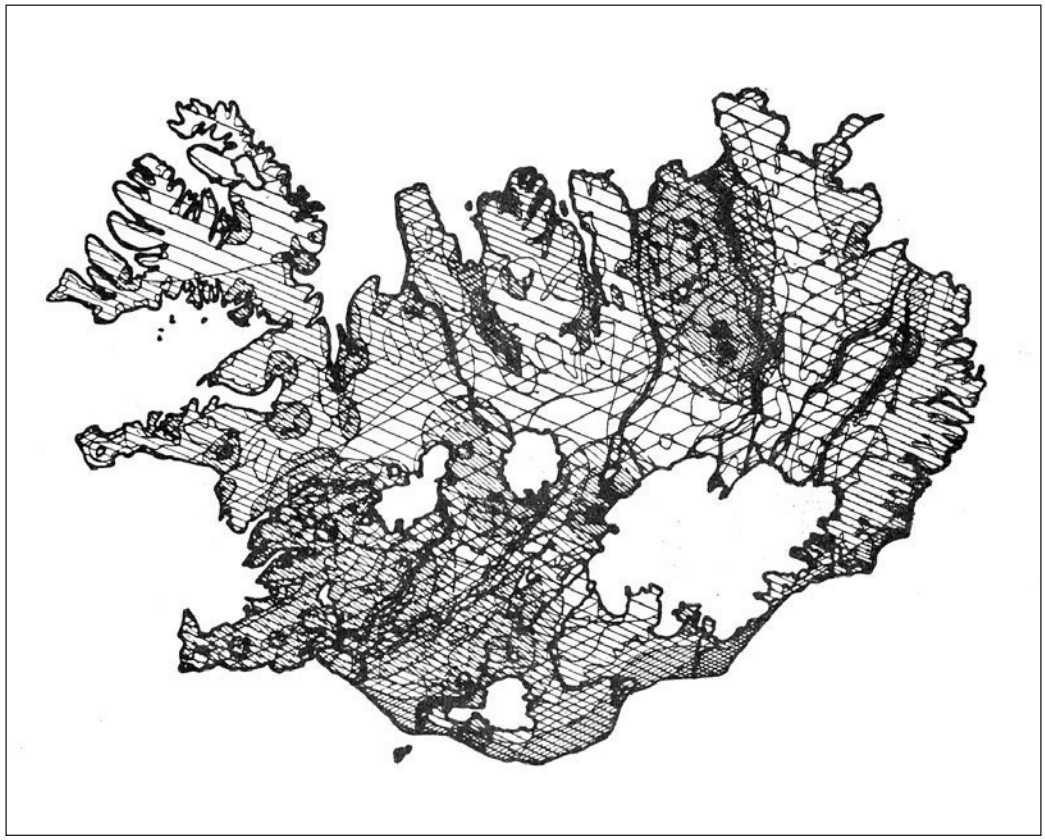
A paper on the east from a meeting in Neskaupsstadur.



This map shows the length of the south coast with no port or harbour.



The east is important for utilizing natural resources, therefore a centre is necessary.



In this map, several natural resource maps have been overlapped to show where the conditions are best. The south and Þingeyja-county are quite outstanding in this respect.

A simple conclusion from this is that eastern energy should be used in the eastern part of the country, which is the third reason – besides fishing and tourism – that it is a very sensible settlement policy to aim for the building up of a strong settlement core in the east. In addition, the east will become very important as the artic sea route, described on p. 344, starts to open up.

This present section includes several maps that analyze resources and hazards in Iceland. Here they are printed in only a fraction of their original size, but if transparencies are made from them and projected onto a wall, they become quite legible.

Let us now turn back to the author's first book, *Ideas on the First Iceland Plan*, which was described on page 353. There the analytical maps appearing in this section were published for the first time, as well as this first Iceland Plan idea that was, to a large extent, based on them. Now that more than twenty years have passed since these maps were published – see the reproduction on page 359 – it is of interest to study how they have stood up to test of time, not least because many of the ideas presented there were considered to be rather bold.

Let us first look at the idea of the *highland road system*. What has happened is that in the *Transportation Plan of 2003* some of these road ideas have been incorporated into what is now being termed the *basic transportation system* of the country. The highland routes selected for the Transportation Plan have been somewhat criticized, which shows that there is still work to be done in selecting the routes. The fundamental fact, however, remains that the idea about the highland roads – running the shortest distances between the various parts of the country – has now been accepted.

On the Iceland map, the three development areas in the countryside, excluding the south-west corner, have since then been growing in strength as future settlement areas. The upper regions of the south lowlands are an example of this. The idea presented on the map that the Akureyri area should be extended in the direction of Mývatn Lake has grown in importance because of the idea of a tunnel under the Vadlaheidi Heath. Also, the north-east and the east have been unified into one voting constituency, which makes it logical to try to build one unit out of the Akureyri area and the Hérad area. A new road, Háreksstadaleid, has been built and considerably improves their connection.

The map below, on the left, shows this idea in the *Iceland Plan* book, i.e., that these areas should

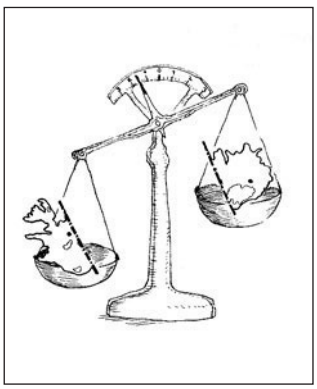
Overlapping transparencies has many possibilities.

Printing together of some restraint maps. Volcanically active areas harbour most dangers and thus appear darkest in the map. Their concentration is greatest at Mt Hekla and the Mývatn area.

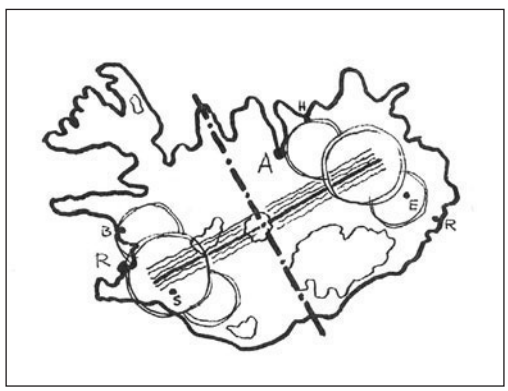
be connected. The sketch also explains the role of a highland road over the Sprengisandur Desert for the strengthening of this settlement structure.

The eastern part of this "settlement balance" or triangle will probably develop more slowly, but a better connection between the Akureyri area and the eastern part of the country – especially given the impetus of the new hydropower plant and the aluminium smelter in Reydafjördur – will certainly add weight to rectifying the imbalance, at least to some degree. The third main idea from the Iceland Plan was to create new, large nature preservation areas, instead of dispersing them in small patches all over the country. In the map these areas are called *Public Recreational Areas*. This idea of establishing large conservation areas has been gaining ground in the last few years and is incorporated, for instance, in the regional plan for the central highlands. Of late, many people have also put forth similar ideas on large conservation areas.

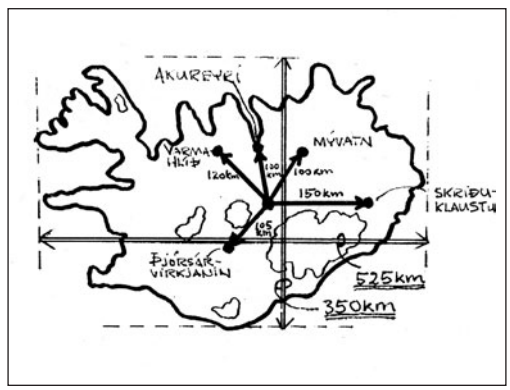
The fourth idea that was put forth in this Iceland Plan of the future was a suggestion that possibly, sometime in the future, a *communication*



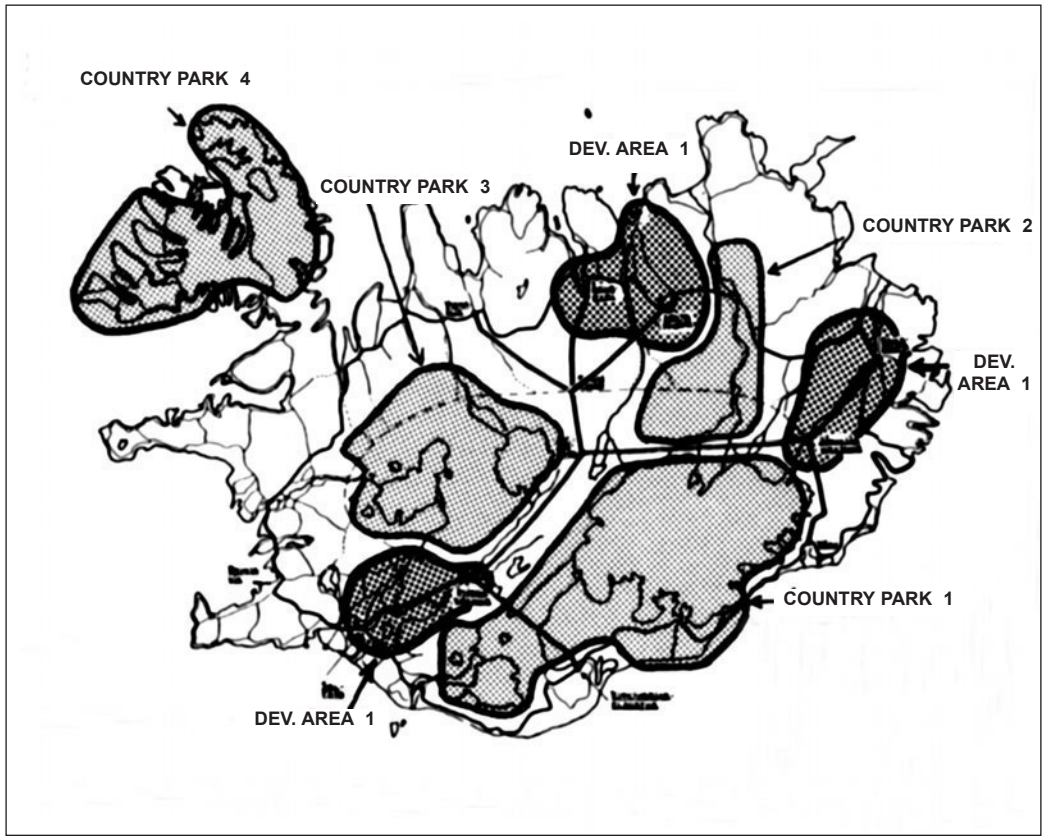
All activity in SW Iceland increases the imbalance.



A road across the highlands would even the balance.



Direct distance from the centre of the highlands down to the settlements is very short.



Idea on the first Iceland Plan, published in 1986. It presents ideas on a highland road system, three development areas (dark grey), and four large county parks (light grey).

centre could be built right in the middle of the country after the highland roads had been built. The distances from this centre in the Sprengisandur Desert to the settlements in the north, east and the south are very short, as the little map to the left shows. Various activities and services for these three parts of the country would be appropriately located there. In 1977 this idea was presented rather light-heartedly by suggesting that maybe in this spot the town of *Há-borg* (High City, Acro-polis) could be built which, in due time, could possibly overtake some of the capital functions of the country.

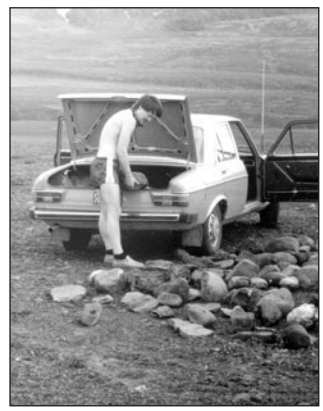
The book on the Iceland Plan describes some examples of nations that have built new capitals close to their country's geographical centre, for instance Madrid in the central highlands of Spain, the capital of Brasilia in the central plains of Brazil, and Mexico City in the middle of a desert territory in Mexico.

What has happened in the meantime – and is related to this unusual idea about a new city in the highlands – is that now many scientists suggest that the temperature on earth will increase. If the climate in the central highlands of Iceland – that is now very cold and windy – will at some point become similar to that of mountain areas in Europe, the weather will no longer be an obstacle for building a town there.

There could be a considerable number of positive features for the average person living in the central highlands. The distances to skiing areas in the glaciers are short and it would only take about a two hour drive by car to get down to all the main settlement areas of the country.

It would be a special benefit for those living in the highland city that the wind direction and thus the weather, often divides Iceland in two; during periods of south-west wind with extensive rain, at the same time there is frequently a warm and dry period in the north-east.

As the wind direction changes – with prevailing north-eastern winds – the pattern reverses and the northern and eastern parts of the country become cold and damp, whereas good weather is to be found south of the highlands. This means that people living in the highland city could always be only one to two hours away from the very best weather available in the country at any given time.



A cairn being built near the proposed town Háborg.

3 Probable Future Developments

During the last decades of the twentieth century, several international developments occurred that will probably bring about increased activity in terms of national country planning in Iceland in the future.

As has already been described, many preparatory steps have been taken in country planning. The main factor in terms of making an overarching plan necessary is the increased connection between Iceland and the European Union after Iceland was granted associate membership with the establishment of the EEA in 1994. Following the signing of this agreement Icelanders were thereby required to adopt many laws and regulations that are in force within the EU. One such example is the directive on environmental impact assessment that was described on page 291.

One of the things that happened with the integration of Western Europe into one economic zone is that, though it is considered to be right to look at the countries individually, most people and companies now look at Europe as a single interactive unit. This integration process has meant that common policymaking has been initiated and is taking over in an increasing number of sectors within the EU, for example, in the areas of energy, transportation, agriculture and nature conservation. Because of this and because of the need of each member country to understand its position in this new whole the EU published an innovative book in 1991: *EUROPE 2000 – Outlook for the Development of the Community*. This book presents the most important planning facts of the area – the distribution of population and location of work places, as well as plans for future transportation systems. Following this report, many other reports have been worked on, for instance the *ESDP – European Spatial Development Perspective*, a document that all member countries and associate members need to study thoroughly to assess their position in the Europe of the future.

Some member countries of the EU have since then delineated their own position within the union, as for instance the Danes with the book *Danmark pa vej mod 2018* (Denmark on Its Way into 2018), published in 1992 with the subtitle *Landsplanredegorelse fra milioministeriet* (Country Plan Report from the Ministry for the Environment).

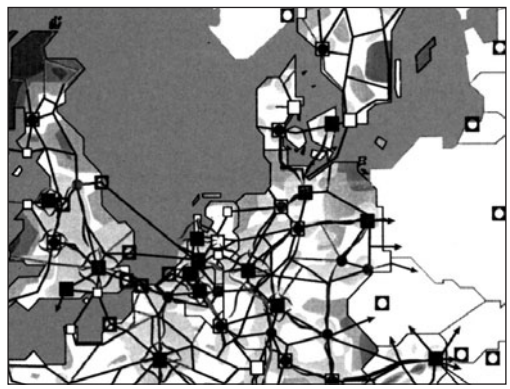
Concerning issues on a global scale, some important developments have also taken place. The most important of these is the *Rio Conference* of 1992 where most of the member countries of the UN signed a declaration on an *agenda for the twenty-first century*. The Icelandic government has used this agenda as a guide in its planning towards *sustainable development*. Various country programmes on sustainable development were described on page 290 in the present book.

The work on the Kyoto Agreement has also had considerable influence on the making of plans and programmes for Iceland. In 2001, for instance, a report was published on the amount of greenhouse gases used by the transportation sector. That same year, work took place on an integrated traffic plan, which was approved of by the Althing in 2003, a plan that was described on page 296.

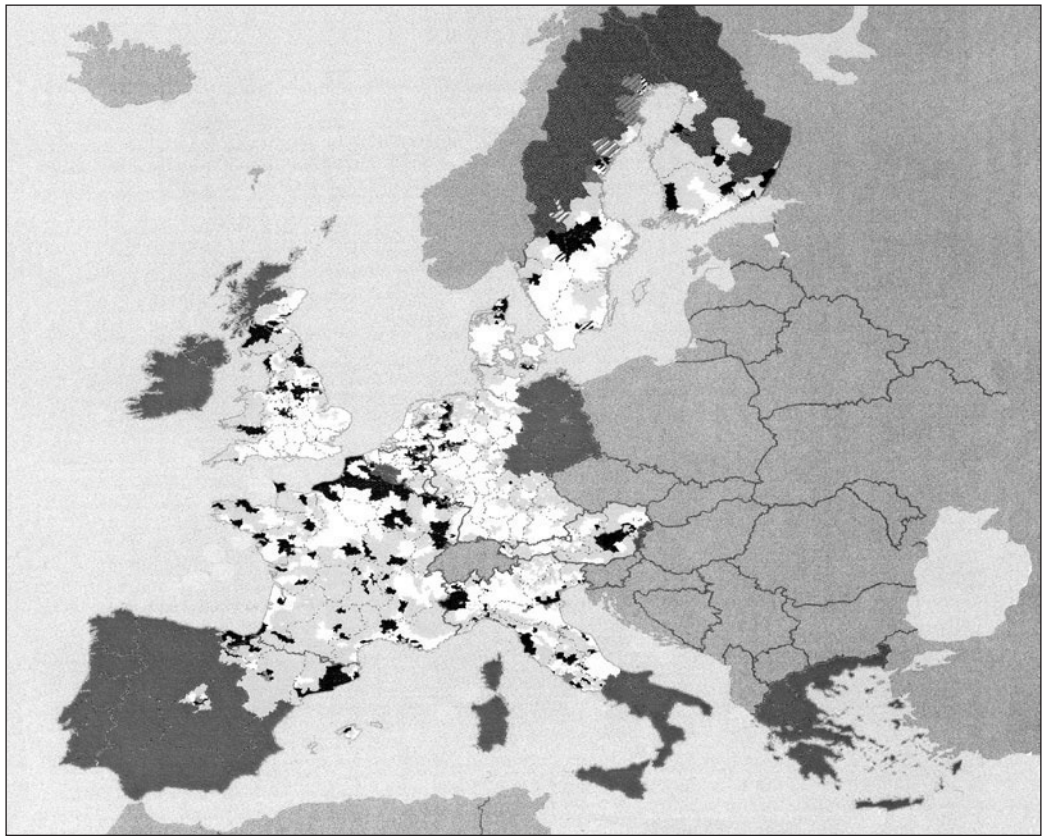
It was, however, primarily the discussion about environmental matters and the frames and standards created in the discussion that have been of most influence on ideas about how Iceland should develop in the future – and will undoubtedly have increasingly more effect in the future. The extensive work on the *frame plan for*

A proposal on the position of Denmark within Europe.

Future view of Denmark in 2022. It shows transport lines, cities and green areas.



Denmark's position in northern and mid-Europe's transportation net.



Within the EU are regulations as to what developing areas may, or shall, receive funding. Regulation 1 extends to whole countries, regulation 2 to areas within countries, etc.

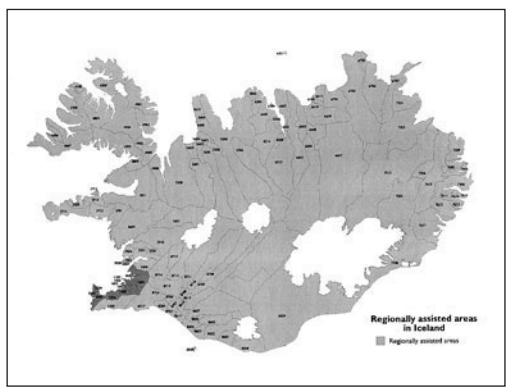
energy utilization has primarily come about because of this international environmental discussion, as can be seen in the section on energy utilization on page 312.

Environmental matters have also provided the largest incentive in the area of the law of the sea and in the development of ideas about the utilization of the fishing resources, as was described on page 337.

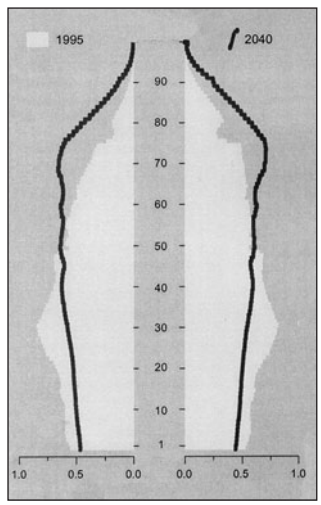
Since 2000, the discussion about the possible membership of Iceland in the EU has been on the increase. This has meant that all comprehensive planning that takes place within the EU would become accessible to Icelanders if they join the alliance. Iceland has already been admitted to membership in various institutions and research funds of the EU, and a similar link to the *European Spatial Development Perspective* needs to be created.

If Iceland were to start to prepare for its application for admission to the EU, thorough studies would have to be made on what the membership would mean, for instance concerning which parts of the Icelandic economy would be affected and in what way. There should also be a study of which regions would be eligible for the structural funds of the EU. As within the EU, there are areas in Iceland that are relatively backward or contain environmentally friendly activity which is deemed worth supporting. In 2001, Iceland already had to prepare a map showing which areas are allowed to be eligible for assistance from the Icelandic government, and thus the map below was produced.

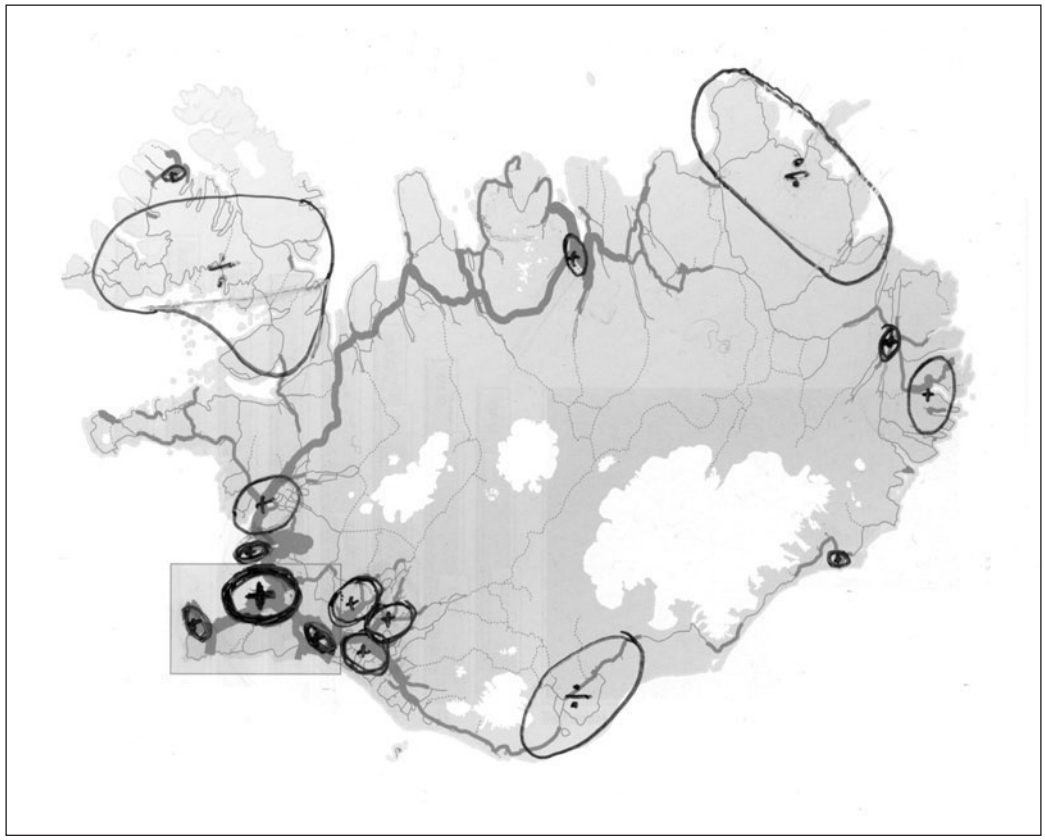
It is one of the fundamental rules of the EU that a state cannot treat different types of eco-



Areas in Iceland that have been accepted for grant funding by the EU.



The increased EU median age in 2040 causes worries.

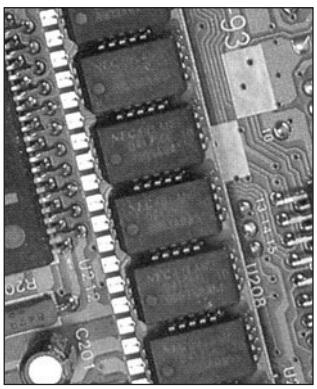


The broadness of the lines shows where there is most traffic flow, which is an opportunity for every settlement. The prediction of areas with growth and decline, however, is not only based on traffic.

nomic activities differently. This is also one of the main points in the Icelandic plan for integrated transportation. In this plan the costs carried by the state, in terms of the transportation systems, are therefore made visible, and the policy is that those who use transport should pay for the use with some kind of a fee.

In order to be able to introduce these fees, such as for the use of a road whose construction and upkeep are currently supported by the state, electronic meters need to be installed, both in motor vehicles as well as along sections of various roads to register the actual use, based on several variables. One of these variables would be the weight of the vehicle. As a vehicle reaches the carrying capacity of a road – which increases the damage to the road – the fee would increase pro-portionately.

In addition, it is possible to make it more expensive to drive on roads with heavy traffic. This would motivate the drivers to commute during the periods with less traffic or to select alternate and less frequented routes. Computers in the vehicles would continuously send information on road system use to a terminal where the fees would then be calculated.



Car computers will tell us about use of the road system.

It is also a direct consequence of the EU regulation requiring equal competition that the funds provided by the state for construction and operation of airports have to be largely financed by those who use the air services. This will mean that domestic flights in Iceland will become more expensive, so flights will be reduced compared to other transportation modes – a fact that is going to have a considerable impact on regional development.

In the future, the state will have to collect fees for the use of roads to recompense the state for construction and maintenance costs. This might have result in again transporting heavy loads by sea rather than by land. This could also affect the growth of harbours and towns in the future.

The reduction that has already taken place in domestic flights, and any further foreseeable reduction, calls for a new and a more positive study on the ideas about shortening road distances, for example with the use of highland roads.

Summing up, it is clear that there are times of much change approaching as concerns the basic factors affecting settlement development of the future.

Book Five

The Developments of Today

I Changing Views at the Turn of the Century

1 Changes in the Structure of Society

In this fifth and last book on planning in Iceland, we will first acquaint ourselves with those changes in views and visions that now have the most influence on how the society of today is changing. We will take a look at today's society, present an analysis of how it is changing, and finally examine how it will be changing in the next few decades.

Now at the millennium – just like at the turn of the century in 1900 – great changes are happening in the structure of society, within economic sectors as well as how people think in general. At the turn of the century in 1900, Icelandic society was changing from an agricultural to a fishing nation.

Marine fishing could not have become a major industry unless, at the same time, social changes occurred and urban areas were created along the coast where the best harbour conditions were to be found.

At the same time society was embarking on technological development; roads were being built, the telephone, water mains and the provision of electricity were being introduced – and villages and towns, in the modern sense, were starting to emerge.

This *process of urbanization* continued slowly but steadily throughout the twentieth century. At the end of it, Iceland had reached the degree in urban development where urbanization most often halts, i.e., when about 90% of a nation lives in urban areas.

In most countries in Europe urbanization took place much earlier and had for example been completed in Britain – with the urban structure being in place in all major aspects – by the beginning of the twentieth century. In their basic makeup early European cities are therefore mostly early industrial cities, many of them rather untidy and not very interesting.

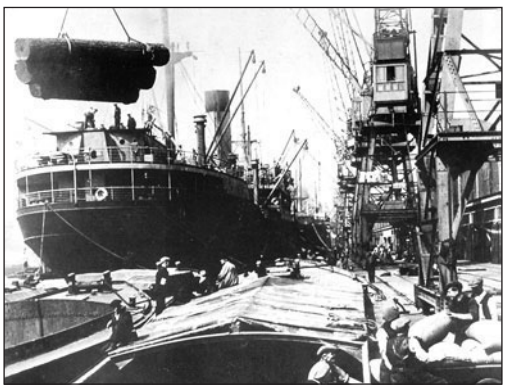
The task of changing these cities now into centres that meet the modern *demands of the information society* with its light industry and services requires an effort in planning. The work of a British government agency is well known in this area. A report instigating this urban re-creation, *Towards an Urban Renaissance*, is widely known and has been used in guiding the re-development of many cities around the world.

Within the area of city planning, Icelanders do not have any comparable problems to deal with because the Icelandic urban areas are so young that they have not been formed by the old industrial patterns in any considerable way.

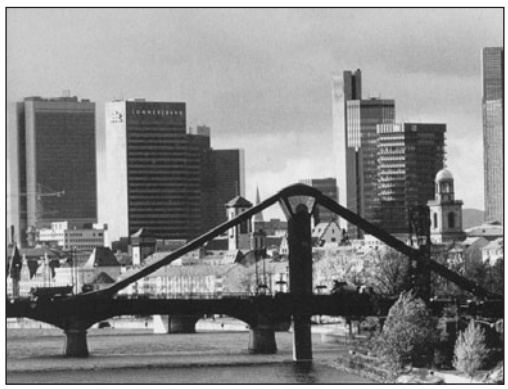
Nevertheless, Icelanders too have to embark on similar studies in order to clarify where the new type of society that is in the making in the Western world is actually headed. The new vision that is developing means that people will make stronger demands for the quality of towns as dwelling places. Today, people also make more demands on clothing and all kinds of interior facilities in their homes than they used to. They want to have, all at the same time, everything beautiful and pleasant and all modern conveniences at hand.

Iceland stands at a crossroads as concerns the question of what kind of future society is desirable and what kind of goals can be created for Iceland in that respect. This section traces some of the most probable and positive possibilities.

The way things look now, there is a good possibility that the service and knowledge society – that has already started to develop in Iceland – can continue developing. Icelanders



In 1900 the structure of the city was characterized by basic production and heavy transport.



In 2000, however, business and entertainment centres are prominent.

Reykjavík has defined a vision for its future.

Dark shows areas in the south-west, which have developed adequate services. These services are a prerequisite for developing new settlement and tourist areas.

are rather well educated people and in this field they are ahead of many other countries, especially in the third world. Therefore Iceland has to some degree been able to establish itself within the knowledge industry.

Nevertheless, it must be kept in mind that the less developed parts of the world will also continue to develop and the inhabitants of countries like Pakistan and India seem to be naturally gifted when it comes to tasks in the knowledge industry, including computer work, mathematical expertise, and other work requiring technological skills. Therefore, it is not at all certain that the advantage Iceland has today will remain. The largest societies in the world have also conceived the idea of making use of this promising new area. Icelanders may therefore not have such a bright future in this area as is forecast today.

In building up a *service society* Iceland has profited very much from the great increase in tourists as their numbers have expanded from about 15,000 in 1960 to over 300,000 in 2000, which is more than the total population of the country. This huge influx of tourists requires a great deal of services, a fact that has meant that the service level in many villages and rural areas in the countryside has reached a degree that would have been unthinkable only a few years ago. Nevertheless, there may be negative signs on the horizon. Oil prices might go up again, which would mean that the volume of air travel to Iceland would decrease.

Higher prices for fuel would also probably mean a considerable economic decline in the country where the tourists now come from, which also would mean a reduction in the number of tourists. Therefore, it is necessary to come up with other possible pillars for the Icelandic economy, such as the further processing of fish products and the utilization of clean energy for energy-demanding industries.

The uncertainty that awaits Iceland in the future means that the planning has to prepare for various types of scenarios. Various options need to be kept open and Icelanders should not be overly confident about the knowledge industry and should also not be too restrictive so they can keep avenues open for energy utilization.

These areas are in need of service centres.

2 Modernism on the Decline

The Western worldview is deeply rooted in Christianity and the views that emerged with the advent of modern science in the seventeenth century. The pioneers in that development are usually considered to be scientists like Descartes, Newton and Bacon.

Of late, we have been discovering how primitive this worldview is and how the thinking connected with it has had the effect of creating rather mechanistic ideas, both about the structure of our societies as well as in the area of city planning.

The last few decades, however, have brought with them a more organic and multi-faceted thinking, for instance because of influences from the worldview of the Far East. In spite of this the modernistic way of thinking -which is often called *positivism* – is still very dominant in how we plan and structure our societies.

The author has written a book about this called *City and Nature – An Integrated Whole*. The first chapters of the book explain that it is one of the most prevalent characteristics of Western thinking to consider everything as pairs of opposites, e.g., city and nature, house and garden or man and woman.

The worldview that is now in its formative stages in the West, on the other hand, attempts to let these "opposites" work together, often with the result that both parts gain from the partnership, i.e. the two parts are *complementary*.

The example to the right shows a plan where this type of thinking is applied. Here the houses and the garden areas are designed to work together to create one whole. The result is an organic and warm environment, very different from the cold planning scheme that appears in the picture to the left. In connection with this discussion, we are reminded that within modernism the machine is the model, as well as an object of affection; everything that was conveniently planned and put into a system of cubicles is considered to be appealing.

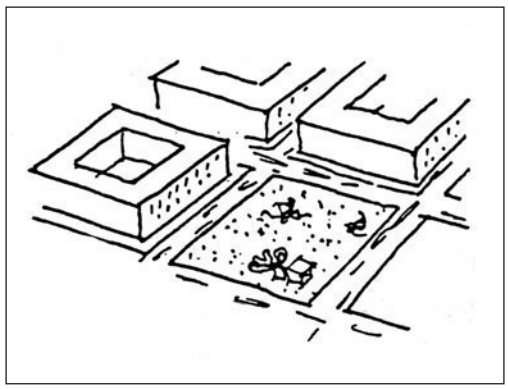
Planning, where the houses were like boxes on a conveyor belt, was conceived to be beautiful in the decades after World War II in a period where this vision was very influential in Iceland. Unfortunately, Reykjavík expanded the most in this period because of the huge amounts of money that the war and the post-war years brought Icelanders.

In 1990, an increased criticism of the ideology of modernism started to appear in Iceland and at the same time a dwindling enthusiasm for the concrete boxes of the suburbs. An interest in organic environment, characterized by variations in form, curved lines and a multi-faceted life, on the other hand, increased.

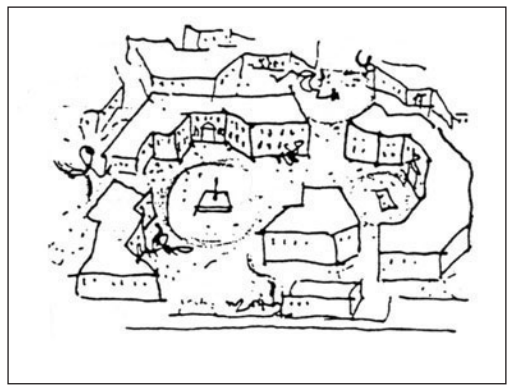
Unfortunately, however, a rather cold type of fashion again gained a foothold in Iceland around 2000, so many of the new neighbourhoods are as cold and mechanistic as in the decades immediately after the war.

Let us now look at another main characteristic of *modernism*, namely, separation and the boxing of functions. Historically the separation of city functions has an origin in the necessity of the times of the untidy industries, where it was necessary to create a distance between working and residential areas.

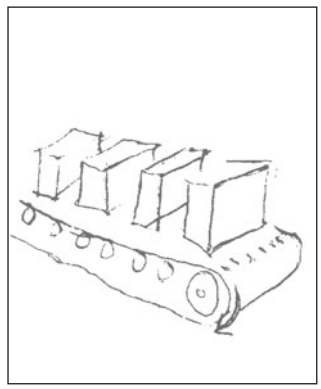
In the geothermal heated towns of Iceland the need for such a separation was less important. Therefore, the separation was rather a fashionable trend that fitted well with the



Houses and gardens planned separately, which results from thinking in opposites.



A plan where houses and gardens form one united whole.



"Production line" houses indicate depersonalization.

This picture shows downtown Houston. It shows how little is left of downtown life: The car dominates. This breaks down the connections between the various units of the city.

ideology of modernism that made zoning so strong within Icelandic planning. Before the days of motorized vehicles, the possibility of anything other than the mixing of functions was not envisioned because people for the most part had to go by foot wherever they needed to go. This meant that work places, schools, shops and residences more or less had to be at the same location.

When the car entered the scene the *need for mixing of functions* disappeared because if people own a car they can live in one part of a city, shop in another and work in a third. This gave people freedom in their selection of locations for living and working.

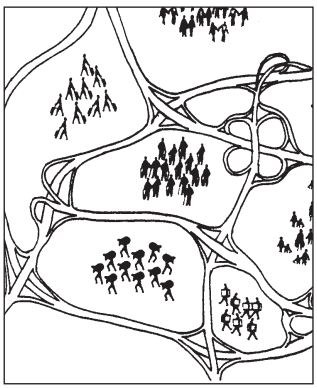
The result was, however, bad: lifeless bedroom neighbourhoods, unsightly working areas, and shopping areas that can only be made use of with a car. What probably made people most aware of how bad this is as a human environment is that this boxing and fragmentation of functions means social injustice.

Those who do not have a car cannot easily make use of the supermarkets but are dependent on small shops within the neighbourhoods that sell the same goods, only at higher prices. Another thing that has resulted from this development is that certain social groups get isolated in the monotone neighbourhoods, or ghettos. The children are not connected with the working life as before, and are often in very little contact with the work areas and the life that their parents lead outside the home.

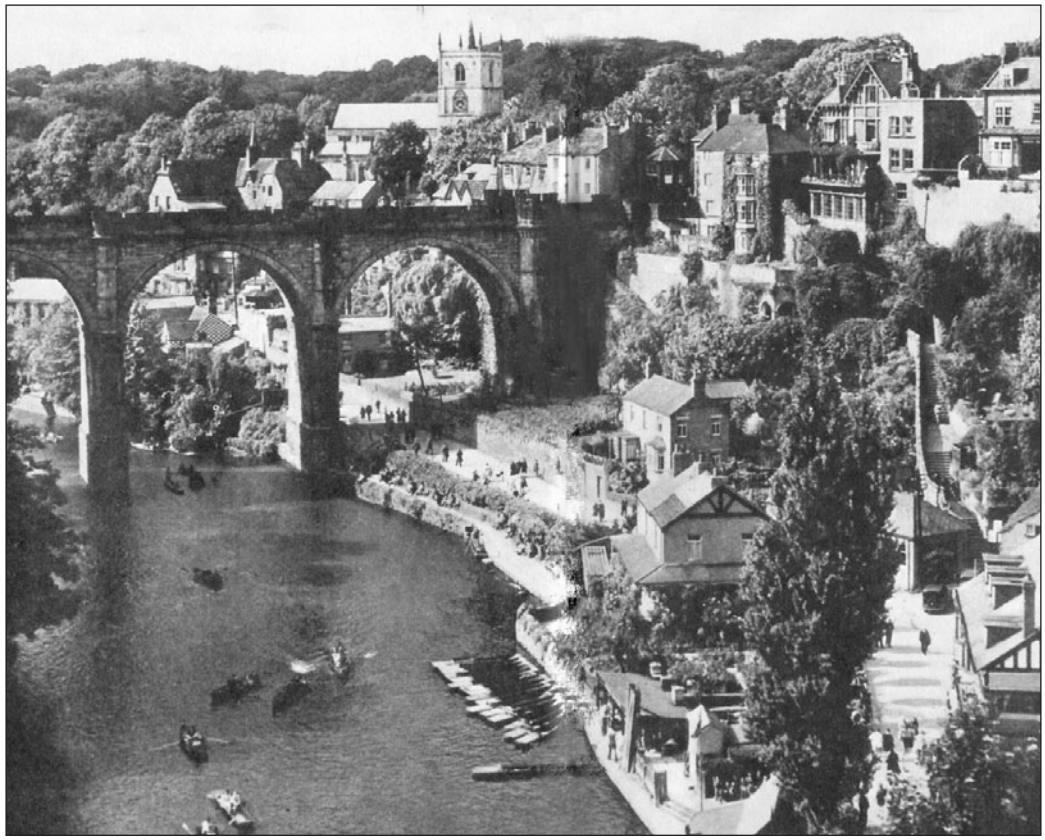
The third reason why this modernistic planning scheme is so bad is that it demands huge tracts of land for all the roads that are needed to transport people from one place to another within the cities.

In addition there is the need for enormous parking spaces in the residential areas, shopping areas and work areas – almost three parking lots per car. This destroys the connections within the fabric of the city. The highways are like bulging rivers that people hardly dare to cross, except on very narrow pedestrian bridges or in dimly lit passages – and the organic web that the city was earlier is being dissolved.

The two photos in this spread compare the cold modern city and the organic and warm city of the past. Most people will realize, by comparing the pictures, what a huge difference



Freeways increase the cutting up of city functions.



The difference in living in an organic city and a mechanistic city comes clearer by comparing the two photos in this spread. In the right one the environment supports town life in many ways.

there is between these two planning schemes. Few people would prefer to live in an environment as presented in the picture to the left. It has been pointed out that today various methods are available to create mixed planning again.

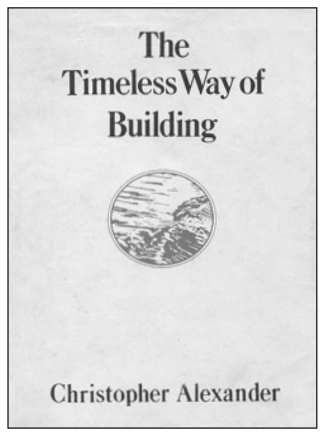
One of the methods would be to create an urban core close to college areas, where students and employees could shop and live. If such planning were offered, people could save themselves a great deal of driving – and they even could lead a life without a car.

This planning method would also mean savings for the society as a whole because the highways and the parking lots cost huge amounts of money. Besides, they also create pollution and cause many accidents.

Although in recent years much discussion has taken place, for example in Reykjavík, not so much has happened in terms of implementing mixed and organic planning schemes. These attempts have mostly been in the town centre of Reykjavík, where people have been given the opportunity to live in a mixed neighbourhood.

Today there is a global movement away from modernism in the direction of organic planning schemes. One of the pioneers in this field is the American *Christopher Alexander*. Alexander has written books that analyse how current methods lead to bad solutions.

By studying older schemes seriously people come to realize that in fact it is possible to build warm and organic cities. One of Alexander's main books is *The Timeless Way of Building*, which describes how the built environment came to be in earlier times, and how we can today still make use of similar methods. The design and planning ideas of Alexander will be described in the following section.



A book on how the built environment was made earlier.

3 A Demand for Liveliness and Urbanity

Around 1970 the number of young Icelandic students going abroad for study increased considerably. At the same time, the travels of Icelanders abroad also increased with the result that people became more and more acquainted with a lively and beautiful urban environment in foreign countries. People got the opportunity to experience cities like London, Paris and Barcelona or smaller tourist towns like Benidorm or Palma and realized how much more pleasant and livelier this urban environment was than that of Reykjavík at that time.

During their study years and in their travels, a large number of Icelanders learned to enjoy the city and city life, which consists of such simple features like walking in the streets, meeting people, sitting in cafés and restaurants, going to the parks to jog or simply enjoying other leisure activities. The increased connection to other countries thus created the demand for living an urban life – though primarily among young people. They had learned to know the good things abroad and did not want to be without them when they returned home. The older generations of Icelanders were, on the other hand, not very much into this. They had been brought up during difficult times where everybody had to be working between dawn and dusk so that the leisurely style of sitting around, outside holiday periods, in cafés or spending time for general amusement, was something that they could not accept so easily.

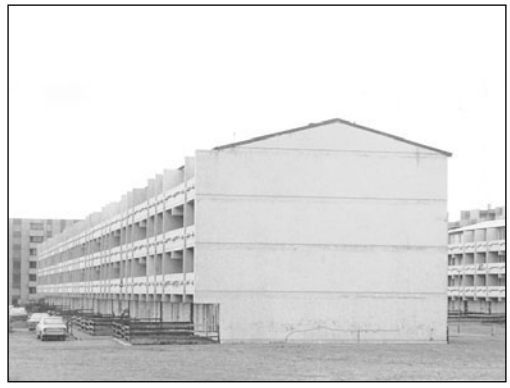
The first step towards creating this new living city life in Reykjavík was the opening of more restaurants. The hamburger places were the first on the scene but later the variety as well as the number of restaurants increased. The restaurants Askur, Hornid and Laekjarbrekka were among the first. Still, however, there was a certain key missing for creating a lively city atmosphere, which was to allow beer to be sold so that pubs could open. Beer had been prohibited since the prohibition years in the early twentieth century and it took quite an effort to get parliament to allow beer again. This happened on the 1st of March 1989, which started the development of opening many small pubs. To change the old town centre of Reykjavík towards a living urban area was rather easy because it had a high density and was built according to the planning traditions of European towns in the early twentieth century. It had not been destroyed with highways or large fields of parking spaces and little-used green areas, like those in the suburbs, which makes it almost impossible to create a vibrant urban life there. It is important to note that this does not mean that building suburbs is wrong. Quite the contrary, they fit the needs of many, especially people with children, because there the planning provides traffic safety and also large gardens are possible at the homes, which is not possible in the downtown area.

In spite of the low density of the suburbs, some lively urban core must exist within these neighbourhoods. This has, however, become more difficult of late because supermarkets take over from the older neighbourhood shopping and other services and thus work against maintaining urban life in the suburbs.

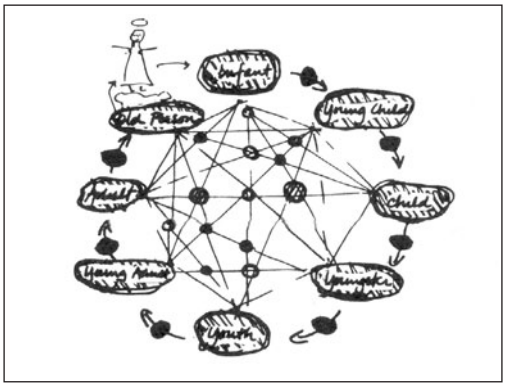
The most important point in the discussion about the city of the future is that the city has to offer a wide spectrum of settlement forms. In that way people can pick their type of preferred settlement. Some people wish to live out on the fringe where there are, for instance, golf courses and horse stalls, others may want to live in mid-density suburbs, and still others want to live in

Hornid was one of the first new restaurants.

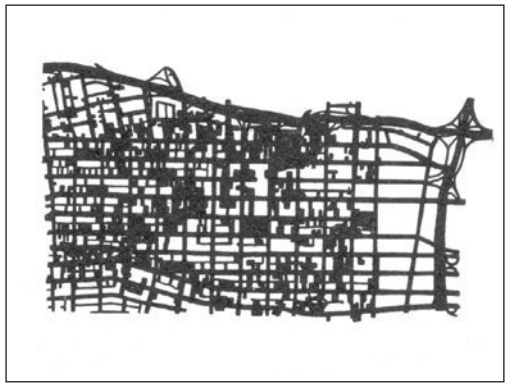
Most people choose to live where there is a bustling city life.



Most bedroom neighbourhoods lack the activities that create city life.

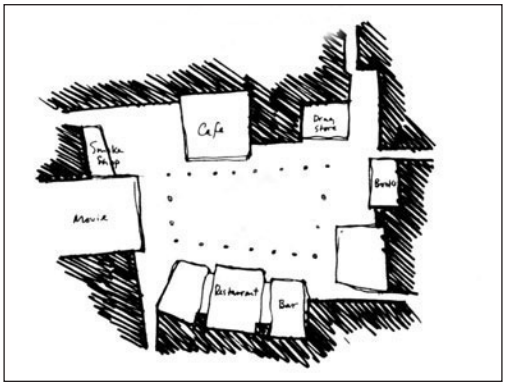


Cities should create facilities for all ages and bridge the gap between them.

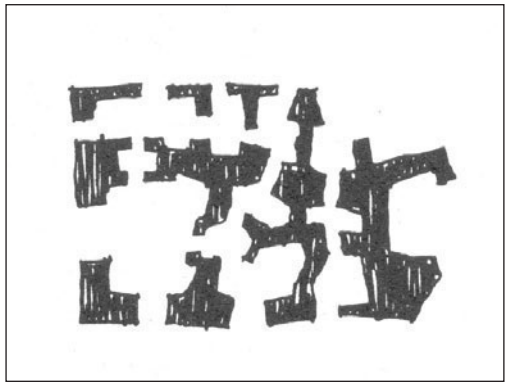


This picture shows areas in LA that are used for roads and parking: almost 60%.

These four pictures are examples of important concepts of planning that the book Pattern Language *presents on its 1170 pages. It is remarkable how often such important concepts are forgotten in modern planning.*



Squares create facilities for various entertainment and must be lit up at night.



Buildings need to embrace open areas in order to create intimacy and warmth.

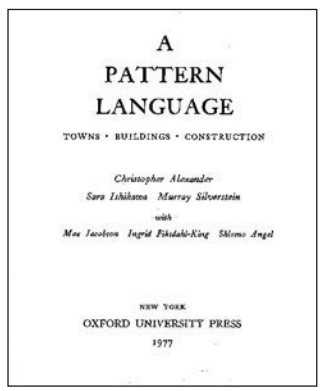
the town centre. One of the things that has been missing in modern planning is to offer such a multitude of options, but there is a tendency – especially in the Nordic countries – to create a mono-form standard: to press everybody into the same mould.

The history of planning and urban design contains a wealth of good considerations that are not even mentioned in modern textbooks on planning and are therefore mostly forgotten. An American theorist, *Christopher Alexander*, has collected a multitude of such solutions published in an 1170 page book: *Pattern Language*. The pictures above give examples of old and good planning solutions from his book.

To have such planning solutions available in a catalogue is, however, not enough to get out of the alienation and dryness of today's planning theory. Alexander soon discovered this, and therefore he has made it a central point in his theory that it is essential to create a direct link between the user and the designer.

Alexander has of late put his main efforts into creating and explaining methods that can make use of organic environmental design approaches that continuously link the user to the shaping of his environment. Such an organic process makes it easier to let buildings and cities adjust to the changing demands and wishes of the people involved. This kind of process is explained in his book *The Oregon Experiment*. It describes the planning design of a campus where this idea of growth was applied. The method opposes *the state of the art design process* of having a designer sit at his desk designing environment for people.

The *growth method*, on the other hand, is characterized by having all people linked to the project gather for a meeting on the building site, where they discuss what they would like their environment to be. Ideas on the plan and the design are thus created in a close intertwining of designers, users and the given location. The method of defining design ideas is to put poles with different coloured flags in the building area, which are then moved back and forth as ideas change. As building starts, a special emphasis is placed on keeping everything as flexible as possible, and an integral part of the concept is that the users should be given a yearly fund to make necessary changes as soon as the need arises.


A
PATTERN
LANGUAGE
TOWNS · BUILDINGS · CONSTRUCTION
Christopher Alexander
Sara Ishikawa Murray Silverstein
with
Max Jacobson Ingrid Fiksdahl-King Shlomo Angel
NEW YORK
OXFORD UNIVERSITY PRESS
1977

A book with good planning solutions.

II New Developments in Methodology

1 Rejection of Dictatorial Tendencies

One of the things that has characterized Western societies is the tendency for those who are in power to seek to impose their views and decisions on everybody. This means that there is often a ruling class which attempts to gain overweaning power.

Quite possibly, we can see the development of modern democracy as a gradual development away from the "nanny-state" where all decisions are made for the populace. In spite of this, even democratically minded people are often tempted to exercise maximum power, if they get the opportunity.

Even though socialism aims for equality among people, things have mostly developed such that those who have been elected as ringleaders tend to use the position they have been given to take power away from the people. In some countries socialists went far towards creating a *centrally governed state*.

What is good about the *free market system* is that it has a tendency towards taking power away from those who want to rule, and thus the general public governs simply by what it seeks in the market, whether housing, recreation or other interests of needs.

The free market, however, has many flaws. One of its flaws is that it lacks foresight. It is not until some mishap has happened that the market system reacts and tries to make amends. Precaution is thus not a characteristic within market systems, as people can see in many cases in the USA.

Because of the flaws of these extremes *the methodology of the future* needs to be a mixture of planning and free market methods – a mixture selected for each given case. As we look at how things are done, we see, for instance, that some of the largest and most powerful corporations of the world not only let themselves be guided by free market methods but also use intensive planning.

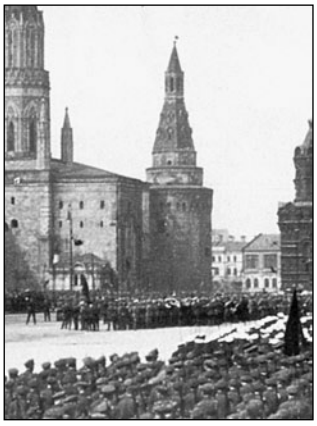
Some of the largest and most glorious projects that man has ever ventured – like putting a man on the moon and the building of beautiful cities – are planning tasks that the free market would never have been able to realize.

In spite of the great triumphs of centralized planning, there is a general trend today to move away from centralized planning. In one respect, there was a large need for this in Iceland because, for centuries, Iceland was a Danish colony and as such was used to getting orders from abroad that simply had to be obeyed.

The credo of social responsibility that is very strong in Iceland, as in other Scandinavian countries, also tends to force its ideology upon us through sheer goodwill. What follows from this attitude is that the state is meant to provide people with everything: schools, health services, social services.

One characteristic of Icelandic society has been that the educated class has been small and closely knit, often related. In fact, it has been able to bathe itself in the glory of its education because the education has provided them with possibilities of getting into a position of power and influence and giving them the ability to shape the lives of others.

It is common that certain types of individuals seek out power positions, individuals that have a tendency to want to govern other people and direct how they should live and work. Some planners are also such little Napoleons.



Kremlin: a symbol of Russia's centralized traditions.

Uncontrolled market systems lead to waste, like here: many petrol stations in one place.

Prevailing elitism in the 20th century gave the planners ruling powers.

This is downtown Noisy-le-Grand, a Parisian suburb. By comparing this to downtown Paris one can see how this is poorly designed.

The idea of a state which takes care of people in nearly all respects has been so dominant in Icelandic society that many now want to change towards a more democratic way, including within the field of planning. Therefore, the planning processes of the future will be ever more characterized by transparency and openness. A planning method that is now being used more than before is *participatory planning*, a method which means an admission of the public into the decision making process in shaping the environment.

The main characteristics of this type of planning are that all relevant ideas are examined in the pre-planning stages. People are most often presented with alternatives and are even allowed to vote on them in elections or in some type of survey.

Only after this is there an evaluation of the planning alternatives in terms of the possible social, economic and environmental impacts. The public is given the opportunity to study what such assessments say about the proposals – and after that they can make their formal comments.

The *Urban Study Centre* in Reykjavík has been working on projects of this type. Its director, Stefán Ólafsson, in 2001 was in charge of preparing a referendum on the airport issue in Reykjavík based on the idea of participatory planning.

The planning consulting firm *Alta* consists of specialists in this field and has been consulted in guiding participatory processes in connection with planning, for instance in Kjalarnes, Gardabaer and Seltjarnarnes.

One of the most important recent events towards the development of participatory planning is that a new directive from the EU is to be adopted in Iceland in the summer of 2004, the *Strategic Environmental Assessment (SEA)*.

This new EU directive demands that alternatives are presented to a broad group of people, those who are meant to take part in deciding what is the right policy and strategy in the forming of planning alternatives.

The destruction of a badly designed area of Lyon.

2 Integration in Multidisciplinary Groups

A second feature, in addition to participatory planning, which is considered to be characteristic of planning methods in the future is that much more emphasis will be put on creating *multidisciplinary groups* for working on planning.

Up to now architects, planners and engineers have been the most active professions within the planning area, but now people consider it right that specialists from other disciplines, like sociology, psychology, and the arts – and actually people from almost any bracket of society – take part in official planning.

It is logical that specialist disciplines needed to develop within the sciences at first, but nowadays there is an increased focus on methods to connect and integrate knowledge from various disciplines into one whole.

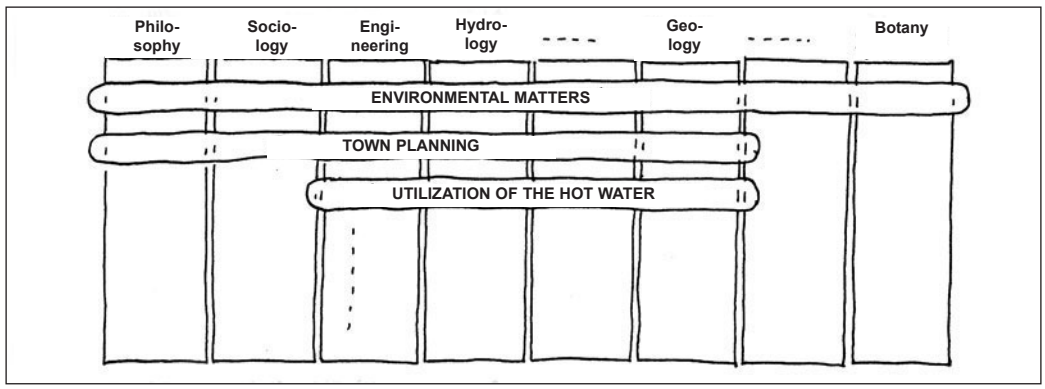
Most universities are divided "vertically" into rather narrow specialist fields. The result is that students often get little training in working with people from other disciplines. There is, for instance, little co-operation between engineers, architects and landscape architects during their years of study, an isolation that even continues after they have graduated and have entered the market to work on more or less the same projects. This is obviously not right and shows a serious lack in the necessary connections between aspects of the same project. Nowadays there is, however, a movement towards creating multidisciplinary groups around tasks that create wholes, like that of building a house or planning a city or a neighbourhood.

In the last few years, work has been taking place on starting courses in Iceland at the college and university level which involve disciplines largely concerned with working on the shaping of the built environment. Thus in the autumn of 2001 a BA course was started in landscape architecture at the Agricultural College of Hvanneyri. This three-year course is called *Environmental Planning*. An agreement with several Nordic colleges and universities assures that this undergraduate degree is accepted as suitable for admission to master's degree courses in landscape architecture at relevant institutions within Scandinavia. In the autumn of 2002 teaching in architecture started at the Iceland Academy of the Arts. Attempts had been made to let the Academy and the University of Iceland join forces for this course so that social and technical areas and the artistic aspects would be connected in the study, but unfortunately, this did not materialize.

All over the world there is work going on towards connecting or integrating the design departments dealing with the built environment into one unit. One of the first steps in this direction was taken in 1959 at the University of California, Berkeley. There these disciplines were brought together in the new College of Environmental Design.

One of the characteristics of Icelanders is their individualism. This has positive features but at the same time this mental trait of personal ambition and advantage stands in the way of creating multidisciplinary groups necessary. Within the University of Iceland the old strict "vertical" division into disciplines is prevalent and few interdisciplinary courses are taught. In addition, the *positivism* that puts an overemphasis on specialization and mathematical approaches is dominant. This approach works against disciplines that are concerned with wholes or interdisciplinary tasks.

This road separates the humanities and sciences at the University.



Most modern university fields are vertically divided into narrow subjects, whereas most subjects are multidisciplinary. This leads to universities' lacking interest in solving the tasks of society.

The university campus is not designed for pedestrians; students drive between buildings. The lack of a central core means that university life interacts little, which is a disadvantage to both students in different courses as well as for the different academic subjects.

The centre of the university lies between Sudurgata street and Hotel Saga (to the right in the picture). This area, however, mainly contains cars and the buildings are at the edge. It should be vice versa.

Another feature that is very much of a hindrance to interdisciplinary co-operation at the university is that various offices and departments are scattered around the city. In addition, the planning of the campus almost looks like as if it was a premeditated attempt to keep the departments apart. The Engineering and Natural Science Faculties are thus located in the south-west corner of the campus, west of the busy road of Sudurgata, but the Faculty of Philosophy, which includes the humanities, is located on the east side of that road. Sudurgata is so busy that it splits these two parts of the campus, and in addition this central area of the campus is mostly taken up by parking spaces, which contributes to the increase of distances between the locations of the various departments.

In 1992, the student Kjartan Gudmundsson finished his final project under the guidance of the author of this book. This project consisted of designing a building that would connect both under and over Sudurgata in order to interlink the two halves of the campus. The University Rector, Páll Skúlason, introduced his thoughts on a similar idea around the same time, a project he calls the University Plaza. Since then, not much has happened, but in 2003 there is hope of movement in this greatly needed project.

The planning of the campus is badly flawed and characterized by many of the flaws characteristic of modern planning. A lively core that is most often located in the middle of campuses and functions as a kind of a town centre is non-existent in this plan. In addition, the separation scheme of modernism is the guiding rule. Functions that should be located centrally, like the University Library, are situated in the north-west corner of the vast university area and the Student Union stands at the border of the campus by the busy Hringbraut Avenue instead of being located in the middle of the area. The central area of the campus is, on the other hand, taken up by parking spaces, a carpentry workshop and the Building and Grounds division.

The most positive development in the planning matters of the university is the planning of a science park south of the Nordic House, right next to the DeCODE Genetics building for researching genetic inheritance. The park is planned to include an internal space where the buildings are linked together and will therefore be closely connected.

Buildings at the university should connect centrally.

3 Info-Technology Provides new Opportunities

The modernistic society with its lack of connections has profited greatly from all the new possibilities that information technology can create. What is gained by *info-technology* is that it creates information systems and inter-linkages that can have important functions in re-connecting again what the strictly separated specialist disciplines have earlier set apart.

The computer, of course, stands in the centre. The computer has two main areas of operation: on the one hand, the number and text aspect and on the other, the visual or mapping aspect.

Currently there exist *Geographic Information Systems (GIS)*, computer programs that create a linkage between these two areas. These programmes are of high value for use within the planning field.

With the GIS system the user can enter certain areas of a map on the computer screen to access a variety of text and statistical information about the area or about individual houses, neighbourhoods or streets, whether in the field of engineering, sociology, economics or other fields of research.

This interconnected information system makes it easier to interrelate the various fields of expertise and to let knowledge in the various fields come to full use in the process of planning.

Another area where info-technology is of great help is in the several possibilities for analyzing data, including the analysis of graphs, tables and statistics. All work of this type has become much easier with the advent of the computer.

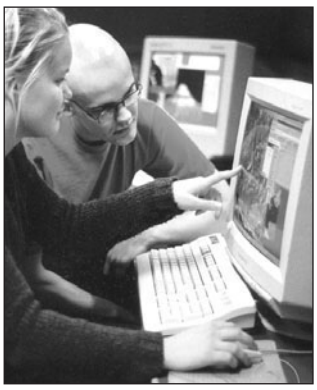
This new technology for analyzing and presenting information in the best possible manner is of much importance. A precondition for being able to work well – in whatever area – is to have a very good idea of how things are developing as well as of relevant facts linked to the task at hand at each given time.

In the master plan of Reykjavík in 1965, a computer model was first used to analyze various statistical developments within the city. The computer model was fed with all the main planning values on the square metres of buildings by categories. This database was then integrated into a traffic origin and destination computer program.

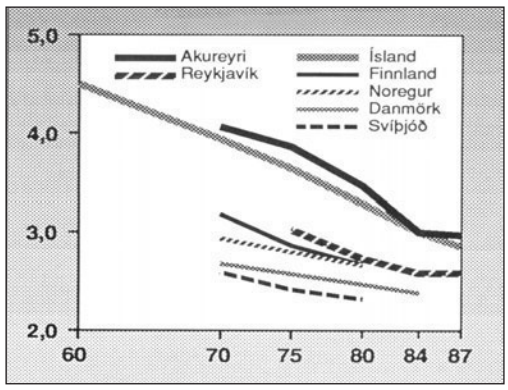
One of the things that this computer model could analyse was what certain planning values would mean in the case of increased traffic. Experiments were conducted in changing the road system and the computer model was used to analyze where the system was under pressure and called for changes. The traffic load was represented by a varying thickness of black on the streets. An example is presented on the next page.

Another technical novelty that has been developed in the last few decades is *Remote Sensing,* using cameras either in airplanes or satellites. The remote sensing pictures are today taken with digital cameras. In digital pictures it is easy to intensify certain aspects or colours of the picture on-screen, allowing the viewer to discern minute differences, say in shades of green, to determine clearly what types of plants live in which areas.

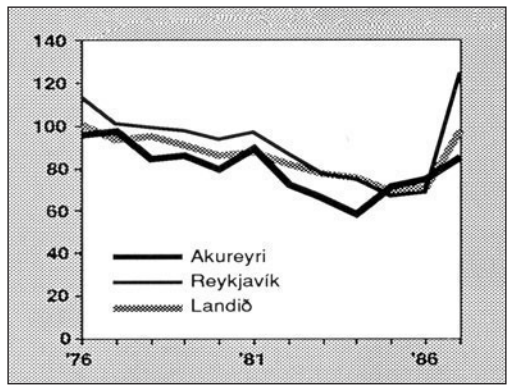
One of the things that can be done with these remote cameras is to take pictures not based on colour but on the heat values of the surface of earth.



Students working on a geographical information system.



Reduction in number of inhabitants per flat leads to thinning, which calls for a policy of densification.



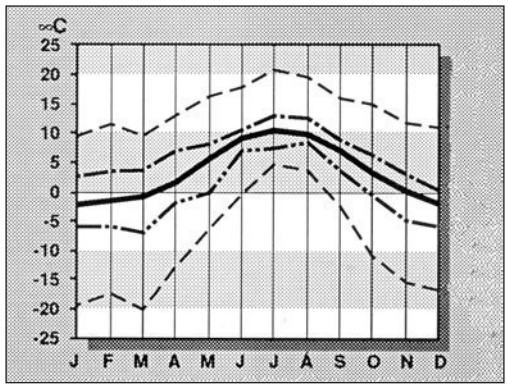
Accidents per 1000 cars. Data like this indicate where measures need to be taken.

Remote sensing creates possibilities for work on planning and environmental matters. The figure shows the scale of surface temperature, light being hottest, dark coldest. Sewer discharge and the distribution of pollution are clearly visible.

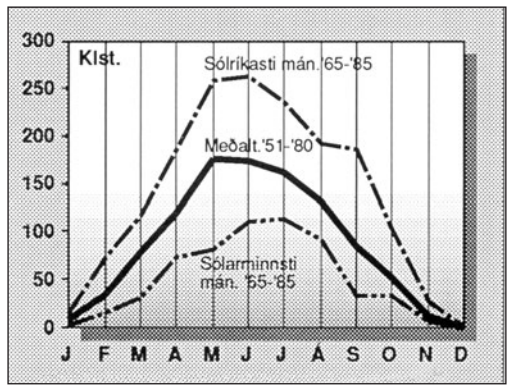
The large picture on the opposite page shows such a picture of Reykjavík. What appears lightest in this picture are the warmest areas, and the darkest areas are the coldest. The very light spots within the built up areas reveal two swimming pools and the heat pollution that leaks into the Lake from the Nordic House.

In this picture, it is also easy to see where the sewage system flows into the ocean and how the pollution from these sprouts is distributed through the ocean area.

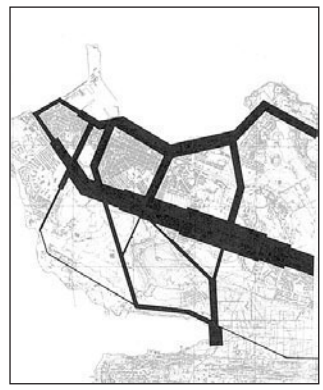
This brief account of info-technology makes it clear that many new opportunities within planning and environmental matters are opening up – areas we only recently have started to make use of. This technology is therefore certain to create many exciting possibilities in planning in the future.



Darkest: ave. temp. in Akureyri; next: warm and cold months; outmost: 24 hours.



The dark line shows the average number of hours of sun in Akureyri, the other two the deviations.



A model of traffic volume prediction.

III New Basic Points in Planning

1 Planning: A Vehicle for Social Improvements

In the second part of the twentieth century – as often before in history – many cities encountered periods of great social problems. In many cases, this happened because great social changes were taking place.

Today, on the other hand, the problems of the cities are mostly connected to the fact that the early industrial cities are now in a period of decay. To deal with some of the problems that have surfaced within these cities some basic methods of planning can be applied.

This was also the case in the nineteenth century. In that century great problems in the areas of health and environment – in the polluted and badly planned industrial towns – became the main incentives for the creation of this new academic discipline: *city planning*.

Unfortunately, planning is often resorted to after the fact, and in this case is called re-active planning. This approach means that the measures come about as a reaction to a problem that has already surfaced.

This can be compared to "shutting the barn door after the horse has escaped". A disturbing and sorrowful example of re-active action in Iceland is the government's concern about avalanche problems only after 32 people had been killed in avalanches in the West Fjords in 1995.

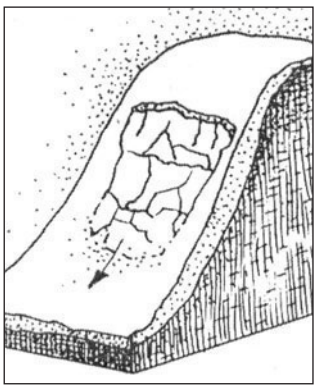
For various reasons there is today still more necessity than before to adopt the habit of carrying out investigations into problems before they hit, i.e., to take the necessary measures prior to the surfacing of the problem. This way of working is called pro-active planning. To put it in a simple phrase: "To shut the barn door in time".In order to be able to recognize a problem in advance, many types of investigation and studies can be made. One of them is to map out the areas where there is a danger of some type of natural hazard, for example avalanches, and make sure – in the planning stages – that sensitive functions are not planned in such hazard areas or that all necessary precautions and defences have been made.

This *method of foresight and caution* is probably most developed within medicine, having given rise to the field of *preventive medicine*. In that field, the central idea is to take the necessary health and environmental steps to lessen the risk of damage in time. This means that the health problems are the less likely to surface so people maintain their health and do not become as ill.

Within the area of planning, comparable measures – for example in the planning of cities – need to be preventive. This means that people will have to analyse what kind of problems might lurk in the cityscape and then make changes in the plans – as well as various environmental improvements – that can help avert the otherwise inescapable next step of having to fight difficult and perhaps widespread problems after they have surfaced.

Within this area of foresight and preventive measures, we Icelanders are lagging further behind than most other nations. The reason for this is probably that we, as a nation, have predominantly been living with conditions that have only allowed for re-active actions.

Through the centuries, for example, fishing depended on good weather conditions that could not be predicted with any security because a storm could suddenly hit a boat on an otherwise calm day. During times of bad weather there was also no possibility of knowing beforehand when the bad weather was over so there was no use in trying to plan the fishing. People simply had to wait for good weather.

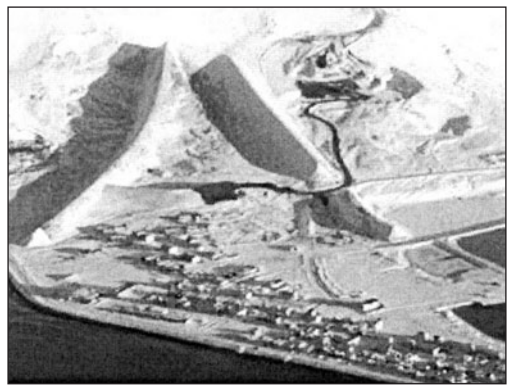


The snow gives way and rushes down with great force.

Description of Flateyri from the Jardabók of Eggert and Páll Vídalín shortly after 1700

" ... animals are endangered by ocean floods and avalanches. These avalanches have sometimes taken humans and animals out into the sea, also horses, thereby causing disaster."

Already in 1700 a report covering all Iceland described the risk of avalanches.



Settlements have been built in risky areas, and then billions are spent on defence measures.

	Earthquake IMPACT		
	SOCIAL impact	*PHYSICAL impact*	ECONOMIC impact
PRIMARY effect	• Casualties • Injuries • Psychological impact (fear and panic reactions) • Loss of income (loss of employment opportunities) • Victims' loss of homes	• Ground deformations (fractures, rock fall, landslides, subsidence, loss of ground quality) • Disturbance of hydrological systems (cold and hot water infiltration and reservoirs) • Structural damage and collapse of buildings • Damage to and collapse of infrastructure systems (lifelines) • Non-structural damage to buildings and building contents and infrastructure systems	• Commercial disturbances (owing to damage to buildings and infrastructure systems) • Loss of active labour force (owing to casualties, injuries, emergency response and relief operations) • Capital cost (due to emergency response and relief operations)
SECONDARY effect	• Diseases, permanent disability and invalidism • Psychological impact (owing to injuries, loss of relatives) • Post-traumatic stress disorder • Perturbation of social relation (owing to social disruption) • Political and social instability (where the governing authorities response is considered unsatisfactory)	• Progressive growth of damage and deterioration (of damaged buildings and infrastructure systems, which are not repaired) • Disturbances and disruptions of water supply due to ground deformations • Pollution due to disruptions and displacements of buried pipelines	• Losses borne by insurance industry (weakening of the insurance market, increased premium) • Loss of markets and business opportunities (owing to short-term business disturbances and disruptions) • Loss of confidence by investors (withdrawal of investments) • Capital cost (owing to restoration, human rehabilitation, medical, psychological, and social aid)

Classification of earthquake impact, divided into social, physical and economic impacts. These again divide into primary and secondary effects.

Because of this reliance on the "unplanned" way in exercising the basic industrial pursuits the nation cannot pride itself on an inbred culture of precaution and planning, like many agricultural nations can. Possibly the inhabitants of these nations have caution and discipline inbred in their genes after thousands of years of planned industries.

Because of this genetic fault, we Icelanders, still more than other nations, have to make use of new methods that have been developed to study what the future may bring. In this way we will be better able to discern where the dangers lurk on the path to the future.

Moreover, because of this genetic fault we have to make an extra effort and commitment – and force ourselves to work in a more intellectual manner than up to now. This obviously means that we have to embrace matters before they have turned for the worse, instead of, as is now so common reacting after the fact or after great damage has already been done.

The discipline of planning can be of great use for Icelandic society as a method to learn how enormously important it is for us Icelanders to make a special effort in this area. This book has presented many graphic examples of this.

Precision and thoroughness are traits to be encouraged.

2 Planning: A Way to Meet Higher Environmental Standards

It is especially in one area, the field of the environment, that the whole world and not just Icelanders have shown an enormous lack of responsibility and caution. Within this field many difficulties have developed to such a degree that the world is facing numerous, almost catastrophic problems.

Strangely enough, environmental matters are not in as bad shape in Iceland as in many other places in spite of the lack of care and precaution. This is primarily because we Icelanders are so few in a rather large country.

In addition, it has been important that Iceland is a rich country. This has made it possible for Iceland to make amends by shovelling money at the problem, after the fact. In this way Iceland has, in a short period of time, reduced or removed various environmental problems, for example, in the disposal of sewage and waste.

Global environmental problems are manifold and we Icelanders, like other nations, must shoulder our share in the global responsibility to seek changes and improvements. This means that we, like other nations, have to obey the *policy of sustainable development* within most areas of our society.

The new environmental demands are now changing many things about how we work and live – and how we build towns and settlements. Today the largest challenges within the environmental field are pollution, waste and thus the depletion of resources.

Gradually we have started to understand the ethical duty to improve our ways. And to work on a task like this, there is no escaping using the techniques of planning and programming. A special section on page 290 described programmes that are underway within the environmental field on the behalf of the Icelandic state and the local governments.

Some of the institutes that today are working within the environmental field have a longer history, including The State Reclamation Service. When the institute was established, the primary idea was to stop destruction as drift sand from much eroded areas was burying vegetation and destroying settlement areas.

Today many consider the Service has gone too far in seeding and cultivating the sands, for example in the sands of the River Markarfljót. There dams have been built to prevent the river from moving freely back and forth across the sands, as the river has done through the ages. Those who argue for this say that the free flowing river diminishes the grazing value of the plants growing in the sands and that, in some places, it breaks down fully vegetated land.

The idea behind this policy is the opinion that a vegetated and green land is better and more beautiful than black sands and wastelands or deserts. Opinions about this have been changing, however, and some people point out that it is the natural condition of many such areas to be without vegetation. Some groups today even talk about *black nature conservation*.

Another main institute of the state in the area of re-vegetation is the Iceland Forestry Service. This service has done an important job in finding the right types of tree stocks to plant in Iceland and is well able to provide advice for those who want to plant trees or forests.

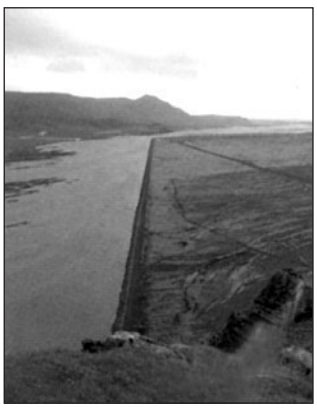
The latest types of forests that are recommended are *land reclamation forests* and industrial forests. These forests are meant to serve two main purposes: to help stop soil erosion and to become a foundation for a timber industry in the future.

The third argument for practicing forestry in Iceland has just recently been added. This argument originates in the draft of the *Kyoto Agreement*. According to this draft nations will be allowed to build up CO2 pollution quotas.

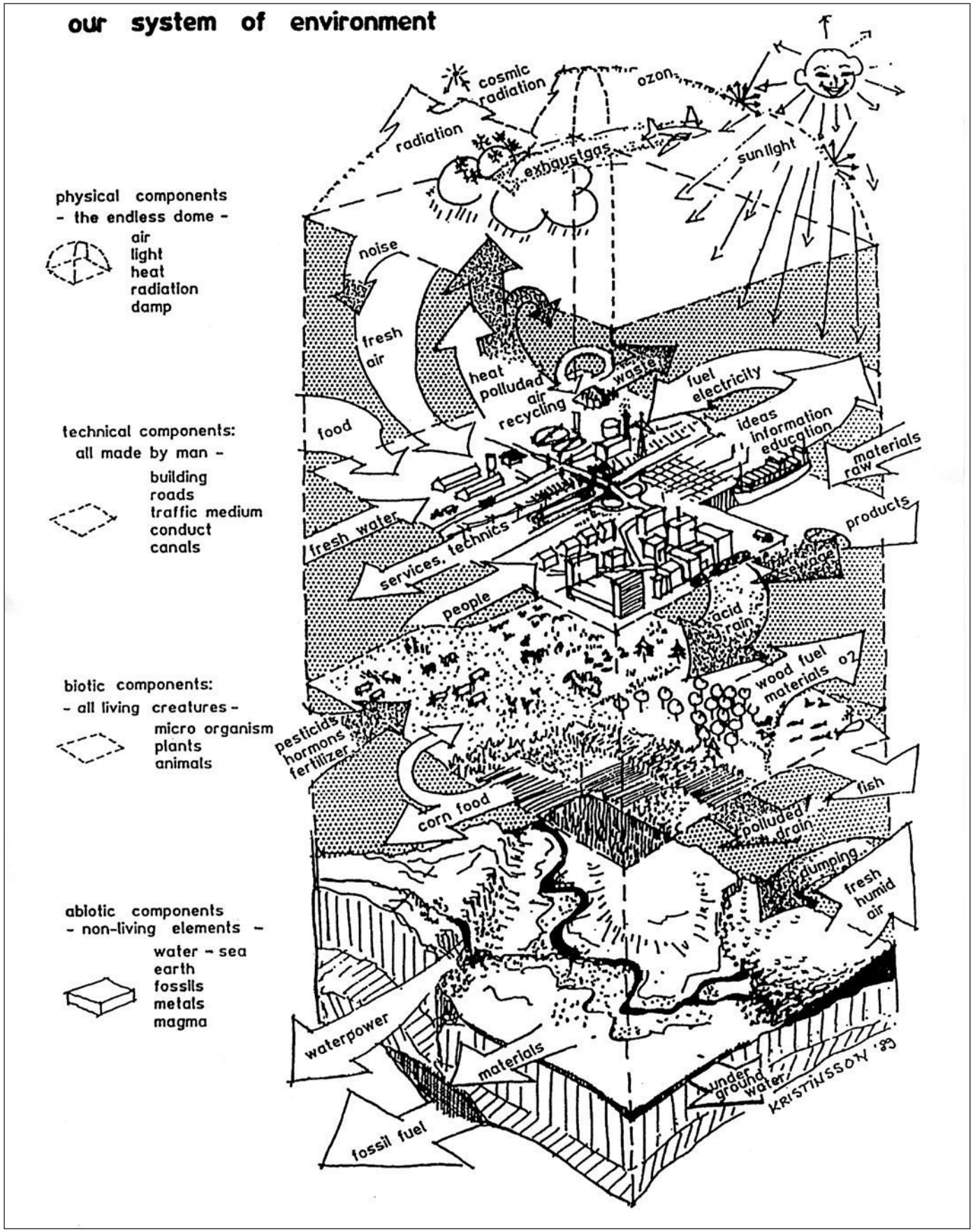
Let us now turn to how improved demands for environmentally friendly practices are being formulated as concerns how urban areas are structured. The picture above shows in a thematic way how the city has to change from an *open system* to a *closed* or a *cyclic system*. If the cities continue to grow according to today´s scheme, they can be likened to a monster that gorges the resources of the world and then spits out the remains into heaps of pollution and waste.

Because of this bleak prospect of the city scheme of today, cycles need to be introduced for most functions of the city. This means, for example, that most of the material that a city needs is recycled from the wastes coming from the city itself. In other words, the wastewater and all waste material are re-used. The city of the future also needs to produce the energy it needs from the renewable resources of sun, winds, and geothermal heat. We will, however, hardly ever reach the point of being able to create a completely sustainable city. It is remarkable though, how close some experimental settlements – like a little village in the south of Iceland, *Sólheimar on Grímsnes* – come close to being sustainable settlements.

Sólheimar comes close to being an ecological system.



Markarfljót controlled with a dam to aid sand cultivation.



The modern city is a so-called open system, where most of what is made in it is discharged into the environment. This means lack of recycling, which means a depletion of resources. The city of the future is a closed system: circulatory, as the picture indicates.

3 An Activity to Clarify where Society is Headed

The many changes that are currently taking place within societies make it impossible to extrapolate development patterns. Instead, we need to embark on various studies on what new developments will mean in the future. One term for work of this kind is called *future research*.

Many assume that it is very hard to describe how things will be developing and utter the lame phrase: "It is hard to predict anything about the future." This is a misconception because the idea is not to predict in the strictest sense of the word, but rather to estimate trends within various aspects of society, and in light of those findings to approximate future societal developments. Of course it is often uncertain how things will develop, but a certain estimation of what is most likely to happen is something that all companies carry out, even though they are bound by the demands of the free market. There is a great necessity to free us from the naïve misconception held by many followers of market system politics that planning methods are unnecessary in the development of society and urban areas.

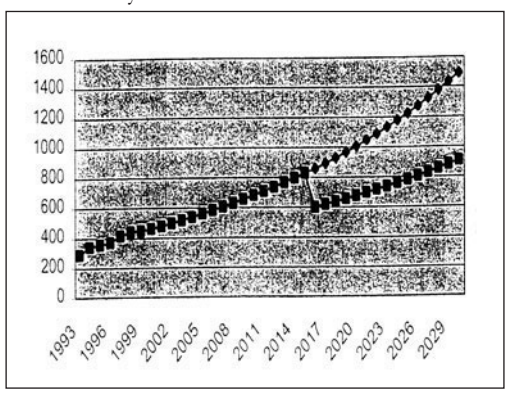
Within the area of technology, such an estimation of future developments is sometimes carried out simply by asking specialists in the field in question about future trends, a process called the *Delphi Method*. The specialists are asked to express their evaluation of what the most likely developments are. The result is then statistically evaluated, with the mean intended to give a good indication of where things are headed. Another method is to conduct an opinion survey, which is to ask people about their expectations and hopes for the future.

The core of the task of planning a city is to create an environment on the drawing board that will not be fully built or taken into use until after 10-20 years. Planners therefore need to ask the young people more than the older ones about their vision and hopes for the future and take great care not to assume that the future will involve same desires and values that are dominant at the time of the poll. It is only too common that dominant ideas about society are used as the foundation in the making of a plan for the future. Instead, it is important to create a picture of an ideal society when the plan in question has been fully laid out.

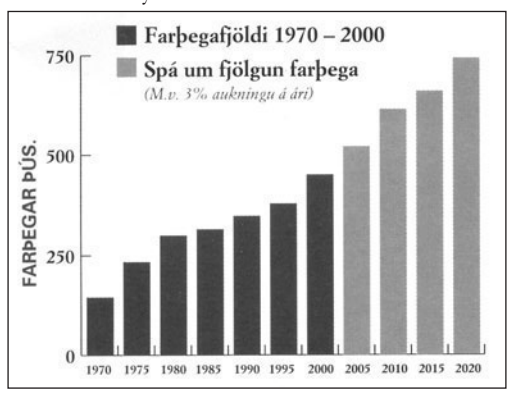
No plan should be created without studying probable changes in technology and other influential factors. For example, the development of domestic flights in Iceland was predicted, as shown in the chart below. Here the aviation authorities used extrapolation of trends but did not go into a broader study of what effect the greatly improved road system in Iceland would mean. In a similar way, increased computer capability may resolve problems that earlier made air travel necessary. If these factors are taken into account, it seems obvious that the number of domestic flights in a country as small as Iceland is going to decline.

If we take these arguments about travel modes seriously, we obtain another vision of how the future transportation system of Iceland should be structured. Assuming that the domestic flights will almost disappear, an even greater necessity has developed for improving the road system and for building roads over the shortest distances between the different parts of the country. Taking into account the prediction that domestic flights in Iceland will almost disappear, it can be very dangerous in planning to look at matters from a narrow perspective. It is also dangerous to let people who have special interests in the perpetuation of a particular system be in charge of predictions and plans for that same system. This was the case when

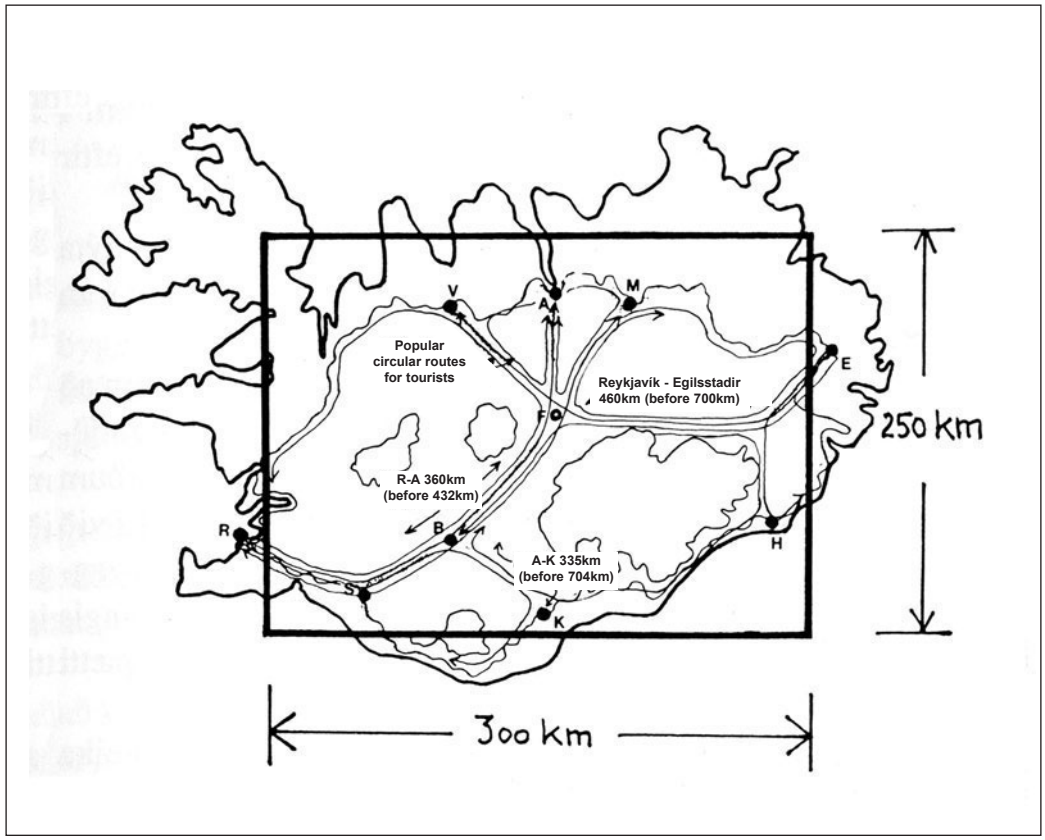
Aviation authorities distributed this pamphlet in Reykjavík.



The original estimate of increased domestic flights: 1.1 million passengers per year in 2020.



A changed estimate, right before the elections: 750 thousand passengers per year in 2020.



As distances in Iceland are short there hardly ought to be a need for a system of air travel provided the roads are good enough and that they go the shortest distances.

employees of the Directorate of Civil Aviation were in charge of these predictions. It is an erroneous tradition in Iceland to let interest groups be in charge of most decisions within their field. Also, a similar clashing of interests has also happened when institutions write their own laws and regulations. This has frequently happened within the agricultural sector and it happened when DeCODE Genetics, a biotech research company, itself wrote a draft for the law that granted its permit for operation.

This can only be regarded as a breach in the fundamental rules of democracy. Same thing occurred when the Icelandic government – up to about 1990 – let the same governmental body, the county magistrates, both research and judge police matters. The judgement of the European Court of Human Rights in The Hague was needed to point out the right working methods. A similar court action may be needed so that the government does not continue to let interest groups write their own laws.

In addition, state institutions need to be released from the influence of their ministries when working on specialist´s reports. Many expect that the aviation authorities were under political pressure when they made their prediction about domestic flights. It is moreover perplexing that they could enter the public debate in the voting on the location of an airport in Reykjavík, using public money. The aviation authorities had a propaganda brochure printed just days before the election and distributed it to every home in the city. When the brochure was then criticized for distorting information, again the aviation authorities used the taxpayers' money to reprint the whole lot again.

Using North America for comparison, Iceland appears small and the distances short.

Professional opinion should not be influenced by politics.

IV Reykjavík at the End of the 20th Century

1 How Bad the Post-WW II Planning Really Was

It is a common characteristic of planning in most areas in the world that post-war city planning was in general very bad. This had many causes, one of them being that the mechanistic thinking of modern society was then at its peak. In addition, the serious disintegration of the internal structure of Icelandic society resulted in uprooting various old city building traditions.

After the war, socialists came to power with their *system of centralization*. The paradox of the socialists was that even though, in theory, they were for the people, they nevertheless often regarded the public as irrelevant faceless creatures that should be under the authority of official institutions. The socialist governments therefore often created an environment that had no tolerance for individuals. This type of mindset materialized, for instance, in *satellite planning* and was widely used in Eastern Europe, Scandinavia and thus also Iceland, with bad consequences.

Another factor that had a large influence on how bad the new neighbourhoods became after the war was that the car became widely owned. The greatly increased number of people owning a car meant that people could commute for very long distances from the suburbs to their work and home again after working hours. Therefore, the city started to sprawl increasingly, which meant a dispersion of urban life qualities over a large area so that liveliness almost disappeared in these neighbourhoods, in particular as the people got older and the number of children decreased.

The theory of satellite planning was greatly influenced by the *Garden City Movement* from the nineteenth century. This movement emerged in response to how much the dense, mixed and chaotic cities of the industrial age caused sickness and pollution. At that time no means to deal with these problems had been developed, so it was considered to be very positive to disperse city areas and have very large green areas.

Dr *Gudmundur Hannesson* was, like many other physicians, an ardent advocate of the garden city and attacked the Reykjavík Town Council for having dense settlements planned – using the argument that many health problems were caused by the lack of sunlight, clean air and grass. The result of this satellite planning or garden city ideology was, sadly, that the promised qualities of a beautiful country-like environment did not materialize in these neighbourhoods. The worst legacy of this movement, however, is that the traditional city life – that is mostly connected to densely built central areas in the old type city plan – was lost.

The fascination with this ideology, as well as with the car, the broad streets and the concrete boxes that were built in the wide areas of Reykjavík was such that the old town centre – and the lifestyle that thrived there – was considered to be old-fashioned. Therefore, right up to 1970, there were plans to have most of the old buildings in the old centre of Reykjavík demolished.

The satellite neighbourhood ideology resulted in the sad fact that these suburbs neither have the qualities of the countryside nor the city. A positive feature about them is that they provide traffic safety, a factor which is very positive for families with children. In these suburbs it is possible to have large private gardens – something that is not possible in densely built urban cores – and this is also very positive for families with children.

The sprawling of cities means that they are much more expensive to build and run. An example of the added coasts is that large city

The car, once admired, now the enemy of city life.

This neighbourhood has been used in an American textbook as an example of bad planning.

Pride used to be taken in the freeways, but now they are cursed in cities.

This picture that shows post-war planning in Reykjavík was published on the back cover of the Independence Party document on the Green Revolution in1974. This symbolized good planning back then, whereas it is now criticized for various reasons.

thoroughfares need to be built so that people can commute from the suburbs to their work places, which at that time in Reykjavík were mostly in the old centre.

The ideology of zoning, i.e., to put the different city functions in different places, also contributed to the birth of the *car city*. According to the zoning scheme, most types of companies are not allowed in residential areas. This thinking embodies the "mental remains" from the bad influences that the untidy industries had on the residential areas of the nineteenth century.

From an article by Gudmundur Hannesson where he criticizes a dense settlement in Reykjavík:

"... the deeds also showed ... the continuous row of houses at Njardargata Street with a 3 metre backyard and now other space (it seems no children are meant to live in these houses) and one should not forget the masterpieces themselves: the Hadarstígur and Urdarstígur paths."

Views of planning can change profoundly. Now this settlement is seen to be exemplary.

As we come up to the last part of the twentieth century, the demand for a lively city environment started to surface among young people. At the same time, the negative facet that people could no longer live without a car in Reykjavík had become obvious.

The car therefore had become the first thing considered as areas were planned in all of the Capital Region. This car-dependent planning demands enormous space for streets and parking spaces, which leads to enormous sprawling. The recent demand of many people to again build dense urban areas is accompanied by a reduced admiration for the car. Today many people also have become very tired of having to be in a car almost the whole day; taking their kids back and forth, running errands for services and shopping and driving to work, often in a distant area of the city. Many people were also starting to realize that this disastrous car-dependent scheme of cities is very expensive, consumes resources, and is thus environmentally unfriendly.

Hadarstígur's southern atmosphere is very popular.

2 Revolutionary Life-Style Changes Among the Young

It has already been mentioned that by studying abroad, and also by being able to elevate society from the old work ethics, there occurs a change in attitude and life-style, especially among the young.

Today the young want increasingly to live in a lively urban environment. Many of the young people want, in addition, to be able to run all their errands in a minimal space – preferably on foot. People also want that their children to be able to walk to school, as they did earlier in the old dense cities. In short; people do not want to be slaves of the car and the satellite-city lifestyle.

This attitude change has meant a great increase in demands – especially among the young – for flats in the older parts of Reykjavík. This demand has raised housing prices in the centre, primarily because these older areas make a lifestyle possible where everything is inter-connected and most things are within reach.

It is of special interest that many of the old people that now live in the suburbs want to move into smaller flats downtown. Many of them want again to be in lively urban areas. Many of these old people are well off, so they are now offering good prices for this better housing downtown – which in turn inflates the prices. Therefore large blocks of flats have been built there, as in Skúlagata Street and now in the Iceland Steamship Company area. Most of these flats are designed for these older people, that is, as luxury flats for the privileged.

This development is parallel to what has been happening in central areas in other countries such as in Manhattan in New York, where it is considered a status symbol to live in city flats downtown. The young people of today also have various other desires that they want to see realized besides a lively urban environment. They want facilities for pursuits like jogging, cycling, and line skating. A path that was recently opened all along the south coast of Reykjavík has become very popular. This path continues inland through the Fossvogur Valley and all the way up to the Heidmörk Forest.

When the policy towards promoting outdoor life was developed with the *Green Revolution* in 1974, many people did not realize that there was a need for such a policy. Time has proven the planners to be right as they assessed the future demand for outdoor facilities.

Let us now look again at the desire of many young people to live in an urban environment. It is obvious that such a life can only be provided in the old town area of Reykjavík. The main problem is that it is hard to meet the wishes of the young to live in, or close to, downtown, because of the lack of building land. The fact that the lots that may be free are often private property means that new housing in that area is very expensive. The result is that only those who are well off can afford the privilege of being able to own new flats in this urban area.

The City of Reykjavík recently bought the area by the harbour where the shipyards are. In this area the city could possibly offer inexpensive lots reserved for the young. The planning of this area was started in 2003. Some people have also suggested that a part of the west harbour close to this area should be used for building up a city area, and possibly also a part of the area in the east harbour where a conference building is to be built. It is, however, possible that most of that area will be taken for a hotel because the tourists also want to stay in the old centre.

Only one large area close to Reykjavík's old centre is available for the building of new city

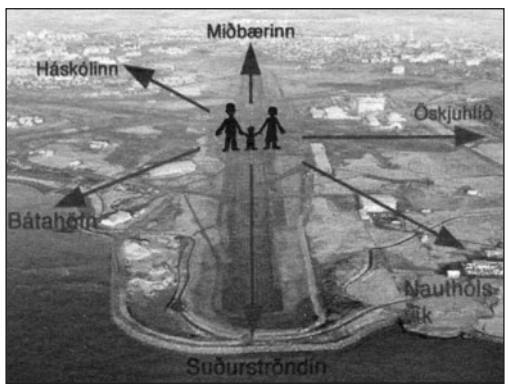
Renovations in Skólavörðu-stígur enhance the area

The diversity of Laugavegur makes people wish to live in the old part of the city.

New apartments are being built on the Eimskip lot, but they will only be affordable for the rich.

A student plan proposal for the airport area. In the northern part of the area the students propose a planning scheme like that of the old town, but detached houses in the southern part.

areas. This is the airport area. In addition to the closeness to the town centre, this area has also many other very positive features, including its closeness to the University of Iceland and the proposed Science Park, as well as on the south coast and the woods on Öskjuhlíd Hill, where there are tremendous opportunities for outdoor life. A geothermally heated beach has been created in Nauthólsvík Inlet on the south coast. A marina could also be planned there if the airport were moved to another location.



From here the University, the beach, the city centre and Öskjuhlíd Park are very close.

In 1999, students at the University of Iceland worked on planning ideas for the airport area. One of the planning proposals is shown in the picture above. It stands out in these proposals that the students proposed a dense and mixed urban area in this location, primarily following the same planning scheme as the old town. They point out that in this way urban life can also be created in this area.

In the election about the future of the airport, a slight majority of the inhabitants of Reykjavík decided that it should be moved away after 2015. In spite of this, it is not at all certain that it will be moved to another location. Both the political parties in the City Council have been lacking a vision concerning these matters, and both of them contributed to anchoring the airport there before the election took place. The airport election was therefore merely a façade.

Now there is the danger that the planning will be carried out in such a way that the various parts of the airport area will be planned without sufficient vision for the area as a whole. A further account will be given on the airport issue on page 390.

Outdoor life is a big part of young people's daily life.

3 Turning against the Farmer Boy's Vision of the City

Most of the oldest inhabitants of Reykjavík came directly from the countryside where they had been brought up in wide spaces with panoramic views and large pastures. Naturally, this vision had a great deal of influence on how the city was planned early in the century. People wanted pastures in all the neighbourhoods and to let the youth cut hay in the summer, even though all the hay was thrown away because it was polluted by lead from car exhausts.

This generation also wanted to live in residential towers on the hills in the city area in order to be able to enjoy the view, as they had been used to in the countryside. They had very little interest in creating dense and closed areas or to live in close contact with their neighbours.

Most of them wanted to isolate themselves and turn their vision outwards to the ring of mountains rather than inward to the people in their neighbourhoods.

Today's young generation, on the other hand, have become urban people, people who do not admire haymaking or pastures, like the older generations, and do not even understand what it meant. The young people would like to build in the vast green spaces and only leave small patches for playgrounds and outdoor life.

They also do not have the overwhelming need of the older generation to stare into the distance from the dark and empty space of their flats. The young would rather live in narrow streets where there are gardens in the centre spaces between the blocks of flats and to observe and be a part of the lively urban life in the gardens and on the paths between the buildings.

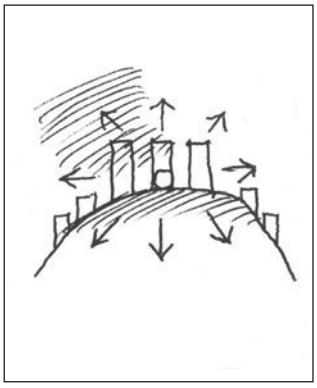
This young generation also wants to be able to go out in the streets – almost whenever they wish – and sit down in a coffee shop to meet other people. The older inhabitants of the city, with their country boy vision, on the other hand, almost detest this lifestyle. This gap between generations is present in the fact that people over fifty are rarely seen in the cafés.

This new urban lifestyle has meant that in only three decades the restaurants in Reykjavík have increased from a handful to over one hundred. In these restaurants and cafés, the young sit almost every night and even in the daytime they crowd these places. In this, one can see that there is a total shift between the generations in the vision of what a city should be.

It is a fact that the Reykjavík suburbs were built and planned by farm boys. Now, however, there are new times and new desires, and drastic actions are called for in planning the city. One of them is to make the city denser and change it in such a way that it meets the demands and the vision of the young generation in terms of a life in urban areas.

It is right to underline that not all the young generation has adopted this lifestyle of urban living. Some of the young have just recently come from the countryside because new immigrants are being added all the time. These people prefer living in the suburbs. The local city generation on the other hand, increasingly wants to aim for urban values.

Let us now look at how globalization, where most borders have become open, will influence the desires and the lifestyles of people. The most important factor in terms of changing people's vision of life is that education, international agreements and economic unions have opened up borders. Now people can move almost everywhere in the world as they wish.



Houses are often built on top of hills for the view.

Children with rakes is what a Reykjavík farm boy wants to see.

The younger generation likes outdoor cafés and dense, closed neighbourhoods.

An idea for a neighbourhood on landfill at Hafnarfjördur harbour. The neighbourhood is dense, but there are communal green areas in between and the links to the water are strong. Comparison to the older part of town demonstrates fundamental changes.

Because of this, not many things will be holding the young people in Iceland back from moving abroad unless they are not offered an environment that is to their liking. Therefore providing this young, educated and demanding generation with an environment that they want to live in has perhaps become one of the largest settlement issues in Iceland because if this is not done the young will simply move to other countries.

Of course, these are not the only demands that the young make because they also want suitable job opportunities that fit their education and interests. This means that the state government and town councils have to create a policy and take steps to help build up these jobs, for example in the knowledge industry, even if it is not likely to provide the maximum income for the state treasury.

The fisheries have mostly produced the state's revenue, along with heavy industry – jobs that only a few wish for today. If we, on the other hand, want to keep the young and educated people in the country, the nation has to offer multifaceted and specialized jobs.

If Iceland is not successful in doing this, the same thing will happen in the Capital Area that earlier happened in the old fishing towns in the country – the young moved to Reykjavík for education and did not return because there were few or no jobs that fit their needs.

If we are not successful in offering comparable life qualities in Reykjavík as in large foreign cities, Reykjavík will become like every other rural town. If this happens, only those who work in the basic industries and at "untidy" work will remain.

This could mean that Iceland could become some kind of a fishery outpost and finally even a national park or a reserve where people mostly come for the summer to enjoy nature and admire the ghost towns.

Reykjavík must offer city life that stands comparison.

V Reykjavík at the Dawn of a New Century

1 The Airport Dispute Opened the Eyes of the Public

The preceding sections describe the great changes that are taking place in people's demands on the urban environment, as well as the changed vision of what people want for their urban environment.

Until recently only a small proportion of the inhabitants of Reykjavík recognized how much of a watershed in planning we are facing today. One issue, more than any other, has contributed to opening the eyes of people to the preferences that the young have in relation to the planning of the city. This was the airport issue.

The discussion about the airport has been taking place for the last three decades. Initially the discussion was prompted because of noise from the airplanes. This was at the time when international flights still used the Reykjavík airport.

Later, as the highway to Keflavík was built in 1965, the international flights were moved to the military airport there. This reduced the annoyance caused by the Reykjavík airport to a large degree.

Nevertheless, the airport issue kept resurfacing. In addition, the sensitivity of the citizens towards the noise gradually increased, leading to increased protests. As the airport issue came up once again in 2000, it was no longer the pollution, the noise and the accident danger that were uppermost in people's minds, but rather how valuable the airport area is, so close to the city centre, and how important this area could be forthe development of Reykjavík.

In addition to its central location, the area is very valuable because it is adjacent to the outdoor areas of the Öskjuhlíd Hill and the Hljómskáli Garden, as well as the south coast along the Skerjafjördur Fjord.

A strong feature in the discussion is that a considerable share of the young people would rather live in this area than in the new suburbs that are currently being built still further into the heaths than ever before.

In 1996, the city authorities made the mistake of giving a permit for the re-building of the airport. As the dissatisfaction of seeing the airport in the process of being tied still longer to this location, the leftist coalition decided to hold a public referendum in order to justify a different decision on the matter.

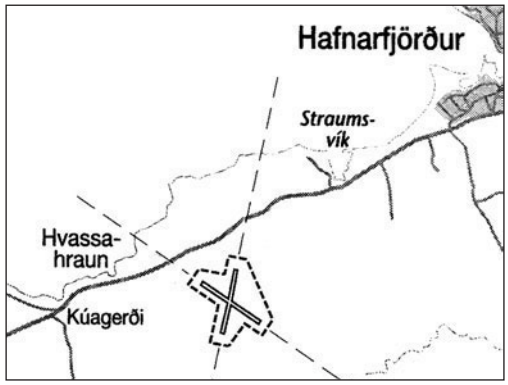
By referring the issue of moving the airport to the public, members of the City Council hoped it would not be as politically difficult to relocate it. On the other hand, it is of considerable advantage for people that live elsewhere in the country that they can board regular flights and land in an airport that is almost in the town centre.

In the winter of 2000-2001 preparations for the election took place. An agreement could not be reached with the aviation authorities and the Ministry of Transport on which other alternatives were available for a domestic airport. The only option the transportation authorities were willing to accept, as an alternative to Reykjavík, was to move the domestic flights totally to Keflavík.

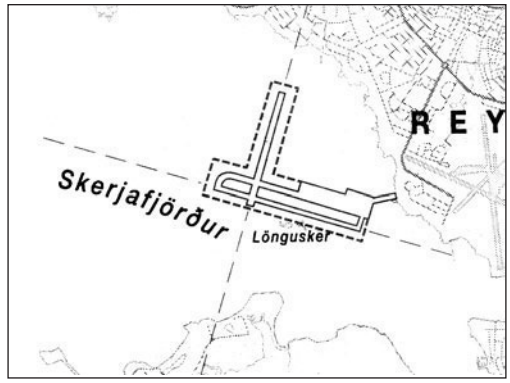
Many said that offering only this distant and almost impossible alternative was a method to make the inhabitants of the city feel that they could not totally reject having a city airport.

The dispute on planning in Reykjavík prompted by the airport issue continued all the way to the election on March 19th, 2001. The media were packed with news, debates, articles and discussions on the issue, a dialogue that

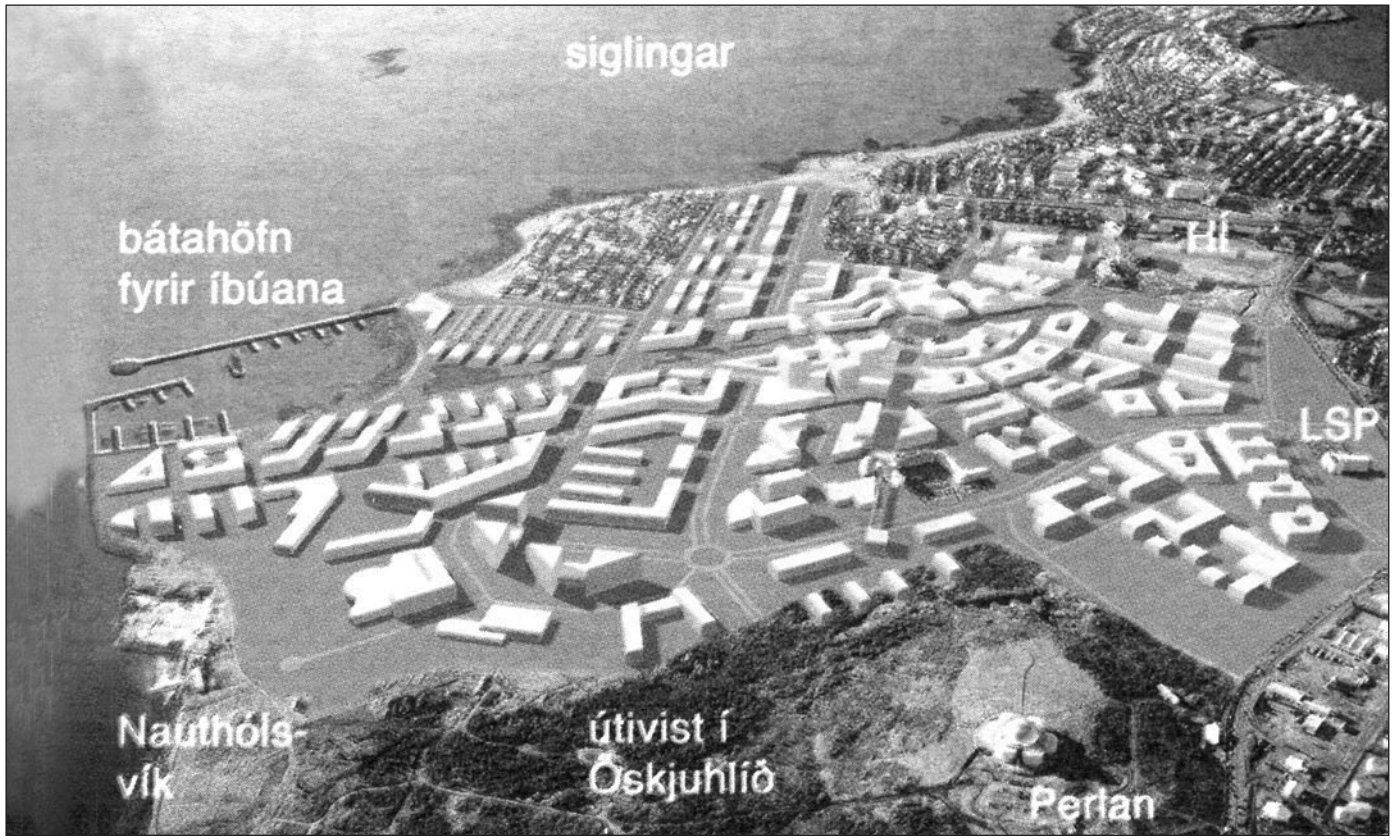
The Bessastadanes option was not considered despite its benefits.



The Hvassahraun option was regarded as too distant and flight conditions not good enough.



An airport in Löngusker would be expensive yet runways not needed to be as long as proposed.



This is an idea for a plan for the Reykjavík airport area made by Reykjavik's planning office, presented for the airport referendum. The picture shows how attractive an area this could be, and how close it is to various types of outdoor activities.

ultimately led to discussions on planning matters in Reykjavík in general. The options given in the election were simply "for or against" and those who were against the airport only had a narrow victory.

The most remarkable thing about the airport discussion was that it served almost as a gigantic course for Icelanders, both on matters concerning airport planning and the technical requirements of an airport as well as on urban planning in general.

What was by far the most important issue in connection with the elections was that here the demands were made that the city be built and planned in a different way than had been the case up to now.

The airport issue opened people's eyes not least for the importance of this centrally located area for the city's development, but also demonstrated that there – close to the University and the Landspítali-University Hospital – was a tremendous possibility to build up the knowledge industry.

The decision made in 2002 to build up the University Hospital in this area rather than in the Fossvogur Valley or at the Vífilsstadir Lung Clinic probably results from this discussion. The decision was most likely made because now people thought it was more likely that enough space would be provided there in the future.

That the construction of the building to house the biotech firm DeCODE Genetics was in process and the University of Iceland was issuing plans about a Science Park must also have had an influence on the decision.

In addition to the advantage of the airport area as concerns possibilities for strengthening university activities and the knowledge industry linked to it, the area has great positive features for town centre activities as well as residential areas.

A boating harbour and residences linked to it could be built along the south coast in an area that faces the sun, and residential areas could also be offered below Öskjuhlíd Hill, which is currently a great outdoor area.

In addition to these conveniences, the area would have the advantage of being within walking distance of the old downtown. In light of this, it undoubtedly would be very much sought after to settle there, both for companies as well as for people.

Signs were made for and against the airport.

2 Positive but Small Steps in the 2002 Plan

It has become a rule among many of the largest municipalities in Iceland to review the master plans every four years. The new plans are most often published shortly before the town council elections, as a document that explains the policy and the vision of the future held by the majority.

After the airport referendum in 2001, the leftist coalition in Reykjavík published a draft for a reviewed master plan. The draft revealed some hesitant steps towards otherwise bold decisions. Some built up areas were shown in the present airport area, except that the north-south runway was there. Technically one runway is sufficient, as in many places in the countryside, but the opening hours of the airport would, however, be reduced considerably.

Only to show one runway was a tactical move that put pressure both on the airlines and the aviation authorities to respond to the proposal, which they eventually did. In their comments they said that an airport with only one runway would not be sufficient for the degree of service they wanted to see at this airport. Because of this tricky proposal, it is to be expected that the transportation authorities will be readier to discuss alternatives to the domestic airport in Reykjavík.

In the autumn of 2001 something odd happened. The leftist coalition changed their plan proposal to show that the east-west runway would be the only one to remain. This change was probably influenced by the need to connect the proposed knowledge industry areas of the University of Iceland and the Landspítali-University Hospital.

In addition, there was an increased need to stop use of the north-south flight approach corridor because it runs over the downtown and thus all the main government buildings. Avoiding this fly-over approach has become more important since the September 11 incident in New York.

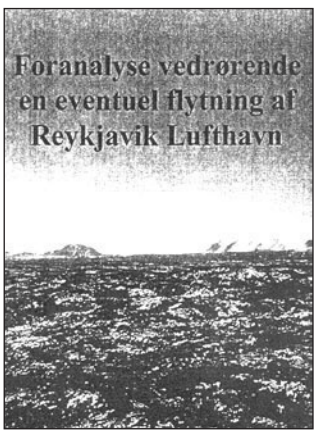
Another small step in a new direction in the draft of 2001 was that the plan showed a settlement at the east end of Videy Island, and a pedestrian bridge connecting the island with the Gufunes Peninsula on the mainland. Furthermore, there was a new idea about a beautiful mixed settlement in the area that now belongs to the Gufunes fertilizer plant.

This proposal – to start to make use of the land on Videy – was well received by many. Work groups were established on the future of the island. At the same time, various institutions started to agitate against this settlement and bridge idea. As a consequence the city authorities retreated from this idea, which was a disappointment.

The interest in starting to use the islands north of Reykjavík for settlements can be traced to a TV film by Hrafn Gunnlaugsson which was shown on national television the day before New Year's Eve in 2000. The film had a huge influence in raising interest in building on the islands and also to build more along the coasts of the city.

Moreover, the film suggested moving the airport out of the city to Löngusker in the Skerjafjördur Fjord, thus making it possible to use the whole airport area for settlements.

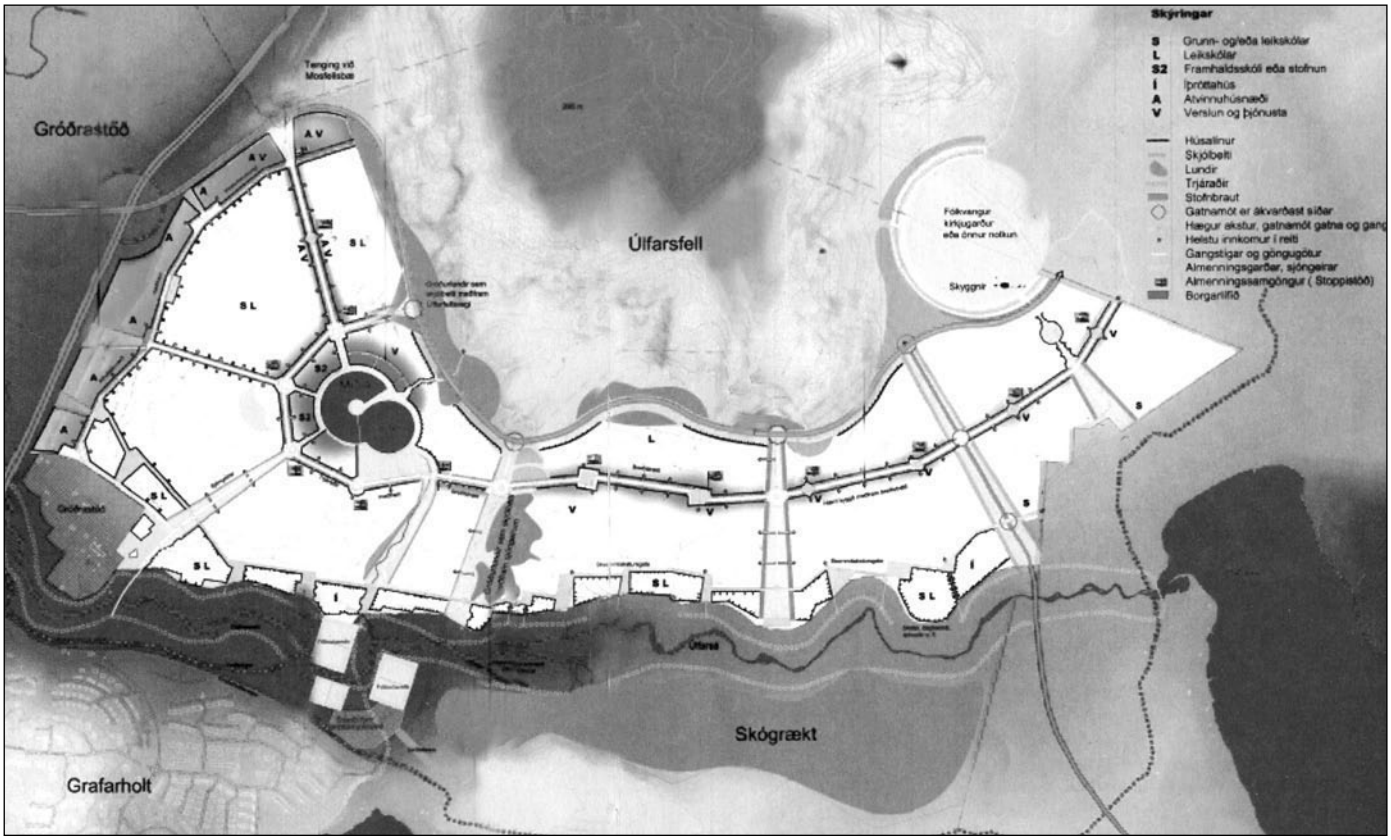
A positive feature in terms of city planning was the idea of unifying Reykjavík and Kjalarnes as one community. Then the good building land on the Álftanes Peninsula in the north came under the jurisdiction of the city; in this area the city itself owns most of the land. Since the areas at Korpúlfsstadir and Grafarholt were already almost used to the fullest, other areas for building needed to be decided on. Fortunately an agreement could be reached about moving



Ramböll was among advisers on the airport issue.

Gunnlaugsson filmed "Reykjavík in a Different Light" in 2001. He put forth bold ideas such as skyscrapers in today's airport area and the building of a new airport on the Löngusker skerries.

The Reykjavík 2002 plan is on page 397. This is the eastern part of the plan from 1997. Comparison of these plans shows the changes made.



The winning proposal for a frame plan for the Mt Úlfarsfell area at the River Korpa. Here the primary road has been moved up to the foot of the mountain. It should have been placed south of the river so that the connection with the mountain was not lost.

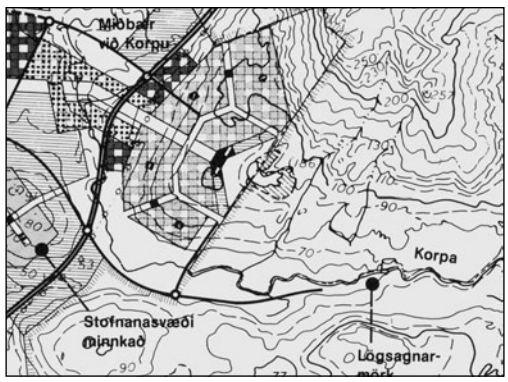
the jurisdictional border between the city and Mosfellsbaer from Lake Leirtjörn almost to Lake Hafravatn.

In the autumn of 2000, the city decided to contract Björn Ólafsson and VA Architects to work on a frame plan for this area. A *frame plan* is a new type of planning that is gaining popularity in Iceland. It consists of creating a step between the master and detail plans. The frame plan focuses on creating a concept for the planning, and lays out its most important lines; then the detail planning takes over.

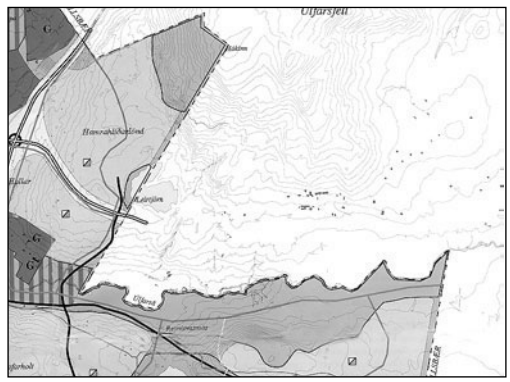
The large picture above shows the planning proposal. It is characterized by a centre at the Westland Road that connects to a centre around Lake Leirtjörn. An urban axis goes through these centres and the settlements to the east. An unusual aspect of this plan is that schools and sports areas are not placed close to the centre but rather in the green area by the river on the outskirts.

In the first plan of Reykjavík for this area in 1977, the plan only reached to Lake Leirtjörn. However, there appeared ideas in this earlier

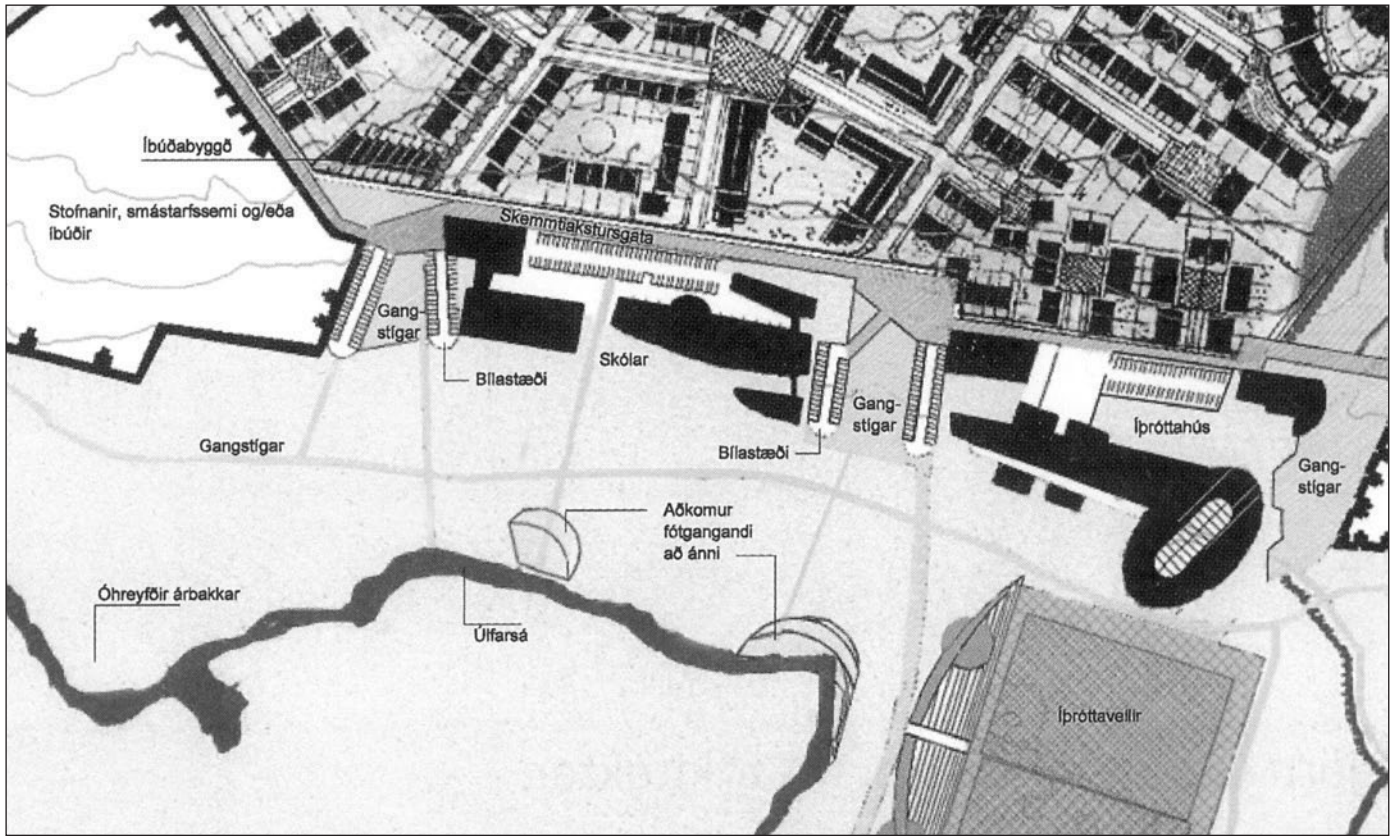
A document presenting the results of the frame plan.



In the 1977 plan the main road to the east is in the shadow area south of the River Korpa .



In the 1992 plan the primary road enters the area in the middle, south of Leirtjörn.

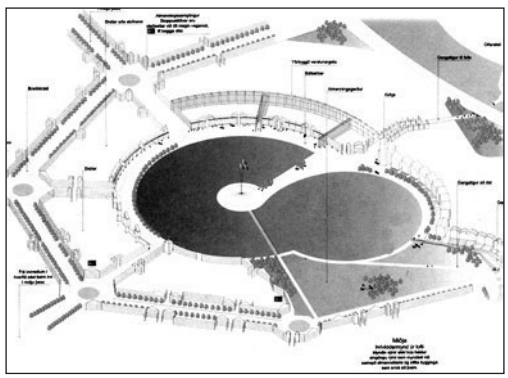


This is a plan that shows the area at the River Korpa in further detail. The schools and sports grounds are placed there but not centrally in the neighbourhood. This means longer walking distances, but the settlement also becomes denser because of this.

plan that perhaps should have been examined more thoroughly in the making of this frame plan. The idea of creating a town centre at the River Korpa comes first to mind.

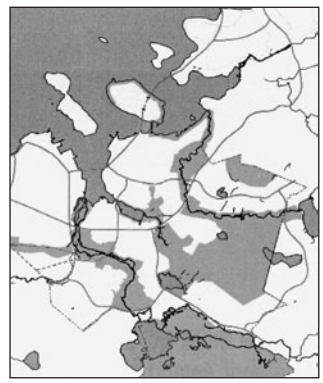
This centre was meant to extend over the Westland Road and river and would therefore have created a "bridge" over to the building areas in the west. In addition, it was decided in the 1977 plan that the main road to the east would be in the shadow of the Grafarholt Hill along the river.

This road plan was unfortunately changed in the plan of 1992. A small map on the left page shows how the road along the cemetery has been made to curve to the north and then run straight into the middle of the Hamrahlídarlönd area. A frame plan had this road curving further north and then running at the foot of the mountain where it was to proceed with many curves along the mountain to the east and finally into Mosfellsbaer. This connecting road is bound to reduce the outdoor possibilities on the mountain, which otherwise would have been a great advantage to the new settlement.



A centre is planned around Lake Leirtjörn, which gives it a beautiful atmosphere.

The view down the southern side of Mt Úlfarsfell towards the sea. The area faces the sun.



The position of the area within the "green scarf".

3 The Debate about the Plan before the 2002 Elections

Before the elections in the spring of 2002, the conservatives got a new leader, *Björn Bjarnason*. Bjarnason had been the Minister of Culture and Education and as such had been working on some of the issues in Reykjavík, such as school and cultural issues.

It was also in Bjarnason's favour that he, as a minister, had been supportive of two important planning projects in Reykjavík, namely, the Science Park at the University and the Music and Conference Centre at the harbour.

One of the issues that clearly would be important in the election debate was ideas about how the old town centre could be strengthened. In this connection these two projects were of importance, and the removal of the airport would also be positive in that sense.

Because of the debate on this regional plan for the Capital Area and because of the fast build-up of shops and work places that had taken place primarily in Kópavogur during the last term of office, the conservatives made a big issue out of their claim that the leftists in Reykjavík had been rather unproductive in terms of new construction. They maintained that Reykjavík was now taking second place in many areas because of this.

The conservatives also criticized a new scheme for the distribution of lots, which the leftists had introduced in Grafarholt, i.e., to put the lots up for auction.

This certainly gave the city treasury more money but at the same time, it meant an increase in the price of housing. In addition, the conservatives maintained that the offer of new lots was too small, and these two thingsr were the main cause of why the price of housing and real estate had risen so dramatically in the city.

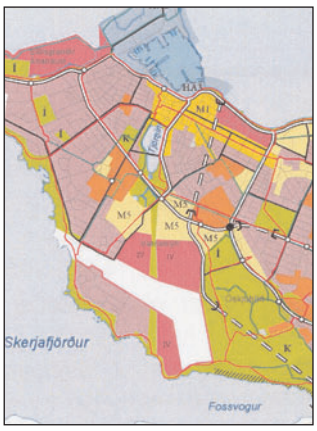
As to the question about new residential areas, the conservatives continued their policy from the 1998 election and remained against construction of a large container harbour in Eidsvík. Moreover, the party agreed on the policy of having Geldinganes and its south slopes reserved for residential areas.

In the meantime it had been decided to stop the operation of the fertilizer plant in Gufunes, and an idea was presented for a beautiful settlement there instead. This made the policy of the conservatives more logical.

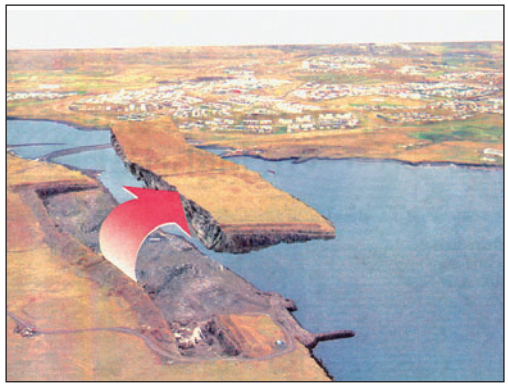
The leftists, however, did not want to abandon the idea about the large harbour. Not long before the elections the leftists reached an agreement with Mosfellsbaer to get jurisdiction of the south slopes of Mt Úlfarsfell, which relieved the pressure of providing new built-up areas. This is a beautiful area with a south inclination running down to the River Korpa. This area, on the other hand, is at a higher altitude than the coastal areas and it is also farther from the old town than, for example, the Geldinganes area.

The fight about the planning ideas at Geldinganes took some strange twists, as the two pictures below show. The left picture shows the conservatives' interpretation that the large area in the picture needed to be excavated, literally cut out of Geldinganes, but the right picture shows the leftists' interpretation of how large the rock mine area would be.

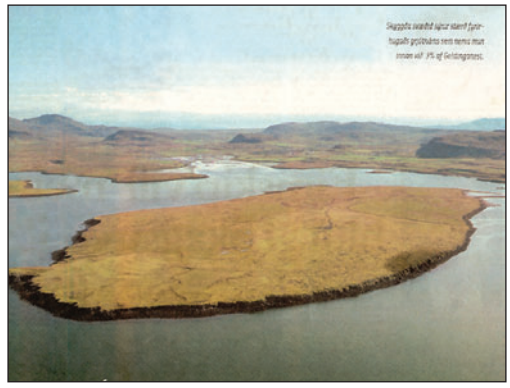
In the spring of 2002 two new political parties entered the city council elections. These were the F-list, primarily interested in social matters, and the Capital City Alliance that made planning issues its main objective. The two main spokespersons were Gudjón Erlendsson and Örn Sigurdsson, who had both earlier worked with the Assoc. on Better Settlements.



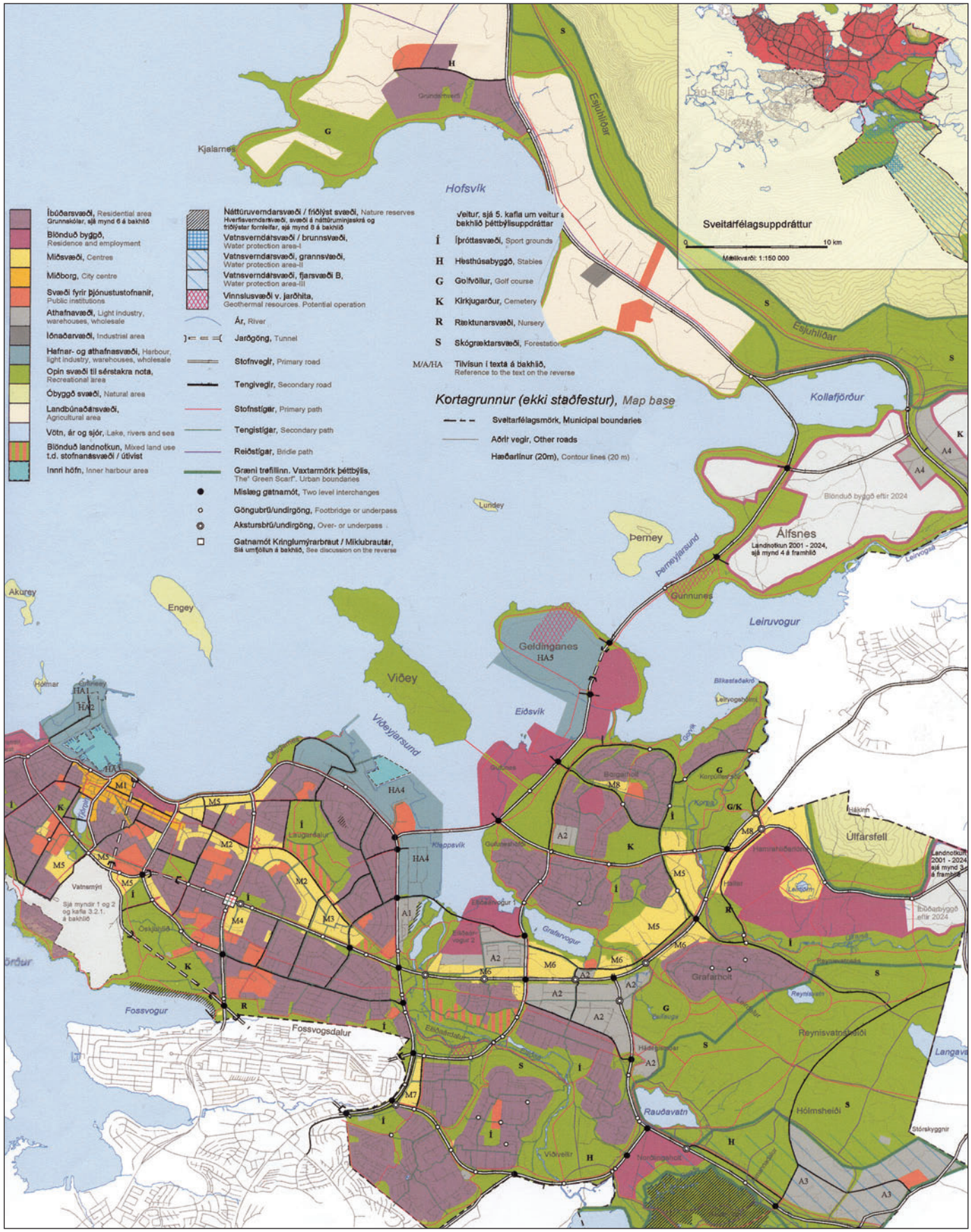
2016–24: The area of the SW runway still undecided.



The Conservatives showed how much material would be removed if this area was flat.



The Leftists replied with an advertisement showing only where mining takes place today.



The 2001–04 master plan for Reykjavík. The Kjalarnes community, in the north, has been added. A community plan appears in the upper right corner. Violet symbolizes a mixture of residences and employment but is actually only a new colour for residential areas.

4 Assessing the Situation after the 2002 Elections

Now a review will be given of where the various planning issues of the area stood after the elections of 2002. New building areas were now under way in the eastern part of Grafarholt and in the Nordlingaholt area south of Lake Raudavatn – a plan that has induced some heated debates.

One of the biggest concerns is, however, how the planning of the Vatnsmýri area, close to the airport, will be resolved. That area is simply shown in neutral grey in the master plan, but together with the plan came two specialized maps, one for the period to 2016 and the other to 2024.

One of these maps is shown in the lower corner of page 396, showing that a settlement is being proposed for the northern part of the airport area, but then comes a wide, grey area where the E-W runway is now and that continues south to the foot of Öskjuhlíd Hill in direction of the Nauthólsvík Inlet.

The aviation authorities criticized this proposal, saying it was not sufficient as an airport. The city's answer was that this was not an idea about an airport, but rather that the planning of this area had been delayed. Because of this uncertainty the confirmation of both of the regional plan for the Capital Area and the master plan for Reykjavík itself were delayed. Finally, they were signed shortly before Christmas 2002.

The policy on making the town denser has been rather successful and now many areas with old buildings have been cleared to allow for new developments. Examples are the lots of the Lýsi Co., the Coast Guard and BYKO in west Reykjavík. An agreement that the city entered into with the state means that the city became the owner of the Gufunes Radio Station. In addition, development of the area around the old Breidholt Farm was started. Here, as in Nordlingaholt, a rather dense settlement is planned.

To plan densely is economical and also entails many other positive features. These ideas have, however, been criticized by people living around these areas, thus forcing the city to retreat to some degree and aim for less density.

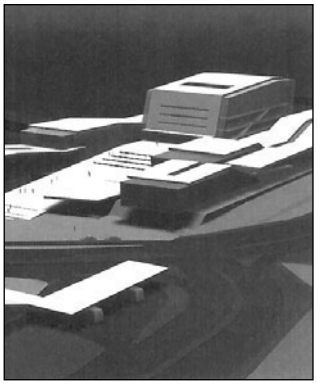
At the beginning of 2002, the offices of the Building Inspector and the City Planner were united into one division called the Planning and Building Division. *Salvör Jónsdóttir* was appointed the new chief. The earlier office of the Planning Administrator was renamed the Planning Deputy and *Helga Bragadóttir* was appointed to the job.

With these two appointees, women have reached a level of considerable influence in planning for the city and in due time will make their opinions felt. In this way, it seems that *participatory planning* will increase, a subject on which the City of Reykjavík has consulted the *Alta* company.

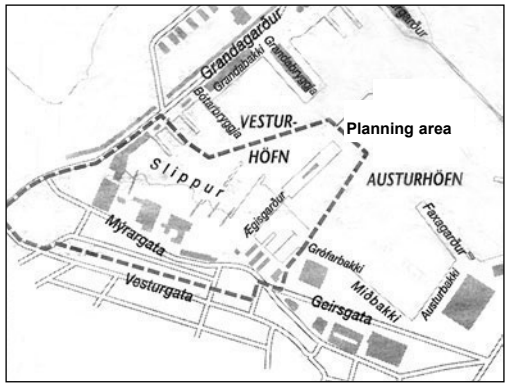
This type of planning needs to be developed because of the new law on *Strategic Environmental Assessment (SEA)*. In this new law, strong emphasis is put on making the assessment an integral part of the planning process. This means that citizens and interest groups are presented with policy and planning ideas in their early phases.

The public has thus the right to participate and to comment on the forming of plans. This in itself is very positive, but it can mean that issues are delayed and can die out because of the arduous process required, as has been the case of late.

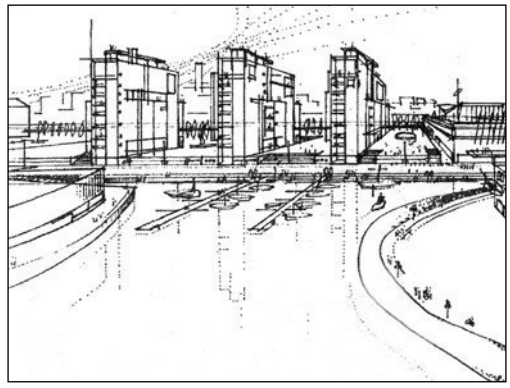
The planning law of 1998 already assured some increased rights of citizens to have an



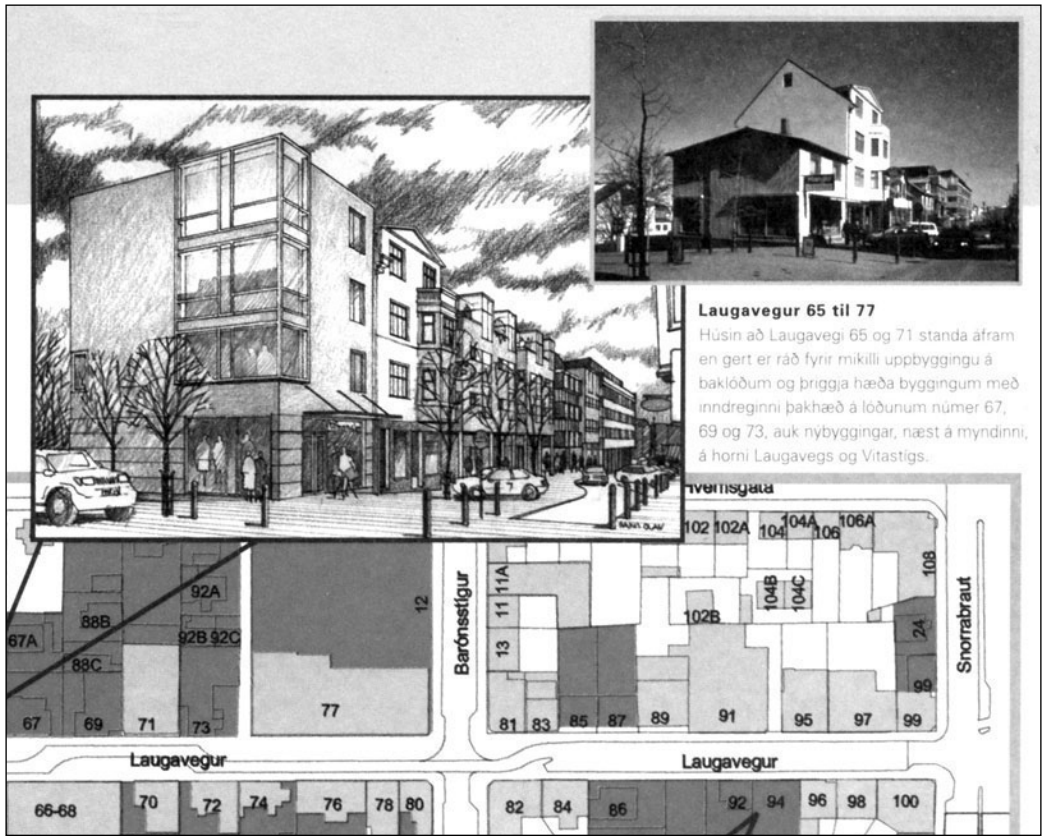
1st prize for a music and conference centre.



The area of the planning competition for the shipyard area.



Bjarnason's proposal on a settlement in the shipyard area, seen from the water.

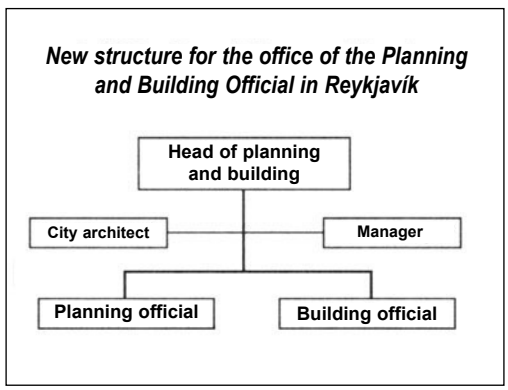


Shopping along Laugavegur is in decline, whereas restaurants are on the increase. Some sub-standard shops have opened because of the decrease in rent, which is not a good sign.

influence on planning ideas before they reached the level of execution. In addition, a jury on disputes in planning matters was established that in some instances has stopped construction because the detail plans of areas, or some formalities about the advertisement of the proposal, were not clear.

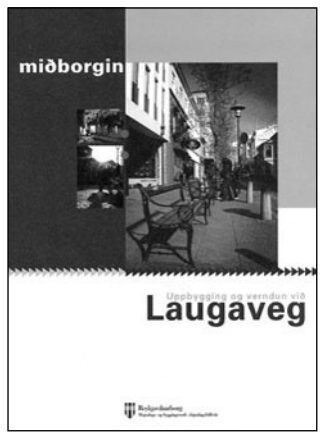
One example concerns the building at Laugavegur 53 where the city had to settle a dispute by paying roughly € 150,000 in damages.

In conclusion, it can be said that planning concerns are becoming increasingly a living aspect in the life of the citizens and they have, to an increased degree, started to take interest in these issues. Nevertheless, because of the new rules about advertising and carrying out planning processes there is an increased danger that the authorities will not have enough strength and courage to push positive ideas through the new, complicated and difficult procedures.



Building and planning issues were united in one department in 2003.

In 2002 much debate took place on dense and tall neighbourhood planning in Nordlingaholt.



A proposal on how to combine old and new.

VI The Communities in the Capital Area

1 The Kópavogur and Gardabaer Communities

The early forming and development of the neighbouring communities of Reykjavík have already been traced in chapter VI, beginning on page 161. The present section describes the latest master plans for the communities Kópavogur and Gardabaer. In addition, the most recent planning ideas will be reviewed.

Some of the flaws that result from the unwillingness among communities to look at the Capital Area as one common area will also be reviewed. As described before, Kópavogur used to be one of the poorest communities in the Capital Area. Around 1990 this started to change.

A primary factor was that the centre of gravity in the Capital Area had moved into Kópavogur. The leaders of Kópavogur formulated a planning policy to make use of this opportunity, primarily by strengthening occupational activity in the town, and to attract people with high salaries by offering good lots in the Sudurhlídar area.

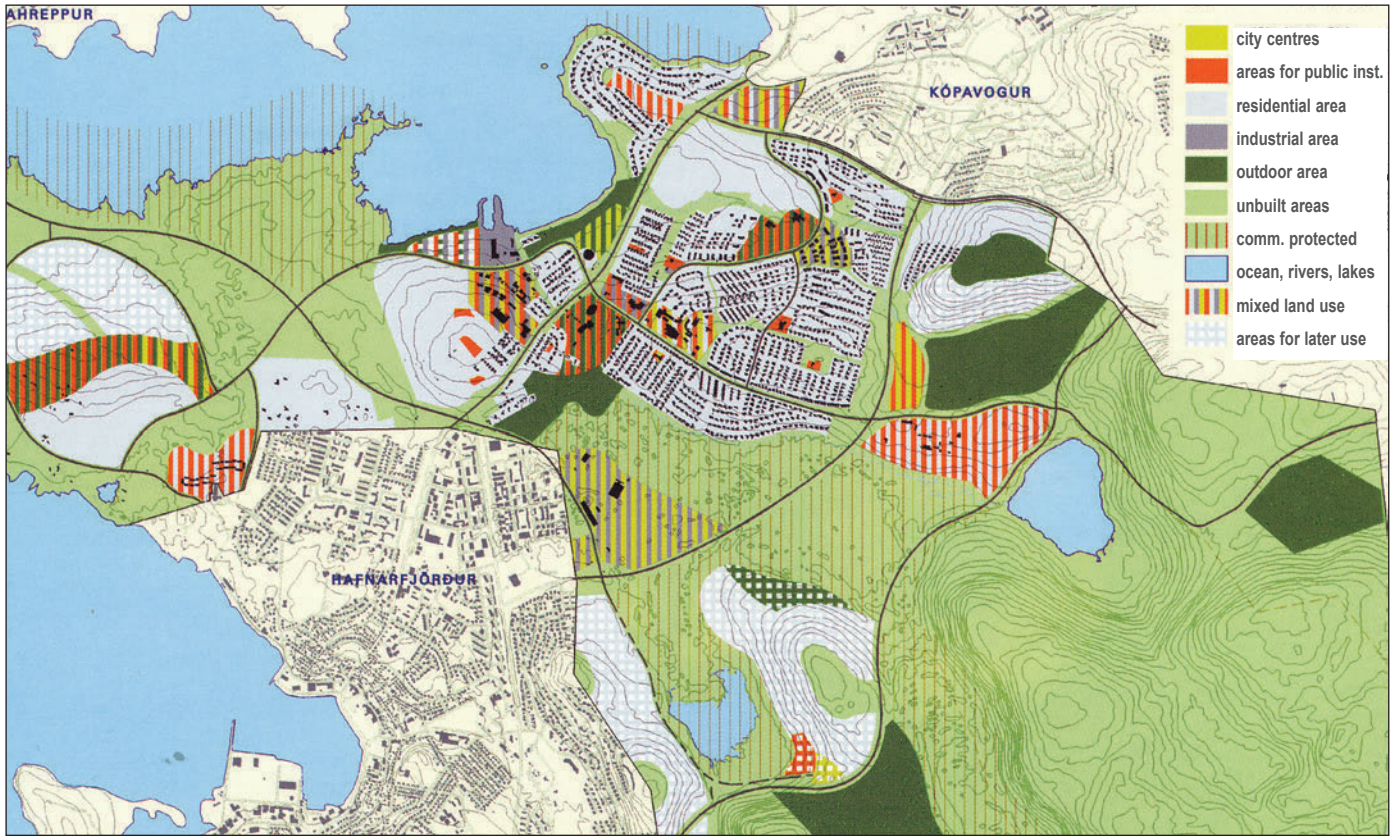
From 1992 until 2000 the number of inhabitants in Kópavogur grew by almost 7000, or from 16800 to 23500. A great effort was made to strengthen the town's cultural and sports services with the building of a culture centre, as well as a sports playing field, and the recently designed Smári commercial area, fitted for the car, has built up faster than anybody had expected. The old commercial centre of Kópavogur lagged behind, but the cultural part has developed rapidly.

Kópavogur has set itself somewhat apart in planning matters. In the regional plan of the Capital Area for 2002, it is expected that the number of inhabitants of Kópavogur will have risen to 27,600 by 2012, but in a report accompanying the Kópavogur master plan, the Kópavogur authorities say this number is greatly underestimated and plan for 32,000 -35,000 inhabitants by 2012.

Before the elections of 2002, Kópavogur presented a new master plan with the time frame of twelve years or from 2000 -2012. The regional plan of the Capital Area, on the other hand, extends to 2024, and all the other communities use the same time frame. This new master plan for Kópavogur, which was confirmed by the minister in the spring of 2002, is shown below.

Some novel ideas appear in the plan, for

The Kópavogur master plan, 2000–2012. The town is divided in two in its middle. A large, new area reaches east to Lake Ellidavatn. To the north is Breidholt in Reykjavík, and to the south is Gardabaer, almost without road connections with Kópavogur.

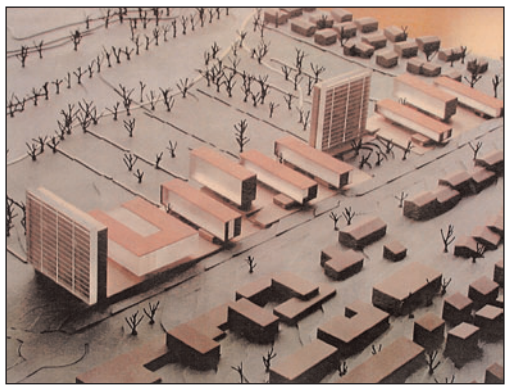


The Gardabaer plan 1995–2015. The map shows clearly how the territory boundaries with both Kópavogur and Hafnarfjördur cut through natural boundaries. It is also interesting to see how large the "town protected areas" are.

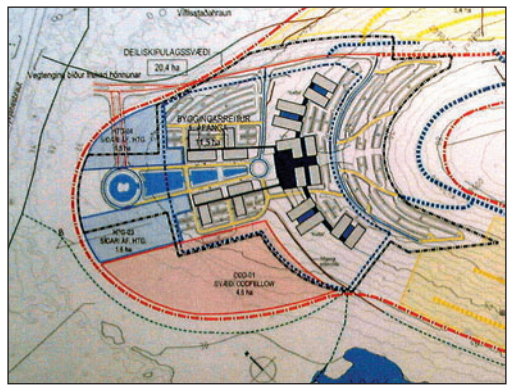
example a Science Park in the Fossvogur area at the old Lundur farm; however, only one year later, this was turned into a high rise residential area. The landfills in the harbour were also enlarged considerably, which is negative because it spoils the view from Reykjavík, especially from the Nauthólsvík beach. On the other hand, the air traffic from Reykjavík over the Kársnes Peninsula is disturbing to the inhabitants of Kópavogur.

Not much activity has taken place in the Kópavogur harbour so it has not generated much income. The question is whether it would not have been more sensible to change the planning ideas and build the marina at the harbour, where a view and the sun can be enjoyed, instead of in the shadow area to the north of the Kársnes Peninsula.

As can be seen in the master plan, Kópavogur has an area in the east which is only connected with a rather narrow strip of land to where the Breidholt area of Reykjavík reaches to the south.



A proposal for a science park in Kópavogur. It was replaced by a plan with residential towers.



An idea of private entrepreneurs for a science park in Urridaholt in southern Gardabaer.

Hraunholt creek is the southern boundary of Gardabaer.

Attempts to connect the Kópavogur and Reykjavík neighbourhoods there have not been successful.

This map demonstrates how dangerous it is to let planning matters of the Capital Area be guided by accidental demarcations. Little effort has been made to change these demarcations to create more logical planning units.

The same holds true for Gardabaer, as can be seen on the big map on page 401. Gardabaer, like Kópavogur, has of late expanded rapidly or from 7,400 inhabitants in 1992 to about 8,000 inhabitants in 2000. The latest master plan for Gardabaer was approved in the autumn of 1997 and is valid for the period 1995-2015.

The report presents a plan based on an estimation of about 11,400 inhabitants in 2015. The prediction of the Regional Plan estimates that the number of inhabitants of Gardabaer will rise to 20,000 in 2024.

From the start, Gardabaer has had high taxpayers and therefore most of the neighbourhoods look good. The settlement areas are, however, rather dispersed and typical for a suburban community.

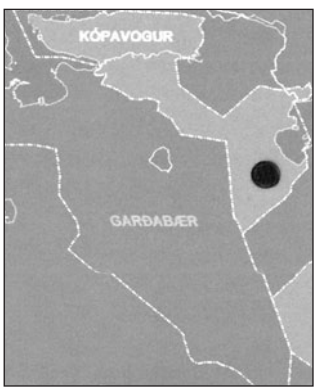
Some change in this policy of dispersed settlements occurred in 2001 as the Björgun Co. started co-operating with the local authorities on building a marina in an area of the shipyard operated by Stálvík. An early idea, which suggested considerable landfill in the fjord, was presented, but protests from people on Arnarnes – who claimed that their view would be spoilt in this way – made the authorities reduce the size of the landfill.

This area will be the first dense residential area in the town. The centre of town stands rather centrally by the Vífilsstadir Road, but because it has insufficient land it has now been decided to make it denser. At the eastern end of this road is the old hospital of Vífilsstadir.

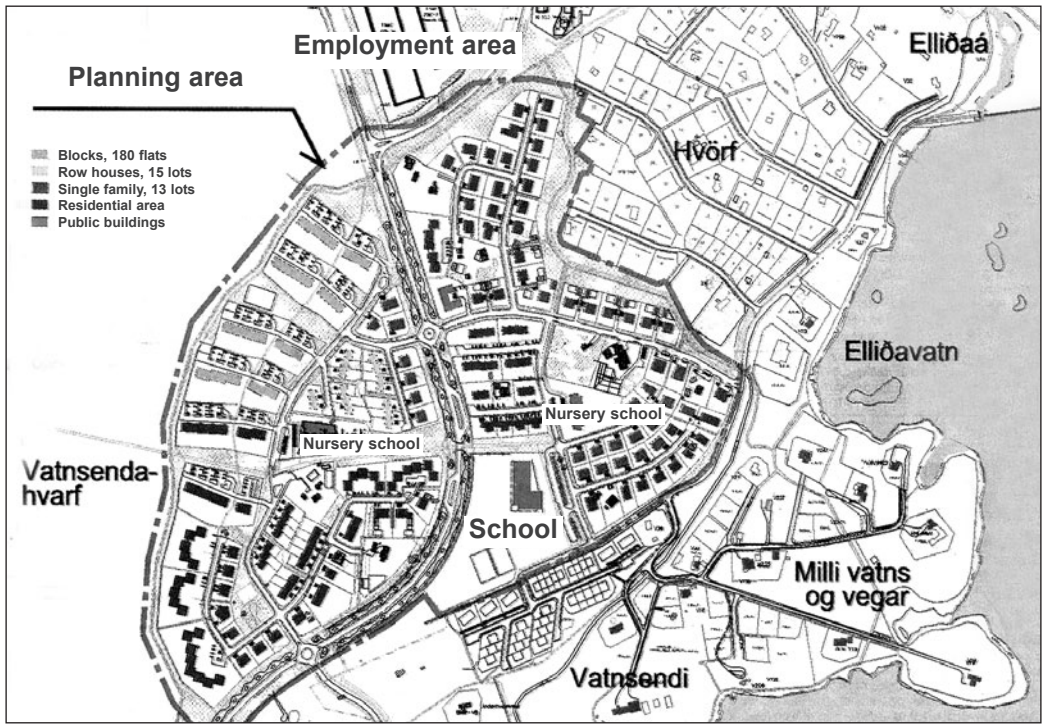
As a decision had been reached that the future area of the National Hospital (Landspítali) should be in Hringbraut Road, it was decided to stop the hospital operation of Vífilsstadir and turn it into a geriatric facility.

An idea about a Science Park in the Lake Urridavatn area was presented in 2000. An early draft of the plan, developed by a private group, was presented on the previous page.

In 1999, Kópavogur started to present ideas for a plan for the Vatnsendi area at Lake Ellidavatn. The area was characterized by very dispersed houses, so understandably, the inhabitants protested. A part of this plan is shown below. The Planning Director of Kópavogur is Birgir Sigurdsson, and Bergljót Einarsdóttir in Gardabaer.



Kópavogur. The dot shows the Vatnsendi area at the lake.



The detail plan of Vatnsendi at Lake Ellidavatn. Those who lived there before protested the high density of the plan and expressed worries about the impact on the lake.

2 Hafnarfjördur and the South Development

Hafnarfjördur has a long and distinguished history, as was described in chapter VI on page 166. It has also always been among the largest and most important towns in the country.

In 1990 the number of inhabitants came to about 15,200 but had grown to 19,600 ten years later. The regional plan of the Capital Area predicts that the inhabitants will number 22,000 in 2012 and 26,500 in 2024.

The present master plan of Hafnarfjördur was approved by the Minister for the Environment in December 1996 and is valid for the period 1995-2005. Hafnarfjördur has the advantage of having an old town core, but what perhaps makes the town most remarkable is that it is located in a rough lava landscape, a feature that makes it unique on a global scale.

In the newest area to the south of Hvaleyrarholt, where the lava is rather flat, development started with the building of the aluminium smelter at Straumsvík. As this lava is rather new, in a geological sense, it probably would be wrong to plan extensive construction in the area. Because the lava is more or less flat, a new lava flow could possibly be directed in channels through the area with the construction of dams.

The people of Hafnarfjördur have done many things to strengthen their downtown area, including renovating old houses that now are an attraction to tourists.

For tourist purposes, Hafnarfjördur supported the development of a little Viking village that consists of two restaurants and handicraft shops under the Hamar rock. Not far from there, a fine music school and an art gallery have been built, both of which attract visitors.

The central area of downtown, closest to the harbour, has a new commercial building with a large parking lot. This area is not successful, not least because in front of the area there is a busy street that separates the area from the harbour.

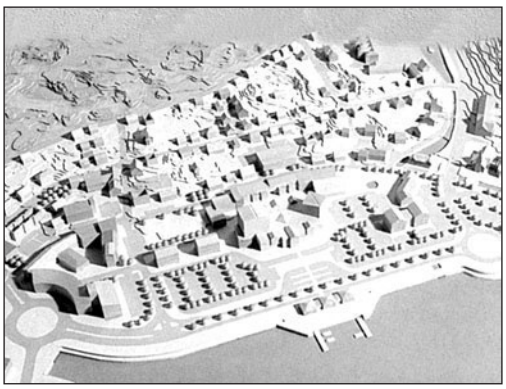
At the north side of the harbour, various ideas on marinas have been created, mainly on landfills outside of the coastal road. One of these planning ideas was presented on page 389. In 2002 a delay in these proposals was announced. New ideas on landfills in front of the downtown area seem to be taking over.

The surroundings of the Laekur Creek that runs through the town have often been praised, even though the industrial firm of Rafha was located at its east side. Early in the twentieth century a dam was built in the creek, creating a small lake.

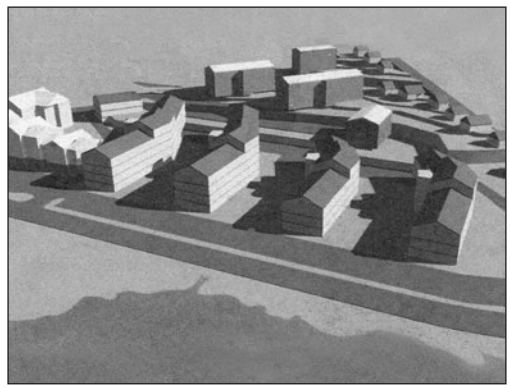
A new plan on the Rafha area has been presented (see below). It can be seen as negative that the continuous line of houses along the lake is broken up in this plan. The southern areas of Hafnarfjördur are – as can be seen in the aerial photo on page 404 – very flat, and do not provide interesting landscape features for residential areas. An industrial area will be extended into this area and connect directly with the industrial area of the aluminium smelter in Straumsvík.

The residential areas are somewhat further north, east of the Reykjanes highway. It creates considerable problems that this main highway out of the Capital Area to Keflavík needs to run through these new building areas.

Therefore, there is a need to review the ideas about the location of a highway to the south. In the small map on the following page, a possible location for the proposed *Above the Settlements Road* is presented. An agreement has not been



A model of the town centre. Landfill could be used to create links with the water.



An idea on the building of a neighbourhood on the Rafha lot near Lake Laekur.

Interweaving lava with gardens and neighbourhoods is unique.

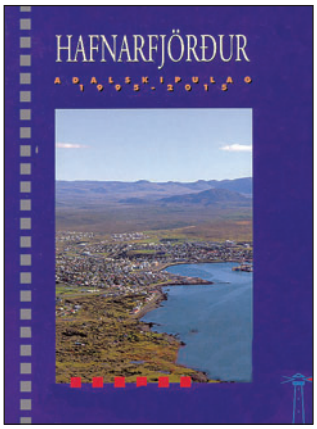
An aerial view of the Hafnarfjördur area. The aluminium plant and lava fields are nearest, with future building land to the north and east.

reached about this road idea because Gardabaer has somewhat different ideas than Hafnarfjördur about the location of it.

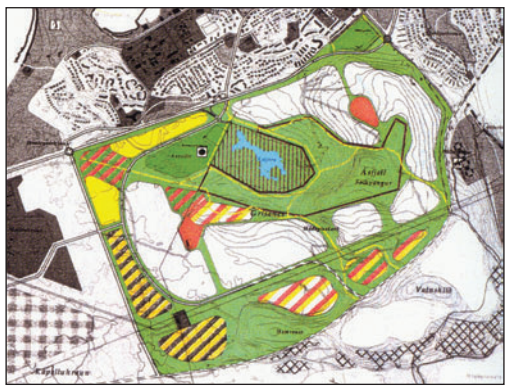
In many foreign countries, various types of facilities are usually placed along roads that lead to the main airports. This happens, among other things, because the transportation of people and goods by air has continuously been increasing.

Because of this, many individuals and companies wish to locate somewhere in the area between the airport and the main town. This has gradually started to happen along the road to the Keflavík Airport and the planner *Gestur Ólafsson*, who made the small map on page 404, has written about these aspects.

Ólafsson has proposed that the Reykjanesbraut highway should be built as a pair of roads going in opposite directions. Between these roads, a development space, about one kilometre in width, would be offered. He furthermore points out that this could mean a lessened need for building expensive flyovers on



The report on the 1997 Hafnarfjördur plan.



The new neighbourhoods south-east of Reykjanesbraut, Ásland and Grísanes.

The Vellir neighbourhood south of Grísanes and Ásland. A visual axis points to Mt Keilir.

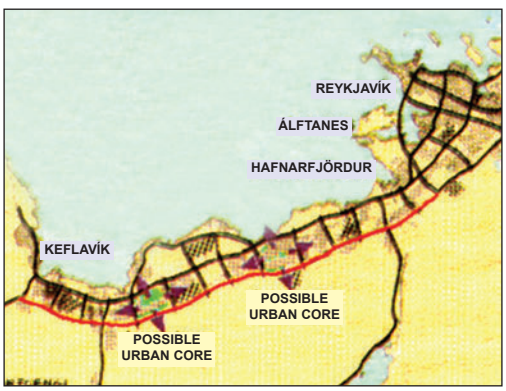
The Hafnarfjördur master plan, 1995–2015. New neighbourhoods (light grey) are on the other side of the Reykjanesbraut, as are new industrial areas (dark grey). This shows how important it is to move most of the traffic to Ofanbyggdavegur highway.

the highway to Keflavík. Today the dobling of the highway has started without taking these thoughts into consideration

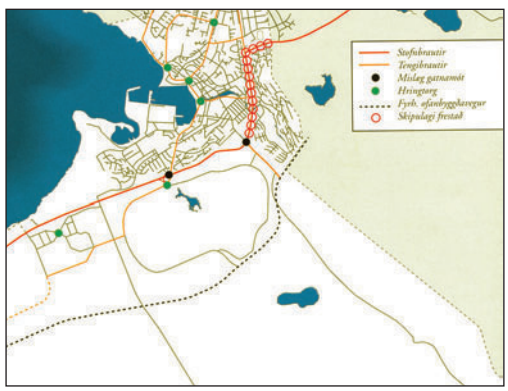
Ólafsson points out that the area between the two roads would become attractive for various services and therefore the land would increase in price. However, in evaluating this idea it must be recognized that the aluminium smelter operates like a stop to the southern development of the settlement.

A factor that adds to the complication is that environmental demands around heavy industry are constantly on the increase, which puts ever more limitations on settlement in their vicinity.

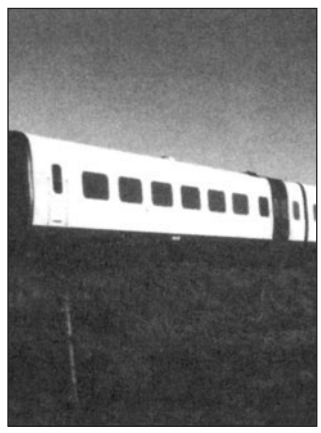
The planning directors of Hafnarfjördur have been Jóhannes Kjarval, Hafdís Haflidadóttir and Bjarki Jóhannesson. Although the town has a rather strong technical and planning division, many of the planning projects have been given to private offices to carry out.



An idea for two Reykjanesbraut highways, and links between them, on the way to Keflavík.



The highway system. Ofanbyggdavegur (dotted) could connect to a new Reykjanesbraut.



Little chance of having a train going to Keflavík.

3 Mosfellsbaer and the North Development

Mosfellsbaer has the most rural character of all the communities in the Capital Area. The historical reasons for this are traced on page 161. Still today, there is some agricultural activity in the Mosfell Valley and because of the geothermal heat there considerable greenhouse farming thrives in the area. No harbour is located in the community and never has been, but it is likely that this could change with the development of a boating harbour and the strengthening of boating sports in the beautiful Leiruvogur Bay that juts into the community's territory.

The landscape of Mosfellsbaer is considerably different from other parts of the Capital Area because of steep hills that make construction on them impossible. One result is that in the eastern part of the community, the settlement can never become dense. Therefore more attention should therefore be given to building denser areas in the western and lower areas by Leiruvogur Bay.

In the planning of this area we have to look at the whole picture because now the jurisdiction of Reykjavík includes the vast Álfsnes Peninsula north of the bay. The building up of the Álfsnes area, however, will not start before the Sundabraut highway has been built. This highway will be built close to the ocean over the opening of Leiruvogur.

Until recently, the number of inhabitants of Mosfellsbaer has remained almost constant. In 1990, there were around 4,000 inhabitants; ten years later they had increased by 50%, which was the highest increase in population in the communities in the Capital Area in this period. The regional plan of the Capital Area predicts that the increase in population will be the most in Mosfellsbaer in the period up to 2024, or around a 200% increase over 1998.

Mosfellsbaer, like many other towns, has cores of old buildings that are well suited for building up cultural centres. Primary attention has been given to the buildings of the Álafoss Woollen Factory on the Varmá (warm) River, as this factory was located there in order to use the naturally warm water for washing the wool. The lower part of the river then, of course, became a sewer for the factory.

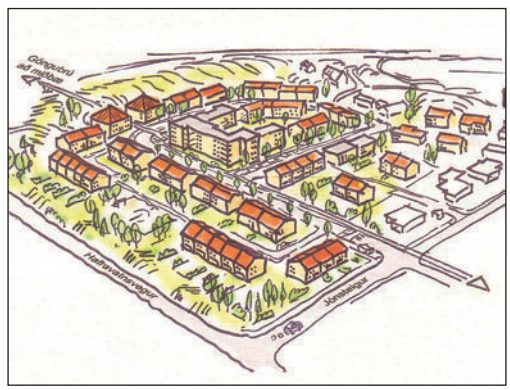
The factory buildings were in rather poor condition so they could be offered at low prices for those who wanted to use them. The low price of such old, derelict buildings is an invitation for artists to move into such an area – and most artists' colonies have originally been started in old run-down areas. Such artist areas often become popular with others because of the activities that follow. This often, eventually, results in soaring housing prices that, paradoxically, often means that the artists are forced to move out and start to search for other areas – to start the re-development anew. Another important spot in the community is the Reykjalundur Rehabilitation Centre with its factory.

The Mosfellsbaer community profits from the fact that the Nobel Prize-winning author Halldór Laxness was brought up there. Two museums are currently being prepared on his life; one in his own home, called Gljúfrasteinn, and a museum in the town centre.

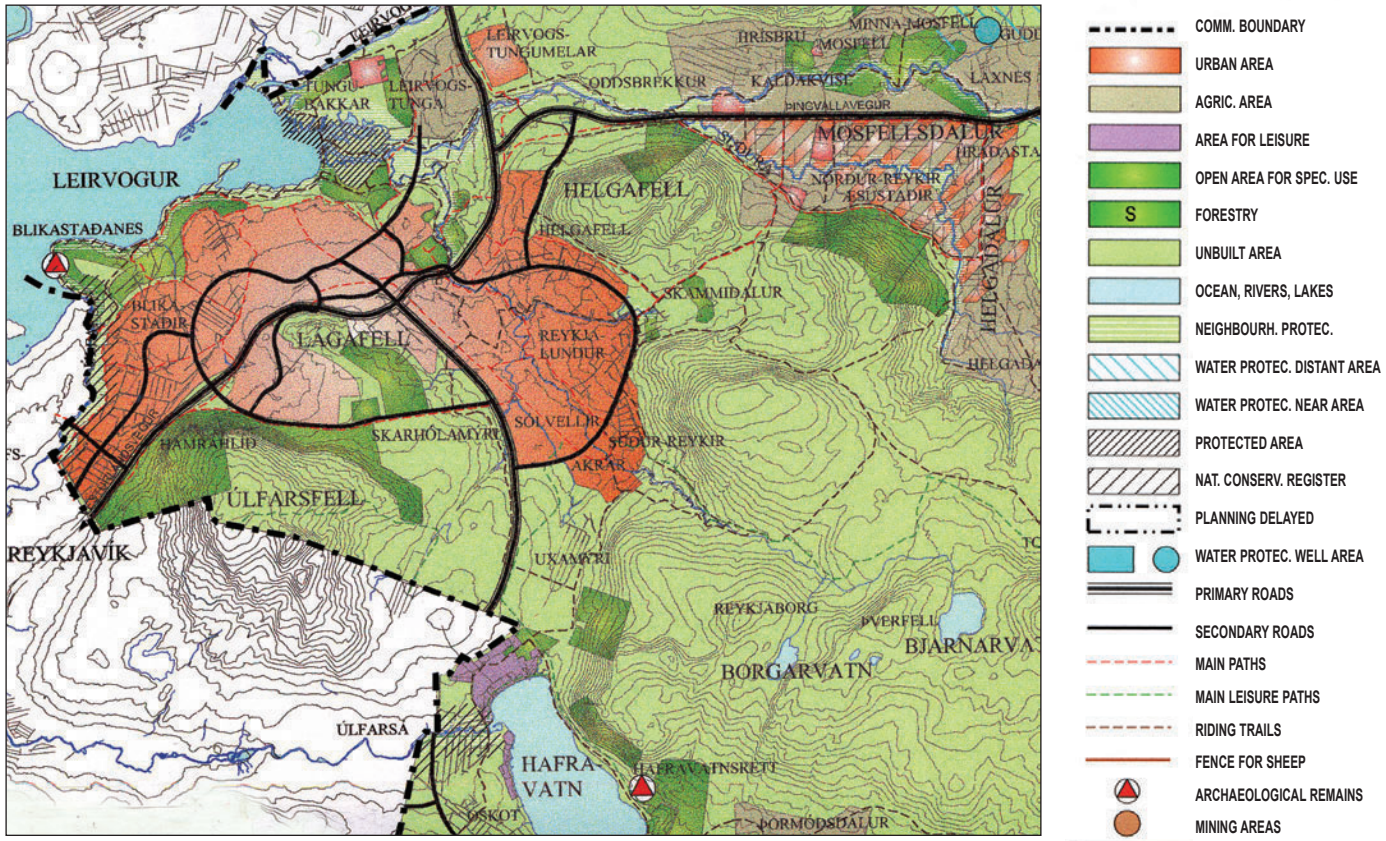
The two small drawings on the right page present an analysis of the complete northern area of the Capital Region. We see that this

The old Álafoss factories are used for a cultural centre.

Neighbourhoods in Mosfellsbaer. Suburban planning style dominates.



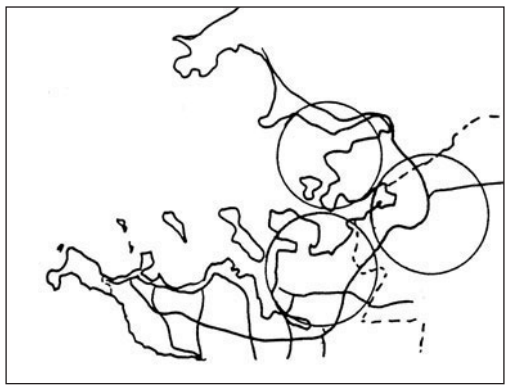
The Teigar neighbourhood is close to the town centre but has a low density.



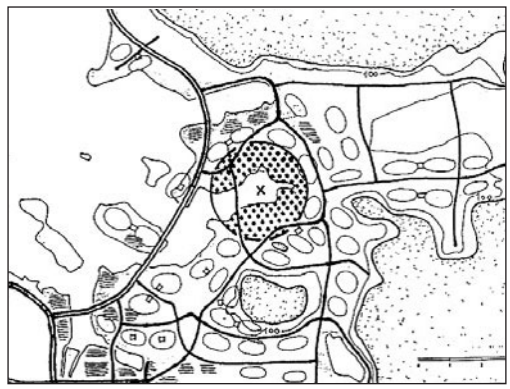
A simple version of the Mosfellsbaer plan, 2002–2024. These settlements will only be loosely connected because of the hills. A density circle should be created at the Leiruvogur Fjord.

northern area divides logically into three units: the eastern territories of Reykjavík, Mosfellsbaer, and the Álfsnes and Kjalarnes Peninsulas. The area where these three circles meet is Leiruvogur Bay. This geography offers the idea presented on the map to the right, namely, to make the inner part of the bay a centre of the northern area of the Capital Region.

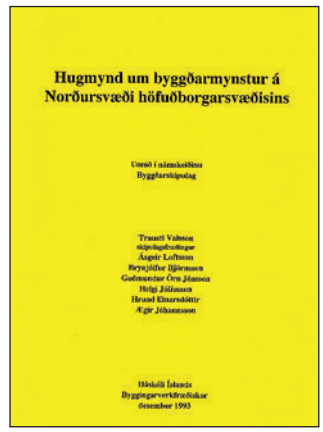
The flaw in this division of this area into two municipalities rests on the fact that Reykjavík, as of now, does not need to start development in this area. This means that the ideal of creating a logical and central core for the future of this area as one whole may be lost, but such a core could easily harbour about 100,000 people. This is yet another example of how illogical the division of the Capital Area into the different communities is, in terms of realizing the most logical planning schemes, schemes that might easily be realized if the area were viewed as one whole.



Areas north of capital today is divided into three but need to be planned together.



A proposal for a plan where the town centre is situated around the innermost part of Leiruvogur.



Concept for a plan to unify the north area into one.

VII The Planning Matters in the Capital Area

1 The Regional Plan 2001 to 2024

In 1998 people got quite interested in the news that work on a regional plan for the Capital Area was to start anew. But when the spokespersons talked about this being the first regional plan for the Capital Area the excitement diminished.

Claiming this was the first plan was simply wrong because – as already described in this book in chapter VII on pages 170-183 – the first regional plan was made in the 1960's. This announcement meant that it was not the intention of those who were in charge of the planning to evaluate the result of the policy that had been created at the earlier stage.

It is crucial in all planning that a study is made of how things have developed, where they went wrong, and what policies have been successful. It is very hard to understand why the planning advisors that were hired could not bring themselves to take these steps.

The magazine *AVS* made some amends because it published a special issue with interviews with several of those who had worked on the earlier regional planning.

Many aspects of this new regional planning were of course well done. A part of the work in the early stages was to issue special reports, including *The Capital and Landscape, Renovation and Development of a City, Traffic Prognosis* and *The Execution of a Regional Plan*. In all, there were seven of these special reports.

This section will critically examine the planning and its results. To present a neutral report on the results does not help in deciding on the next development step, which is to improve and correct the ideas presented.

Contemporary planning is no longer carried out in this way, that is, it is not meant to remain unchanged for a long time, but rather the planning and all of its prerequisites need to be constantly examined and revised as necessary. There are primarily five aspects that are lacking in the conception and goal setting of the regional plan:

1. The experiences of earlier planning for the area should have been assessed.

2. The frame of the plan should have been expanded – and even made into two frames: one for the area itself and an outer frame that would embrace the entire south-west. The section on page 460 elaborates on this.

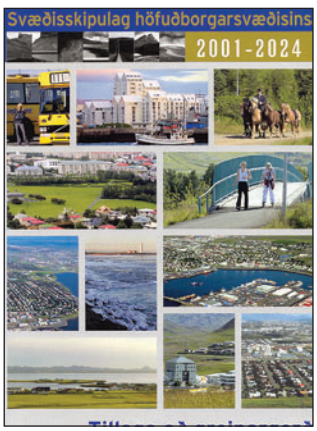
3. Right at the beginning, or even preferably before work on the actual planning started, an agreement should have been reached about *a supra-regional government level* to see to the largest issues of the area. The main issues of such a government level could be energy and infrastructure, cultural and sports issues on a country scale, highways, harbours and airports. In all these subject groups, it is very important to work closely with the state.

4. A conclusion should have been reached about the future of domestic flights and where the main airport should be located before the work started.

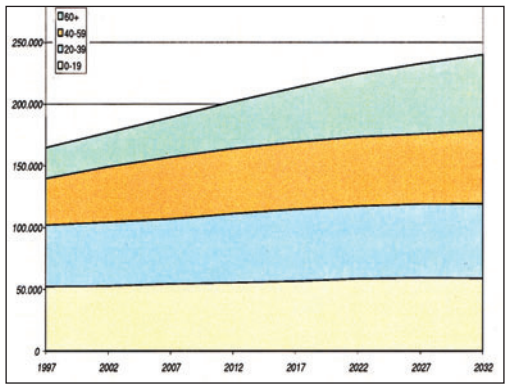
5. A policy should have been created to build up a really dense city area in the Capital Region, for example, around Skerjafjördur Fjord.

As people who are well familiar with the Capital Area will realize, most of these issues have not yet been resolved, which means that there is still great uncertainty concerning the regional plan and its connections to these issues.

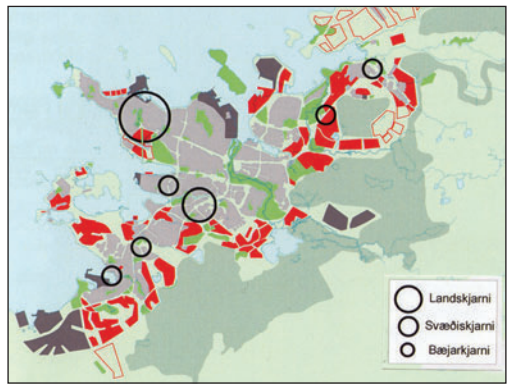
It is almost certain that these five issues will not be tackled with sufficient determination before the state government and the Althing start to involve themselves in them. Up to now,



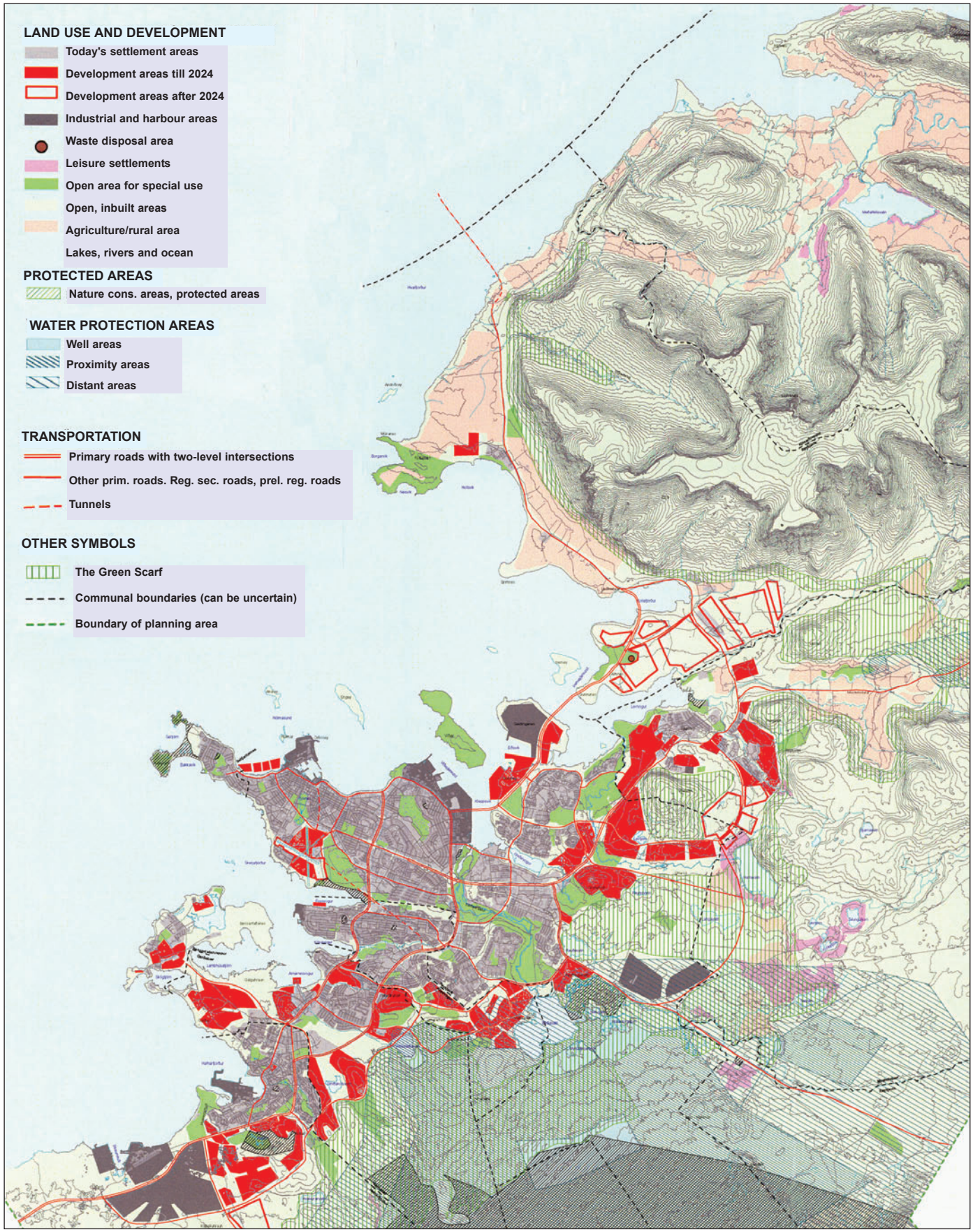
The cover page of the regional plan report.



Population estimates for the Capital Area until 2032, totalling about 240 thousand inhabitants.



Hierarchy of service centres in the Capital Area. The north wing needs a regional centre.



Regional plan of the Capital Area 2001–24. The red development areas are quite scattered, which is no wonder because each community actually makes its own development plan. Today's dispersed harbour development is not changed either with this plan.

they have shown little interest in the planning issues in this area, an area that can be called The New Iceland.

If basic issues like those discussed here are not resolved, little is gained with regional planning. In this case the result will be beautiful words and beautifully coloured maps that are not really effective in terms of improving the area.

As the main report of the plan is studied, several things do not seem to add up. The introduction of the report states: "The goal of sustainable development will be the guiding principle for the planning of this area…." (p. 10).

As is well known, some of the main environmental problems in cities are connected to the uncontrolled use of the car, which costs enormous amounts of money for road construction, parking lots, the cars themselves, and the running of car transportation facilities.

Therefore it comes as a surprise that no serious attempt is made to rectify the negative balance in the transportation of individuals, 96% of whom travel in private cars and only 4% in public transport (buses).

What appears in the description of the plan for the anticipated development from 1998 to 2024 is also a serious breach of the stated policy of sustainability. There it says: "…it is to be expected that there will be a 50% increase in car traffic in the planning period because of the increased number of inhabitants and also because of changes in occupations…."

The total kilometres driven will increase still more than the number of trips because the average length of a car trip in the Capital Area will increase. Therefore, a considerable improvement in the road system is needed up until 2024, improvements that will be very costly." It should be noted that the road construction alone will cost about €1,350 million in the planning period.

Because the planners were not actually given the possibility to work on the larger issues, they started to work on certain side issues such as the so-called *Green Scarf*, which is a belt of green areas in the back land of the city. This is very similar to earlier proposals that were presented in 1965 but that were now dusted off and given new names.

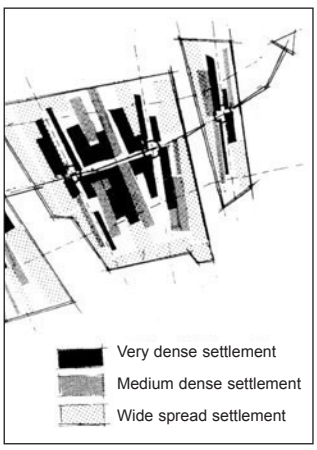
The plan proposes that a large forestry programme be started in the Green Scarf similar to that of the Heidmörk Area. This new area, however, is about 50 times as big as the Heidmörk area, so it is expected that there will not be much return on investments made in this area, especially in the most distant parts.

The large map to the right shows the most important roads in the Capital Area in 2024. The traffic loads were calculated with a computer model based on the planning figures for construction that will have been built by 2024.

It is of interest that 48,000 cars per day appear at the road connection over Ellidavogur Bay. This shows that a bridge or tunnel is essential at this place, especially because it shortens driving distances from the eastern and northern areas to the southern and western areas.

The small map below in the right corner shows with broad lines the main roads that will be built with grade-separated intersections. On the map the new road over Ellidavogur Bay, called Sundabraut Road, is shown extending over to the Geldinganes Peninsula, and from there to Álftanes and finally over the Kollafjördur Fjord up to the Kjalarnes Peninsula.

Although the plan includes this important highway – that will probably cost around €120 million – the traffic model shows no traffic on its northern part. It also comes somewhat as a surprise how little traffic is shown on the Ofanbyggdavegur which passes furthest east, carrying only 19,000 cars a day.



The linear town is a much-used theme in the plan.

	Inhab. 1998	Inhab. 2012	Inhab. 2024	Increase 1998-2024
R	107.300	123.100	133.800	26.500
K	21.100	27.600	26.600	5.500
G	7.900	13.500	20.300	12.400
H	18.600	22.000	26.500	7.900
B	1.400	2.200	2.500	1.100
S	4.700	4.600	4.500	-200
M	5.500	9.300	13.800	8.300
K	140	140	140	0
S	**166.640**	**202.440**	**228.140**	61.500

The population increase is estimated as 61,500, most in Gardabaer (G) or 157%.

	Jobs 1998	Jobs 2012	Jobs 2024	Increase 1998-2024
R	72.800	81.000	87.200	14.400
K	10.500	14.200	14.800	4.300
G	2.400	5.000	9.100	6.700
H	11.200	14.200	16.300	5.100
B	100	200	400	300
S	800	800	700	-100
M	2.000	3.500	5.500	3.500
K	30	30	30	0
S	**99.830**	**118.930**	**134.030**	**34.200**

Jobs will increase by 34,200 – again most in Gardabaer (G) or 279%.

Daily traffic load in 2024 in thousands of cars. In the little map below the Sundabraut road is shown as a highway to Kjalarnes but no load is assigned to it there.

The reason is that an earlier proposal to extend this road to the southeast of the settlement was not followed through in this plan, probably because the traffic model did not show much traffic there.

In order to get some traffic on to this highway, outside of the settlements, some restraints will have to be put on the capacity or the speed of the thoroughfares running through the Capital Area and give the roads outside the settlements a higher speed value. Only in this way will people take the trouble of driving outside the area, and thus the negative effects of thoroughfares that run through the areas can be reduced.

Highways	740
Other main roads	530
Play nursery schools	80
Primary schools	290
Secondary schools	200
Nursing care centres	200
Flats and service centres for the elderly	120
Total:	**2.160**

The building cost for official construction in the regional plan is 2,160 million euros, which is detailed above. In spite of this, such a plan almost never gets discussed at the Althing.

Dark lines: Highways with grade separations in 2024.

2 Possibilities for a Fresh Approach

In starting to review a plan, one of the commonest first steps is to try to formulate ideas on how a fresh approach can be developed by rethinking some of the basic issues.

The division of the Capital Area into eight municipalities makes the development of the area very costly. One of the things studied in the latest regional planning was to see if an agreement could be reached to work jointly on the development of certain areas.

The small maps on the other side of the page show two alternatives from this study. On the one hand is the alternative to develop toward the north. One map accordingly shows the building areas if this decision is adopted as brown spots and which would principally include the Geldinganes Peninsula, the Álfsnes Peninsula, Mosfell Valley and a part of the Kjalarnes Peninsula in the north.

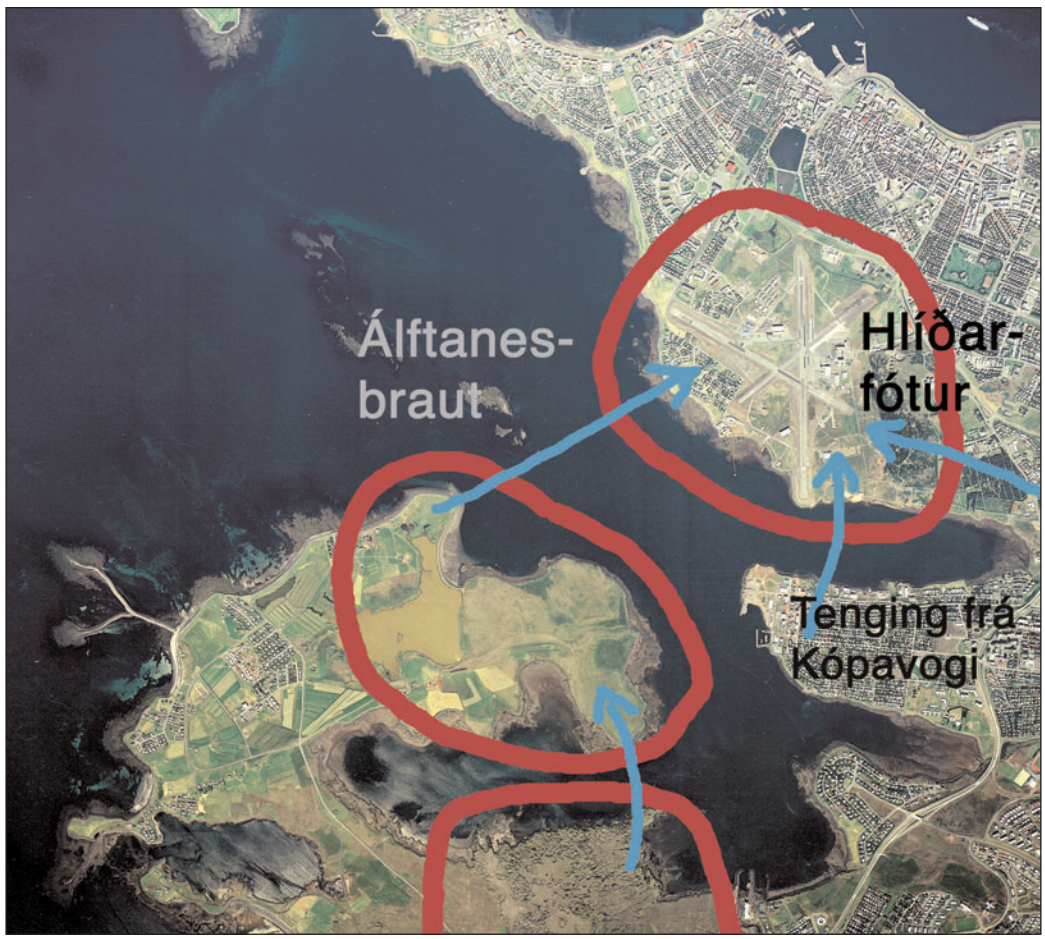
This alternative does not look good from the point of view of making the Capital Area denser. Moreover, this alternative is negative for another very important reason: the areas below Mt Esja are very unsuitable for building because of heavy winds.

The map to the right shows where the built up areas could be located if development to the south is chosen instead. Here most of the building areas are shown in the flat lava fields south of the town of Hafnarfjördur. These flat areas do not seem very interesting for residences, and it is a negative factor that these lavas are geologically rather recent so that there is a possibility of a fresh lava flow there.

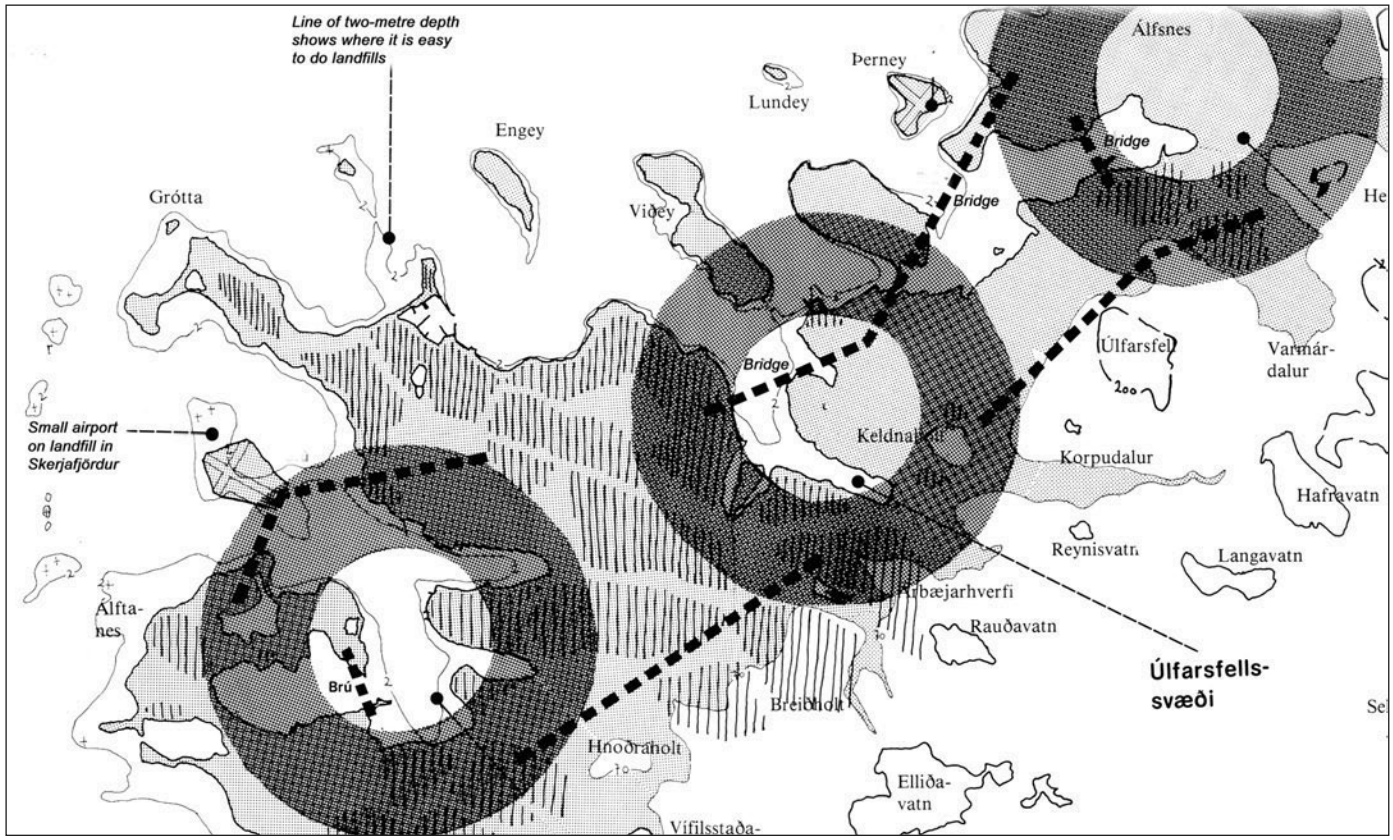
This alternative would also mean developing built up areas in regions of greater earthquake activity. A new ground acceleration map shows that the earthquake danger increases considerably to the south and east of the Capital Area.

There has been very little investigation of the third alternative of letting the densification occur almost entirely within the present built areas. The reason for this is that the largest areas

Territories of the communities in the Capital Area.



Three large areas at the Skerjafjördur Fjord still provide the possibility of planning a density circle around the fjord. The arrows show necessary road connections.

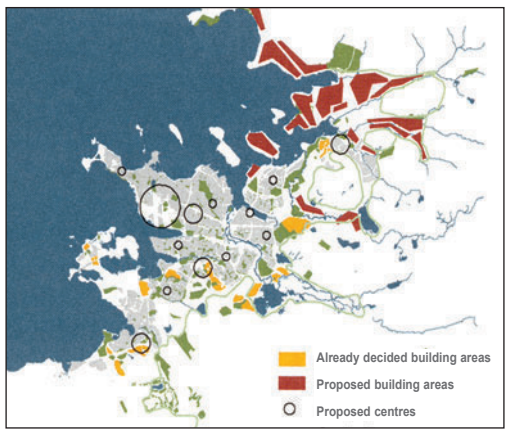


In 1986 the author of this book presented the idea of these three density circles around the fjords as a basic scheme for the planning of the Capital Area. Interest in connecting town and water has increased, so the idea seems more attractive today.

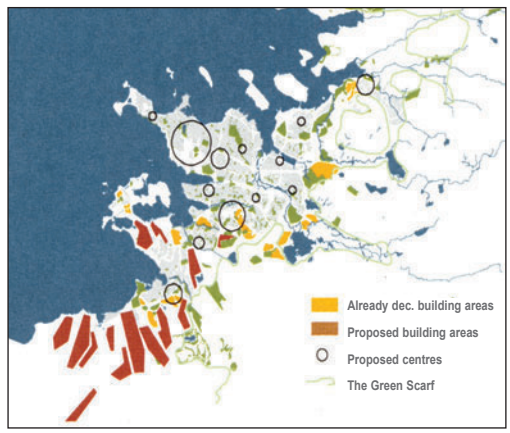
that are in fact available for this purpose – the outdoor areas, the islands and the airport area – were not really made available to the planners.

In the book *Reykjavík – Vaxtarbroddur* (Planning History of Reykjavík) published in 1986, the author of the present book presented the idea of three density circles in the Capital Area, all of them located around the three main fjords (see map above). The large aerial photo to the left shows the area of the southernmost circle around Skerjafjördur. Red circles have been drawn around three very large areas by the fjord, areas that could be used for residences as an alternative to building up on the heaths.

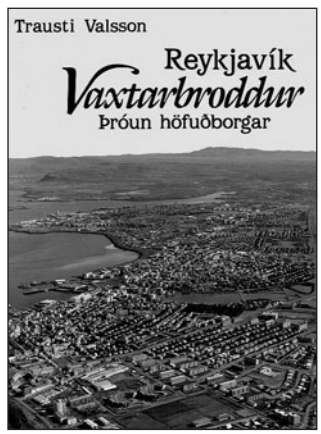
The bridges shown in these maps would have the great advantage of shortening distances within the Capital Area. Density circle no. 2 is around Ellidavogur Bay, and the idea behind the third circle around Leiruvogur Bay has already been described on page 407.



Ideas on unification were studied. This could concentrate development in the Capital Area.



This second study shows development directed south, but the lava fields are a problem.



This book presents ideas on future development.

3 Likely Future Development

As there are no specific plans for providing space for building large, dense and urban areas within the current Capital Region, except to some degree in downtown Reykjavík, it is logical to examine what possibilities are available in the region and its vicinity.

The Reykjavík downtown area is very pleasant and sought after, but the negative aspect is that there is little free space for building except to the south in the airport area. The part of the airport area that is closest to the downtown will, however, mostly be developed to satisfy the needs of the University of Iceland and the University Hospital in coming years.

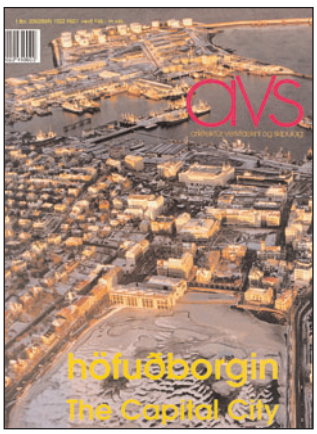
What is needed is an area where considerable numbers of city flats could be built so that young people would have some possibility to live in or close to the downtown area, a location that many of them consider to be the most desirable.

In many cases landfill can be an inexpensive way to create new building areas, especially if the fill is material the harbour authorities need to get rid of as the result of deepening the harbour areas or shipping channels. It is also economical to build on landfill areas as considerable construction then takes place close to the ocean and it saves a lot of money to be able to get rid of the excavation material close to the building site.

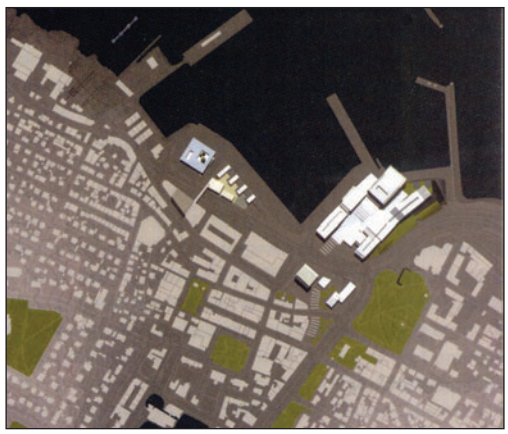
Theoretically, landfill could be used in the eastern part of the city centre north of Skúlagata Avenue. There has already been considerable landfill there, however, so that the filled land has already stretched from the earlier shoreline to reach a depth of water that makes landfill much less profitable. On the other hand, there are large areas with a shallow water depth, and thus potentially profitable, in the ocean north and east of Örfirisey Island and all the way out to Akurey Island. The two metre depth line on the map on page 414 shows this clearly. It was therefore logical that the association that was established to strengthen the urban qualities of the Capital Area should turn toward the west to Örfirisey Island for the possibility of creating new land.

The main proposal of this *Association on Better Settlement* is shown in the large map to the right. The planning idea is characterized by the forming of a circle with landfill, the centre of the circle being a harbour that some of the settlements would face. This idea has one major drawback, namely that it is too far from downtown for people living there to really enjoy proximity to urban downtown living. The connection to downtown could be somewhat helped if all the area along Mýrargata Road, the shipyard area and further on to the west harbour were turned into a downtown area. Today, a positive development toward accepting this planning policy is visible in the competition for the shipyard area that started in the autumn of 2003. In addition, the proposed conference and music hall to be built by the east harbour would move development closer to the idea that the old harbour could become an amusement centre and residential marina, as in so many similar harbours abroad.

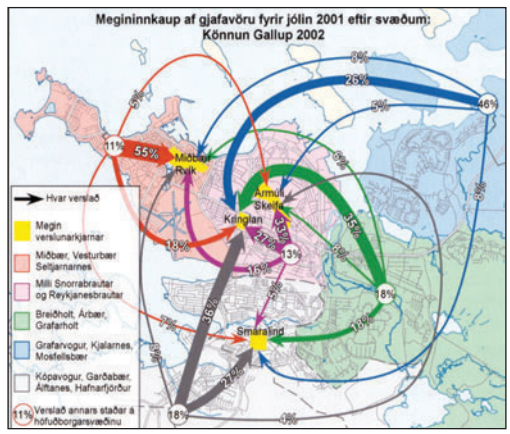
A second drawback of the idea about huge landfills to the northwest is that this area is at the most distant corner of the Capital Area. Together with a limited space for added traffic on present thoroughfares, this would make it unattractive for people to go there for shopping and amusement because of traffic delays.



Reykjavík plans a major effort in the old town centre.



If the music and conference centre becomes a reality, it will revitalize the area.

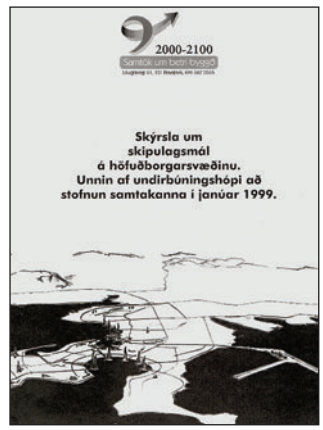


Gifts bought at Christmas 2001. This picture shows the Kringla Mall's strong position.

The Union for Better Settlements (UFBS) has fought for a denser building of urban areas. This is their idea for a settlement circle created by a landfill north-west of Örfirsey.

The width of the arrows in the small diagram to left shows how many people came into the downtown area and to the Kringla and Smáralind shopping centres from the various regions of the Area for buying Christmas gifts in 2001. The diagram shows clearly that those who shop in downtown Reykjavík are primarily those who live west of the area. In addition, we see from this diagram that there are relatively few who live on the peninsula itself or in the northern part of the Capital Area who shop in the Smáralind Mall. The great majority of people from most of these areas, on the other hand, shop at Kringla. This demonstrates how well located the Kringla Mall is, not least because the crossroads of the two most important thoroughfares in the Area are close by.

This diagram shows that it is not realistic to assume that it will be possible to build up a vibrant urban core on landfill northwest of Örfirisey Island. It is hard to get people to come to the downtown area of Reykjavík even in the Christmas shopping season so not many would go to the trouble of going all the way west to the Örfirisey Island area for shopping, amusement or services.



One of the reports published by the UFBS.

VIII Planning Development in SW Iceland

1 The Development of West Iceland and Akraborg

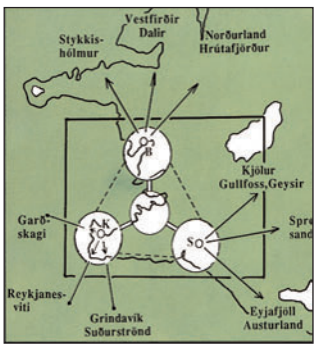
This last chapter of this book, on the planning development in south-west Iceland, is divided into three sections covering three dispersed urban areas where development has been started in three directions out of the Capital Area. The first section deals with the western urban area called *Akraborg*.

The following section describes *Árborg* in the south, and the third section deals with the *Sudurnes* urban area. On page 227 the *triangular settlement structure* of south-west Iceland was described, explaining that within this area the main growth regions of the country, including the Capital Area, form a triangle where already about 80% of Icelanders live – a number that is constantly on the increase.

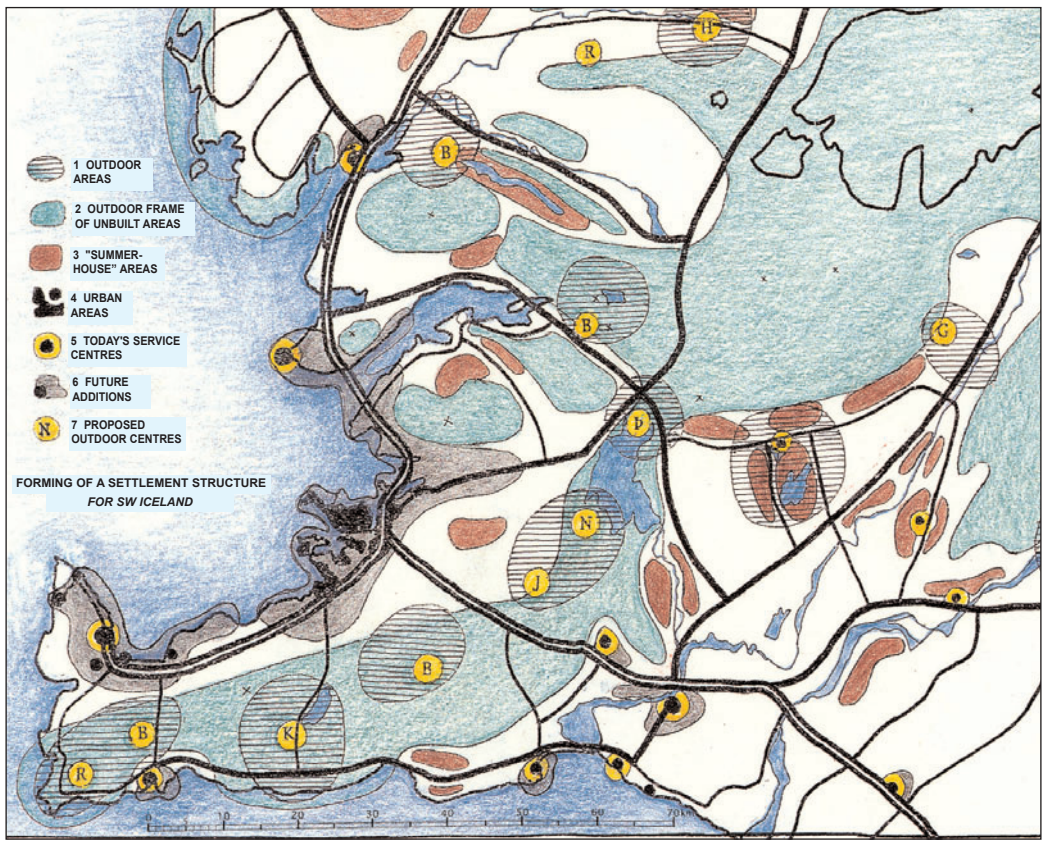
The small picture below shows this settlement structure. The arrows indicate the potential growth outward from these relatively strong centres. The large map below presents an idea for a planning structure for all south-west Iceland (see the section beginning on page 227). This planning scheme emphasizes improvements in the road connections between the four main elements of this settlement structure, i.e., roads over both Leggjabrjótur and Uxahryggir in order to connect the Borgarfjördur area to the south lowland and a South Coast Road to connect the Árborg area to the Sudurnes Peninsula. There has been some realization of these road suggestions since this plan was published in 1993.

As this present book follows an almost chronological thread the reader needs to check the index to study the first steps in the forming of the settlement patterns in a particular area. The forming of villages and towns in the west, for instance, is described on page 184, and the historical thread is then continued in a section about the regional planning development in this area on page 206.

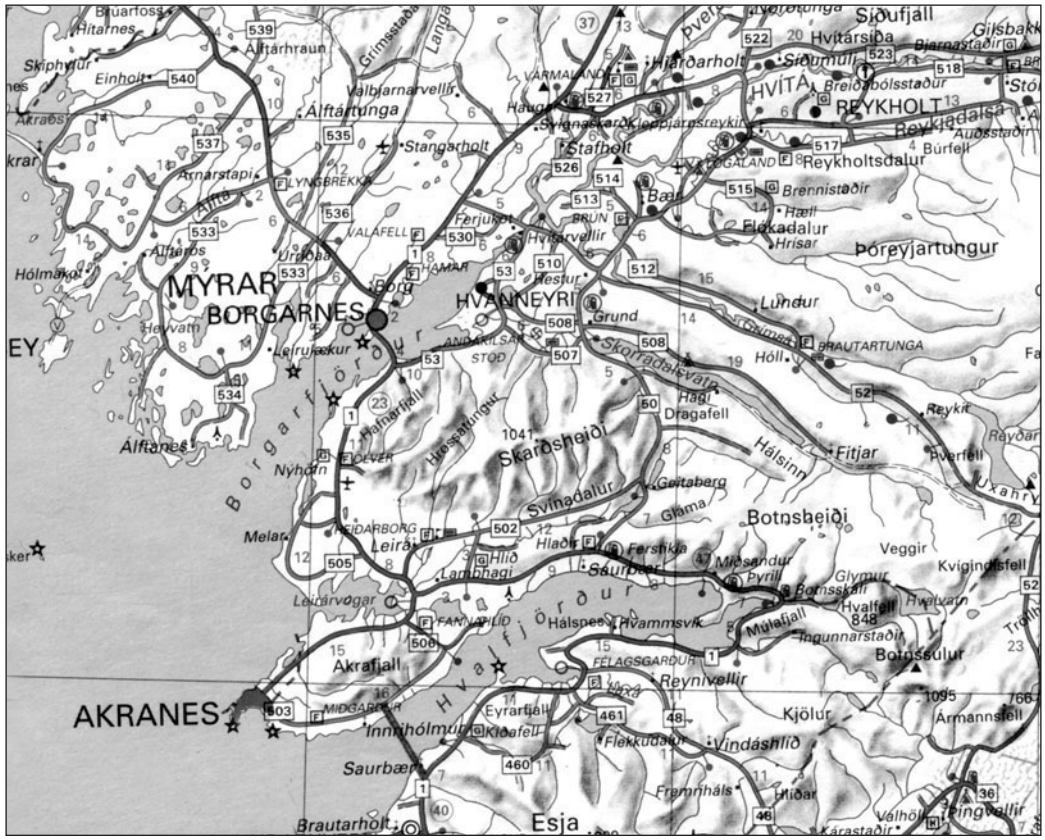
The evolving of a settlement structure occurs slowly. Because of this it is necessary to give a short historical overview to demonstrate that some developments have been taking place, even though, as of now, it seems that not much has happened. Some of the largest steps in the development of settlement structure in Iceland came with new road connections. Paving of roads in rural Iceland in fact evolved very slowly.



The structure of SW Iceland and its wider importance.



An idea for a settlement structure for SW Iceland. Here a reconceptualization of the road system is made to better connect the settlements. Yellow: outdoor centres, brown: summerhouse areas.



As two towns start to form one unit, the area often gets its name by fusing both names, here: Akraborg. The ferry that used to sail to the towns got its name the same way.

One of the biggest steps in road transportation in the west was the construction of the bridge or causeway over Borgarfjördur Fjord in 1980. This did not actually shorten the road distance to the north very much, but the Capital Area became much more accessible to those living in both the Mýrar and the Snaefellsnes areas.

The biggest gain was that the only large town in the Borgarfjördur area, Borgarnes, became directly connected to Highway 1, thus providing the impetus for Borgarnes to become such a powerful urban core that it has energized settlement development of the area, including also some areas outside of the core.

The improvements in the roads meant that the summerhouse settlements in the west started to grow a lot. This is not surprising because the west has much to offer in terms of nature and cultural heritage. The summerhouse development helped strengthen the service centres, which again led to an increase in traffic in the area, and people remained longer in the region.

The largest event that tied the functioning of the Akraborg area to the Capital Region was the opening of the tunnel under Hvalfjördur Fjord in 1998. At the same time, an aluminium smelter was built at Grundartangi harbour.

The development of this area leaped forward, partly because of the favourable condition of the Icelandic economy – a development that is expected to continue. The improved economy means that an ever-larger portion of the nation enjoys a higher standard of living. People are increasingly starting to use their summerhouses as *a second home*, or they buy old farms for this purpose.

This new form of habitation, called *double residing*, is primarily known among the upper classes in foreign countries. Increased income and cheaper land in Iceland means that Icelanders can develop such a lifestyle to a higher degree than most other Western countries.

Conditions provided for this kind of development in the west are in some ways better than those in the south, mostly because the access road does not go over a mountain; those headed for the south coastal area must go over the Mosfellsheidi and Hellisheidi heaths before dropping to the lowland, a hindrance during the winter.

The bridge over Borgarfjördur made Borgarnes a traffic centre.

2 The Development of South Iceland and Árborg

The section on page 195 described the first steps towards the development of villages and towns in the south. The area is important to Iceland, with its large fields for agriculture, but the very first beginnings of settlements were fishing and commercial spots along the coast. Since about 1930 some processing and service industries started to develop in centrally located spots, as recounted in the section on page 219.

Because of the difficult position of the fishing towns of Eyrarbakki and Stokkseyri in the twentieth century, it has been fortunate that the town of Selfoss has developed as much as it has. A special advantage of Selfoss is that it is not located on the periphery but rather centrally. It therefore fits well as a service centre for Árnes County as well as for certain parts of Rangárvellir County. In 1870, the population of Selfoss was 2400 and rose to about 4900 only twenty years later.

One of the recent measures to strengthen the rural regions and to counteract the reduction in agriculture has been to unite rural communities in some areas into larger municipalities. After integration these municipalities have been able to take on larger official tasks from the state, for instance in the area of schooling.

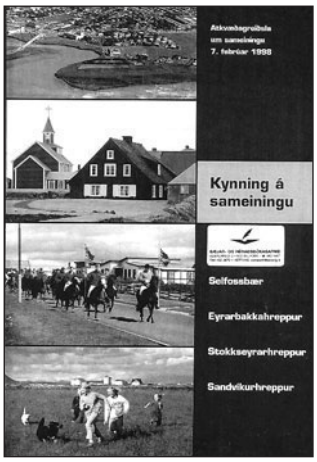
In 1998 an important step in strengthening Selfoss was the unification with Eyrarbakki, Stokkseyri and the Sandvík District. This created the new municipality of *Árborg*, with almost 6000 inhabitants. If the next logical step is taken, namely, unification with the communities of Thorlákshöfn, Ölfus and Hveragerdi, then about 3500 people would be added. The *Óseyri Bridge* that was opened in 1998 is in fact a prerequisite for being able to see this area as a single service and occupational zone. Since the bridge was opened, the distances by road do not exceed what is acceptable in terms of letting the various services provide for the whole area.

Selfoss is located in the southern part of Árnes County, but recently the upper regions of this county have also experienced considerable growth, not least because of the increase in the number of summerhouses. By 2000 there were 4500 summerhouses.

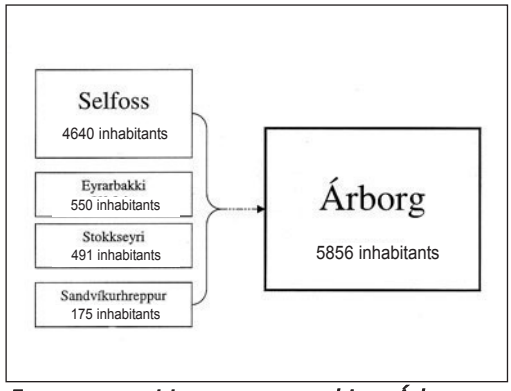
Assuming in summer a family of one to two children in each of these summerhouses, the population of the area rises to about 15,000. Because geothermal district heating is now in the process of being installed in most of the summerhouse areas, and because of mobile telephones and the use of computers in these summerhouses, year-round residence is increasing.

If the number of the inhabitants of the summerhouses is added to the number of locals, we see that during the summer the inhabitants of Árnes County rise to about 30,000. In addition, this area is one of the most frequented tourist areas in Iceland because it comprises some of the nation's most remarkable and important historic places, like Thingvellir and Skálholt, and some of the most outstanding natural treasures, like Gullfoss Falls, the Geysir hot springs area, and the Thjórsárdalur Valley.

Rangárvellir County to the east of Árnes County is not developing as fast. In spite of this it has two towns located on the Ring Road, Hella and Hvolsvöllur, which keep on growing along with the summerhouse areas. A special characteristic of the development of Rangár-vellir County is that horse owners have bought many farms there for training horses and offering riding tours. A considerable number of services have developed around these activities, which in turn strengthen all of the southern area.



A pamphlet promoting the merger of the communities.



Four communities were merged into Árborg, here the population in the year 2000.

Highway 1 still goes right through the middle of Selfoss. The roundabout slows traffic down.

Árborg reaches from Selfoss down to the coast where Eyrarbakki and Stokkseyri are located. Their merger has made this area much stronger.

It is remarkable that it was possible to avert the collapse of the towns of Stokkseyri and Eyrarbakki when fishing from there had stopped. This was not least because the distance from there to Reykjavík over the Threngsli Road, which is easily open all winter, is only about 55 km, making it possible for people living there to be able to commute to work in the Capital Area. Moreover, these towns have been helped because people from the Capital Area have bought some of the old houses, restored them, and use them as summerhouses. This is another type of summerhouse than that in the open country. The proximity to the ocean, as well as to the history of these old villages, fascinates people. A fine local museum has been built in Eyrarbakki in Húsid (The House), as well as a special maritime museum.

The town of *Thorlákshöfn*, situated on the coast a little farther west, is almost a new town, having only started to develop around 1930 when a harbour was built there. Because this harbour is rather good and because it has become the port for the ferry for the Westman Islands, Thorlákshöfn has grown both as a transportation and fishing centre. On the other

Eyrarbakki is one of the historically most interesting towns.

The public, businesses and communities

General projects and means:

>Work against localism and conservative attitude.

>Break down walls and eradieate imagined boundaries. Stop feeling inferior.

>Increase the belief in our own capabilities, pride, drive and will to advance.

>Increase freedom and broadminded.

>Make use of an open market

>Work against prejudices.

>Improve the educational level and continuing education in our home territory.

>Improve the level of education in general.

From the speech of K. Björnsson, former mayor of Árborg. It is interesting to note that he considers education and advanced thinking a key to strengthen the area's position.

hand, it does not get as much support from tourism as some of the other towns in the south because it is modern and not as interesting.

The town of *Hveragerdi* enjoys the privilege of being located by the Ring Road. This town has a history as a health and spa town, primarily because of The Health and Rehabilitation Clinic and the Ás home for the elderly. The trade unions also built a large summerhouse area, Ölfusborgir, east of town, an area that has also been proposed as the site of a large international spa city. Even though the comprehensive school is located in Selfoss, Hveragerdi has also enjoyed some of the benefits of increased educational opportunities as it was selected as the location of the State Horticultural School. The school is appropriately placed in this great geothermally heated town with its numerous greenhouses.

In a conference of the *Planners Association of Iceland* on 1st March, 2000, *Karl Björnsson*, then the mayor of Árborg, gave a speech: *The Southland – Its Position in the Settlement System of the South-west Corner*. This lecture revealed a keen understanding of the complementary effect of the coexistence of the Capital Area and the southern part of the country. Each of these two areas adds to the lifestyles of their inhabitants. In his lecture Björnsson pointed out that Árnes County has in fact become a part of the commercial area of southwest Iceland. He described how services in Árborg are becoming ever more diverse and how this community, which has grown in size, is becoming ever more able to offer most types of modern facilities, such as good nursery schools, private primary schools, and various types of social services. In addition, there has been growth in sports and tourist services, and an increase in the hotel business.

It was especially interesting how Björnsson described the necessity for drive and entrepreneurship, and that companies, the public and the communities should learn to make use of modern schemes and rid themselves of the bondage of the past.

The figure above shows some of the main points of his lecture, such as to work against local partisanship and conservatism, to work for the breakdown of walls, and to destroy imagined borders. He also stressed the necessity to strengthen belief in one's own abilities and pride and by doing that, to increase freedom and broadmindedness.

Herjólfur makes Thorláks-höfn a transportation centre.

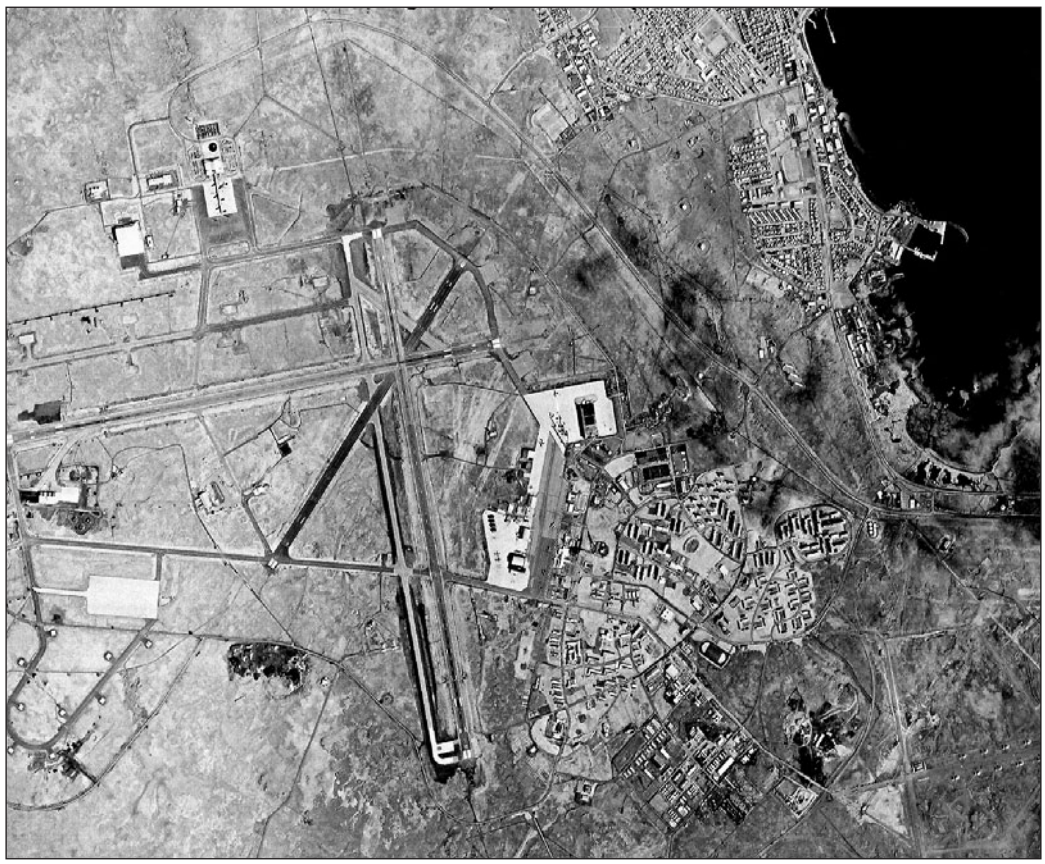
3 The Development of Reykjanes and the Airport

The Reykjanes Peninsula has some unusual characteristics that set it apart from the three urban areas discussed in this chapter and, as a matter of fact, from the whole of Iceland. Geographically the most outstanding characteristic of this area is the barren lava fields. The porosity of these lava fields means that there is little water on the surface, which again means a lack of drinking water and thus also a lack of grazing areas.

Because of the lack of pasture, there has never been much agricultural activity in the area. This peninsula, on the other hand, has a very good location in terms of its nearness to fishing grounds so that fishing increased early, even though there was little agricultural support. The lack of agricultural areas also meant that the commercial spots never became very large. Therefore, the pleasant atmosphere of the oldest and most developed commercial and fishing towns in Iceland is missing. Even though the Reykjanes area is close to Reykjavík, it is not certain that this settlement would have grown if the Keflavík Airport had not been built there during and after World War II. Development of the town continued with the building up of the US naval and air force base.

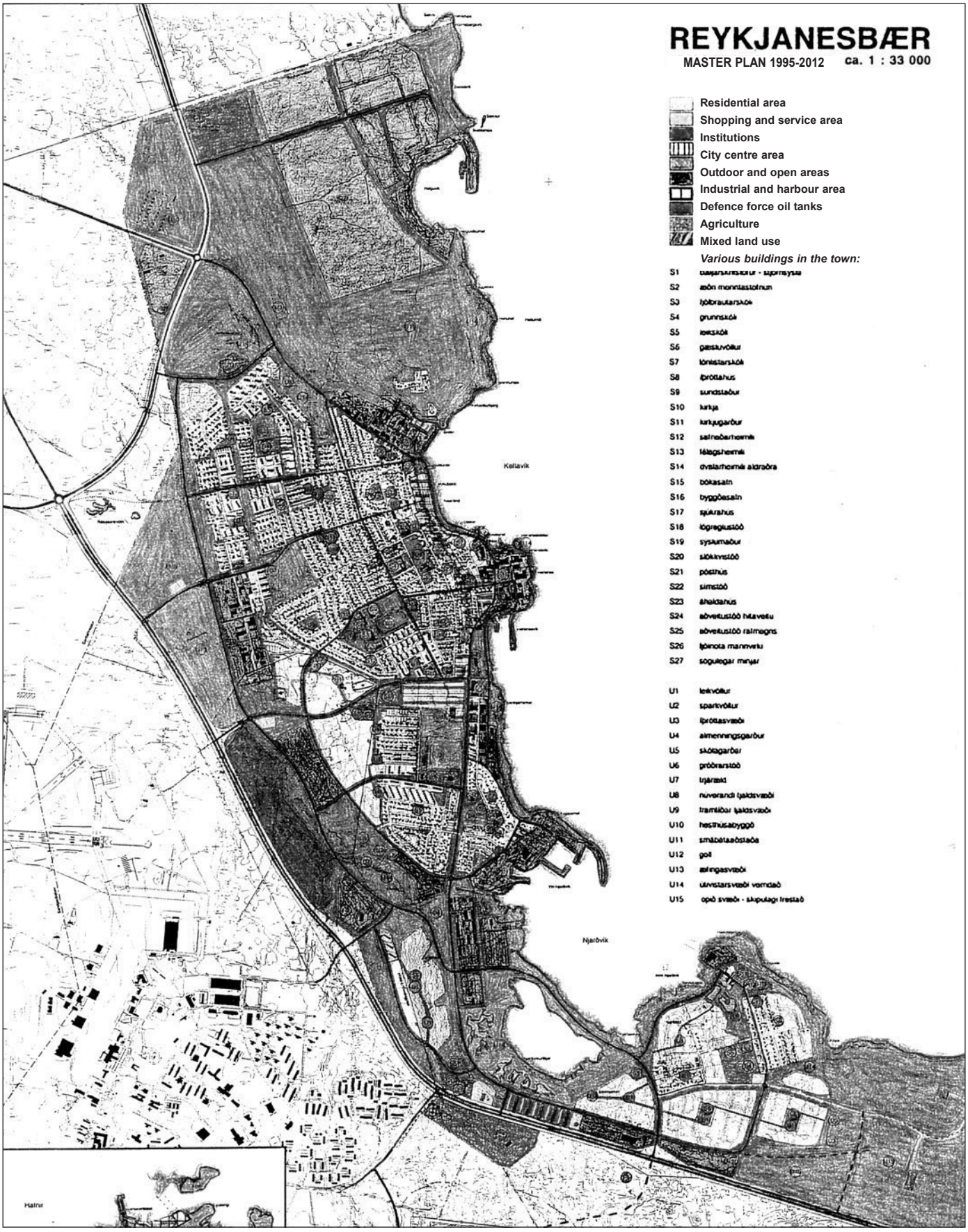
This activity created a good deal of work for the people in the area and led to a considerable growth of both Keflavík and Njardvík. In 1950 the area had about 3000 inhabitants. The building up of the base continued throughout the Cold War years until about 1960. After that, international flights were moved from Reykjavík to Keflavík, with the result that the area continued to develop. Tourism also gradually increased. The growth of this area therefore continued, and by 1970 the population had risen to 7500. Around 1990 the growth in population decreased because by then the US was no longer expanding the military base. Nevertheless, the number of local inhabitants had reached 10,700 in 2000.

Even though most of the foreign tourists that come to Iceland arrive at the Keflavík Airport, the settlements in the Reykjanes area have not profited much from this. This is both because the towns have not been considered interesting for tourists and also because the road system has not encouraged trips in the area. Tourists have



The interplay between the military base, the town and the airport is complicated. Employment-wise Reykjanes has benefited from the co-existence, but the base puts limits on various aspects.

A new road will soon open a circular route on Gardskagi.



The Reykjanesbaer master plan, 1995–2015. The military base means that the town cannot develop to the west and is therefore elongated. There are three harbours: in Njardvík, Keflavík and Helguvík. The Njardvík Inlet splits the area in two.

therefore been less interested in staying at a hotel in the area in order to enjoy day trips which can almost as easily be taken from Reykjavík.

Some positive changes took place in the area around 1990, such as the building and development of the Blue Lagoon and the establishment of two airport hotels in Keflavík. Previously, around 1995, Keflavík had started a facelift of the downtown area. As discussed earlier in this book, however, the two roads that would make an interesting round trip possible have not been constructed. Good roads that circle around an area are a prerequisite for being able to offer interesting sightseeing.

The northernmost circular tour around the northern tip of the Gardskagi Peninsula has not been possible to construct because of the base, though there is a road on the maps. The dirt road from the Reykjanes lighthouse east to Grindavík is rougher than most like to drive in an ordinary car. The road further east that goes from Grindavík to Lake Kleifarvatn Lake is also very poor. Those who want to take the Krýsuvík road back have to go all the way to Hafnarfjördur to be able to enter the Reykjanes highway for the return trip.

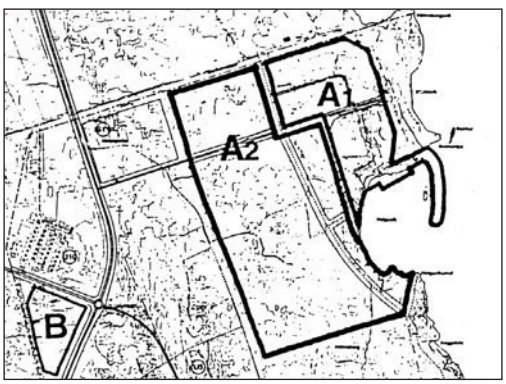
To get a road built along the south coast of the Reykjanes Peninsula is most urgent. This road would allow people in the Keflavík area to enter the southern lowland directly. This would also open up possibilities for good circular tours back to Reykjavík and then Keflavík, passing over either the Threngsli or the Hellisheidi roads. This circle could be enlarged by going further east over the Óseyri Bridge and from there onwards to Eyrarbakki, Stokkseyri and Selfoss.

This important *South Coast Road* is finally in the plans. Besides strengthening tourism, it will open up possibilities for commercial co-operation among the settlements on the Reykjanes Peninsula and the south, for instance in strengthening fish markets like the one in Grindavík.

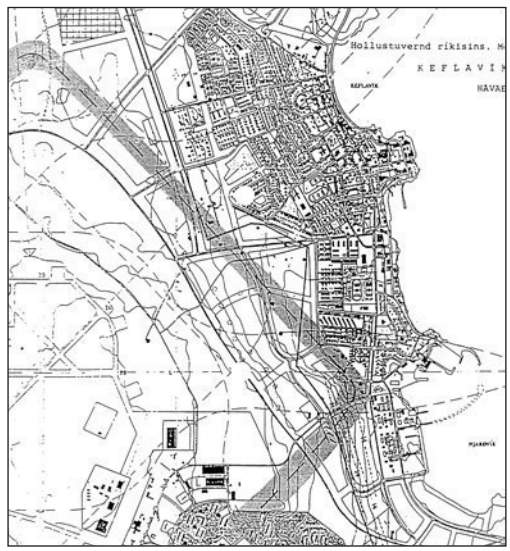
The cultural aspects of the communities of the Reykjanes Peninsula, sometimes called Sudurnes, are somewhat different from other areas in Iceland. There are not, as said before, the agricultural settlements with the conservative attitude that is usually associated with such areas. In addition, the technology of flight and the nearness to the US military base have made the people of Sudurnes more interested in modern and international culture than in most other places in Iceland. Because of this, many of the first pop music bands originated in Keflavík, where there is now a museum for pop music. The idea of building a military museum has also been discussed.

As in many other places, improvements in transportation opened up new epochs in Reykjanes. The most important event was the building of the *Reykjanes Highway* in 1965, which was the first road outside of towns to be paved. This opened up the possibility of close co-operation between Sudurnes and the Capital Area. The US military paid part of the costs because at that time most of the supplies for the base were shipped to the harbour in Reykjavík. In 1986, the US navy built an oil harbour in Helguvík Inlet. This harbour gives the area new possibilities to develop industries that need access to a good harbour, and now the construction of a steel pipe factory has been launched.

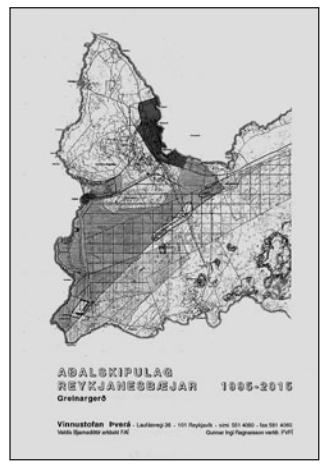
The presence of the military base in Keflavík of some 5000 people has meant that it was easier for the communities in Sudurnes to start large projects like a water supply system and a



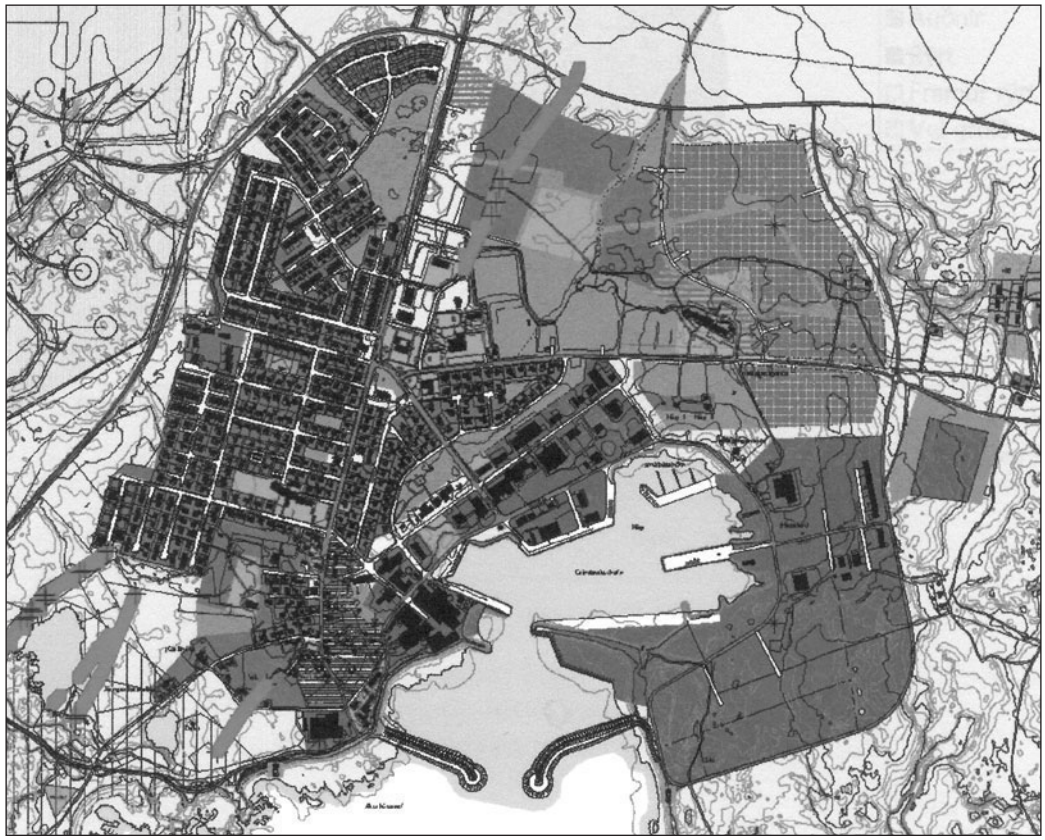
Two large industrial areas at the port in Helguvík. The slope down to it is steep, however.



Airport noise zones outlined in grey. They and approaches put constraints to development.



The Reykjanes community. Military base not included.



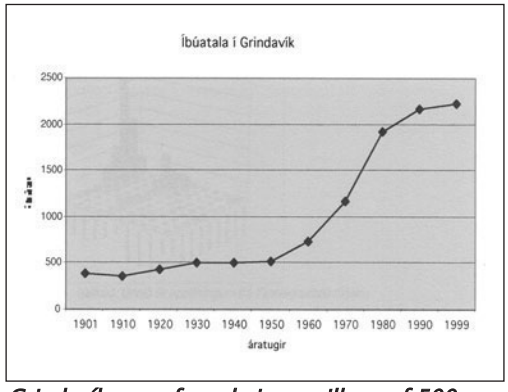
The 2000–02 master plan of Grindavík. Its goal is that the settlement will form a circle around the harbour. The outer breakwaters increase security. Broad grey lines indicate fissures.

central heating system, taking the hot water from the Blue Lagoon area. On the other hand, there have been negative side effects, like pollution of the soil and the noise connected with the airport, which mean a reduction in the possibilities of land use. The noise from the airplanes and also from the traffic along the highway leading to the airport mean that the area to the west is not suitable for development. Therefore the settlements of the future will be elongated, as they are today, rather than clustered. Today the town of Reykjanesbaer – created by the unification of Keflavík, Ytri-Njardvík and Innri-Njardvík – is rather scattered, as are so many towns in Iceland. Moreover, the Njardvík Inlet itself splits the area in two.

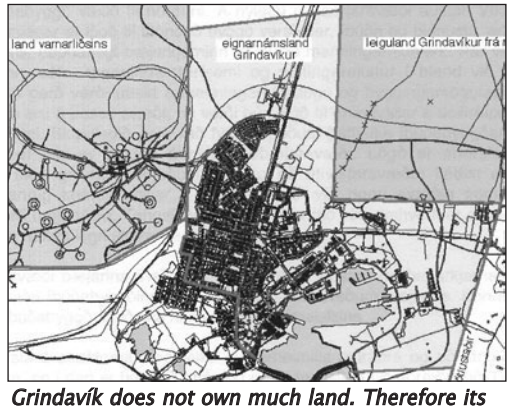
In a recent plan worked on by the Thverá Company this inlet has been dammed with landfill so that inner part has become a lagoon. Perhaps the inner part of the inlet should be sacrificed to create a building area in order to connect the settlement more than it is today.

There are certain uncertainties about what will happen in the future in Sudurnes. The USA have been cutting down their base, and it is possible that operations will be reduced to an absolute

Grindavík's territory is very large.



Grindavík grew from being a village of 500 people in 1950, to 2500 people in 2000.



Grindavík does not own much land. Therefore its growth opportunities are somewhat limited.

minimum. Further reduction would mean that many people in Sudurnes would lose their jobs and the service activities that are now partly financed by fees paid by the US military will be considerably reduced. The increased civilian air traffic through the Keflavík Airport has, however, already started to work against the decline. The number of passengers grew from 235,000 in 1990 to about 930,000 only five years later.

Cargo transport by air also has been constantly increasing, or from 13,300 tons in 1990 to 17,200 tons in 1995. This is mostly due to the increased export of fresh fish. The nearness to this, Iceland's only cargo airport, will mean that many companies will like to settle here to take advantage of the proximity to the airport.

Things might change in the future, however, because some experts estimate that already around 2015 the maximum production of oil in the world will be reached, whereas at the same time the third world will be increasingly industrialized. This situation will call for a higher consumption of petroleum products in those countries. Therefore, it is to be expected that prices of these products will increase in the future and will affect the cost of operating airlines, quite possibly to the point that air cargo transportation will not be economical. If an increase in oil prices reduces the strength of European economies and leads to an increase in the cost of air fares, the number of tourists coming to Iceland may well drop. The future of Sudurnes is therefore in many respects rather uncertain.

The introduction of fishing quotas has meant a concentration of fishing in some towns in Iceland and the concomitant loss of quotas in some other towns. This is the case with the towns in Reykjanes except for Grindavík. *Grindavík* has a unique position, shared with *Thorlákshöfn*, that these two towns have the only good harbours on the entire south-west coast of the country, not counting the Westman Islands. Development of the Westman Islands, however, may be hampered by the fact that both people and companies – as most often happens on islands – may consider it too difficult to be without a road connection to fish markets and service areas on the mainland.

If the activity in the Westman Islands is still further reduced, the importance of Grindavík and Thorlákshöfn will increase because they are the only other towns that are close to the fishing grounds south of Iceland.

Grindavík was only a small village until about 1950, with a population of only about 500. Around 2000, the number of inhabitants, however, had grown to about 2500.

The Blue Lagoon is within the area over which Grindavík has jurisdiction, which has meant that some tourist activities have also been directed towards the town. When the roads from there to the Reykjanes Lighthouse and to the east to Krýsuvík – and from there to the southern lowland – are built, the position of Grindavík will be strengthened. Grindavík can therefore be seen as having rather good possibilities for tourism.

The Grindavík harbour used to have one great flaw, namely that the ship channel was very dangerous. Therefore, a second pair of breakwaters was built further out to provide entrance to the harbour through calmer waters and should make outfitters readier to operate their ships out of Grindavík.

The town of Grindavík has jurisdiction over a very large area that extends east to beyond Lake Kleifarvatn and from there far into the Hellisheidi Heath. High temperature areas are located in this region, as well as in Svartsengi – where the Blue Lagoon is located – and at the tip of the Reykjanes Peninsula. Grindavík will benefit from the development of the generation of electricity from the use of geothermal steam, which now seems to be starting.

The Krýsuvík area south of Lake Kleifarvatn is under the jurisdiction of Hafnarfjördur. This is supposedly because Hafnarfjördur assured itself of the geothermal rights there and in the process bought land, part of which belonged to the poet Einar Benediktsson. This has meant some strife between Grindavík and Hafnarfjördur. These disagreements are probably the reason why the Reykjanes outdoor area around Lake Kleifarvatn has not really taken off as a tourist region. This area, however, certainly has very good possibilities for tourism and outdoor activities.

The Reykjanes Country Park has already been created by some of the communities in south-west Iceland in order to pave the way for further developments in this area. One of the preconditions for the communities to be willing to invest in the area is that the state must invest money in road construction in this southern part of the Reykjanes Peninsula, thus opening up possibilities for circular routes. When these roads have been built it is to be expected that not only the park, but also the whole Reykjanes area, will be one of the most unique and diverse outdoor areas in the country.

Conclusions

This last chapter will make no attempt to draw conclusions about specific matters dealt with in the 120 separate sections of this book. The idea, on the other hand, is to try to draft a picture of a *new understanding of creating human habitats*, which is meant to be the central motif of this book.

The beginning of the book traced how much nature itself has influenced how the settlements in Iceland have developed. In this respect it is necessary to consider two main aspects. First, various forces of nature formed the country itself over a span of millions of years. Secondly, nature has also had a great deal of effect in shaping the human habitat that slowly started to develop in the first stages of the history of the country.

This book has presented the *forming of human habitat* as an analogy to *the forming of natural habitats*. It is advantageous to use this comparison because most people know how much knowledge and understanding are needed to be able to understand how habitats relate to the natural conditions. The natural sciences have created a rather clear picture of how the various life forms were created on earth, starting with primitive forms and gradually evolving to more complicated ecosystems, each created in accordance with the conditions present at each location.

It is interesting to keep this story in mind as a picture is drafted of how the human settlement structure was developed in Iceland. As the first settlers arrived in the country, they found a completely uninhabited land, and the settlements developed slowly and in close relationship with the naturally given conditions. As time passed, the settlement structures constantly underwent changes.

To start with, there was almost no formal societal structure in Iceland, only the primary unit of *the family* in each area. In time, somewhat larger social structures started to crystallize within the various areas. Then the individual farmers entered into a reciprocal relationship with the *godar*, who were both chieftains and priests. *Godar*-chieftains and farmers met yearly in the open air at Thingvellir to deal with legal problems and social needs. In time, this banding together led to the establishment of a state, though the family remained the backbone of Icelandic society.

The last step in this *crystallization*, the establishment of *the nation state* with its centralization of governance and other functions, did not really reach Iceland until the twentieth century. This, among other things, was because the settlements were like a collar around the country, a collar cut into parts by sometimes impassable rivers, fjords and ridges. The geographical centre of the country – where usually the best conditions are found for a central government – was empty and void, almost a desert.

This book tries to draft a picture of how the settlements developed by describing the various and ever-changing factors that affected their formation in terms of the natural conditions, the economy and level of technology, transportation and social factors. The purpose of this *procedural description* is not least to provide an understanding of the dynamism involved in the forming of settlements: how everything is in constant flux, influenced by constantly changing conditions.

It is one of the basic lessons of this book that the built environment is not static and unchangeable, as it appears at a quick glance at only a short period of time. To look at it in a vast historical time frame – as in this book – is to discover that settlement structures are ever-changing and that they have changed an unbelievable amount with the passing of time. Even changes that seem to be minor, like a minor occupational change or the building of a new bridge or tunnel, can lead to a profound change in how a settlement develops.

It is this overview of the creation and nature of the built environment that this book is meant to present. One of the gains of such an overview is that it is easier to locate oneself, while studying a particular area or a particular period in time, in the history of settlements.

The importance of having a clear description, as well as a selection of analyses of the basic phenomena – be it a society, a settlement structure, educational systems or something else – is a prerequisite for being able to discern the characteristics of the subject studied.

An assessment of today's situation, as well as the future possibilities of various urban and rural areas in Iceland, is important. This is because enormous changes are taking place in the whole makeup of what a society is, not only in Iceland but also globally. These social changes are given various names. Theoreticians talk about the change from the pre-industrial period to the knowledge society in the more developed countries. In Iceland, we should rather talk

about a change from the primary industries to service and knowledge industries.

Planning is a tool that is applicable for analysing the development of settlements. When such a base has been created the next step can be taken, namely to consider means to reduce the drawbacks and to create new opportunities.

Unfortunately in Iceland a dated understanding of planning is prevalent – the belief that planning means to usurp power from the people and to limit their democratic choices. This has often happened in history, but there is, in fact, no need to regard planning as only the tool of an empowered elite. Planning is, rather, a tool that includes examination of possible alternatives, with their positive and negative aspects, and which has the possibility of assuring suitable progress and finding ways for opening new developments.

The conclusion is that the elitist way of thinking, that there should be an upper class in the country which governs and shapes, is wrong. Instead, another kind of a vision for the role of planners is emerging, a vision that means that planners should be regarded as advisors who prepare the necessary data for the public, politicians and companies in order to facilitate the search for and study of paths to the future.

The last part of this book deals with this changed understanding. It drafts a picture of changes that are taking place in the present within planning theory and the modes of thinking. It is primarily in the way people think that changes need to take place because our ideas and conceptions, and how we plan and work, are based on how we think.

Iceland is still involved in the process of moving away from the older rural society into a more urbanized society. The current level of urbanization in Iceland can be seen as an intermediary step between urban and rural society. Dense urban areas, like those known in most other countries, hardly exist in Iceland.

In some areas of the country it will continue to be most appropriate to maintain a rural flavour and not to aim for the greater density of urban areas.

On the other hand, there is an emerging demand – primarily among the young generation – that in some areas of the country urban life should be created. This makes it necessary to aim for planning and developing dense urban areas in certain locations, primarily in the greater Reykjavík area.

In connection with the necessity of creating denser settlements, recent environmental demands, together with foreseeable increases in petroleum prices, will make it necessary to plan at least some part of the urban areas in Iceland in such a way that people can live there comfortably without a car. Such planning is today carried out in many cities in the world. In some of them the density and the mixing of functions is sufficient to justify running a proper public transportation service that is acceptable to the different age groups. In the widespread Capital Area in Iceland only about 4% of each day's trips make use of the bus system, which is an indicator of the problem.

Many planning measures can definitely be implemented in order to create the environmentally friendly city of the future. As so often before, looking back through history provides insights – for instance the history of old Reykjavík – to look for a model. Here we are primarily talking about the first part of the twentieth century, when Reykjavík functioned quite well with very few cars. At that time, the way the town was planned assured enough density.

The working places, shops and homes were close enough to each other and mixed to such a degree that people could reach almost everything they needed on foot. Planning could be accomplished in a similar way today. The result would be *environmentally friendly planning*.

In contradistinction, an urban area will never be defined as environmentally friendly if it is almost impossible to live and function within it without a car. This holds true not least if car ownership, to a surprising degree, is characterized by super jeeps weighing about two tons each, as is common in Reykjavík.

In light of this, it is very strange that some people have conceived the idea of defining Reykjavík as "the most environmentally friendly capital of the north". This simply exposes a fundamental misunderstanding of what ecological planning is.

It is, however, certainly true that Reykjavík, like many other settlements in Iceland, has the great advantage of having electricity and space heating produced by hydropower and geothermal energy. But, even though these are certainly very ecologically friendly aspects in the running of cities, this is very far from being the same as ecological planning of cities and urban areas.

References for the Chapters

In this list of references specialized documents used in writing this book are listed. The references are ordered by chapters and pages and give the background for the many aspects of planning and settlement that are described in the book. Each reference starts with the *page number* it refers to, and – if it deals with a direct quote – *the column (C)* and *the line (L).*

The arrangement and planning of a settlement is very much influenced by the general history of industry, trades, communication, government and the natural environment. This book follows this general historical thread of the country, right from the beginning of settlement to present times. Documents on this general frame are listed in *General References* on page 458.

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Byst	Byggdastofnun
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ESB	Evrópusambandid
ESv	Einar Sveinsson
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Flustj	Flugmálastjórn
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IRH	Inga Rut Hjaltadóttir
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KrEld	Kristján Eldjárn
Lbs	Landsbókasafn
Lbs	Landsbókasafn
LCorb	Le Corbarier
LjsR	Ljósmyndasafn Reykjavík
LM	Landmótun
LmÍsl	Landmaelingar Íslands
LogV	Landnám og Vínland ferdir. Sýning
LS	Leifur Skúlason
LSR	Listasafn Reykjavíkur
LV	Landsvirkjun
MiA	Minjasafn Akureyrar
MogE	Miljø and Energi Ministetiet
Nfst	Náttúrufraedistofnun
Nvernd	Náttúruvernd
ÓG	Óskar Gíslason
OGu	Orri Gunnarsson
ÓlKM	Ólafur K. Magnússon
ÓmRa	Ómar Ragnarsson
OSig	Oddur Sigurdsson
PBr	Pétur Brynjólfsson
PLang	Pattern Language
PTh	Pétur Thomsen
RALA	Rannsóknast. landúnadarins
RH	ReykjavíkurhöfnE
R-lis	R-listinn (Leftists in Reykjavík)

Rmstj	Raforkumálastjóri
RSk	Ragnheildur Skarphédinsdóttir
Rsk	Rammaskipulag
SaJ	Salvör Jónsdóttir
SEym	Sigfús Eymundsson
SG	Sigurdur Gudmundsson, málari
SGu	Sigurdur Gudmundsson
SH	Sigurdur Hauksson
Shbsv	Skipulagsstofa hbsv.
ShVi	Sigurhans Vignir
Sjfl	Sjálfstaedisflokkur (Cons. in Rvík)
SkAk	Skipulag Akureyrar
SkÁrb	Skipulag Árborgar
SKBe	Skipulag Bessastadahrepps
SkGb	Skipulag Gardabaejar
SkGr	Skipulag Grindavík
SkHfj	Skipulag Hafnarfjardar
SkHsv	Skipulag Höfudborgarsv
SkÍs	Skipulag Ísafjardar
SKK	Skipulag Kópavogs
SkMo	Skipulag Mosfellsbaejar
SkMo	Skipulag Mosfellsbaejar
SkNo	Skúli H. Norddahl
SKR	Skipulag Reykjavíkur
SkRb	Skipulag Reykjanesbaejar
SkSe	Skipulag Selfoss
Skst	Skipulagsstofnun
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Skvsv	Skipulag varnarsvaeda
Slátl	Sudurlandsáaetlun
Srádun	Samgönguráduneyti
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SvskH	Svaedisskipulag Hérads
SvskHbs	Svaedisskipulag höfudborgarsv.
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ThoGa	Thorsteinn Gardarsson
TM	Tryggvi Magnússon
UMst	Uppl. og merkjafraedistofa HÍ
Urn	Umhverfisráduneytid
USt	Unnsteinn Stefánsson
VaKr	Valdimar Kristrinsson
Vfátl	Vestfjardaráaetlun
Vg	Vegagerdin
YThL	Yngvi Thór Loftsson
ÖSig	Örn Sigurdsson
ÖSk	Ögmundur Skarphédinsson

Very many of the figures in the book are provided by the planning documents of various institutions, which are most, often the planning offices of towns and areas.

The author of this book and his collaborators has made more than half of the figures in the book. It is one of the purposes in publishing it to make this material obtainable for research and discussion.

Everybody can use this figures free of charge.

The author conceived off or directed the making of maps and figures on pages: 25, 21, 32, 40, 41, 42, 43, 44, 51, 52, 60, 61, 63, 64, 65, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 88, 89, 94, 96, 97, 100, 101, 103, 104, 105, 107, 108, 109, 143, 144, 162, 170, 172, 179, 188, 191, 203, 205, 227, 228, 229, 230, 231, 240, 241, 242, 244, 248, 249, 251, 256, 261, 267, 272, 275, 289, 293, 301, 306, 334, 342, 344, 345, 353, 354, 355, 336, 337, 338, 339, 362, 366, 367, 383, 387, 388, 407, 412, 416.

The auhtor of the book took photos on pages: 13, 14, 16, 17, 26, 28, 32, 35, 36, 37, 40, 41, 85, 122, 143, 148, 154, 227, 266, 305, 326, 334, 336, 337, 370, 374, 375, 379, 380, 385, 386, 389, 417, 419, 420.

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Summary

PLANNING IN ICELAND
From the Settlement to Present Times

Although this book has the outer form of the planning history of Iceland, the main aim is, however, to clarify what forces have been at work in Iceland in shaping its spatial development.

The knowledge gained by this study is used, in the later chapters, for defining what have been the main underlying forces in the spatial development of the past and what forces have come to the fore in the development of modern Iceland.

The defining of trends as concerns these underlying forces is the key to identify where the spatial development of the country is most likely to be going in the future.

Iceland, being an island, rather far away from other countries, is a very clear-cut unit for studying spatial developments.

The geographical fact that the country is an island is, however, not the only reason why Iceland is an excellent "laboratory" for studying, spatial development and the forces that have shaped that development.

When Norse Vikings discovered Iceland in the 9th century, except for a few Irish monks, it was uninhabited. This meant that the first settlers had a free hand in choosing a territory for their habiting, in a country almost as pristine as the first day after Creation.

Presumably something similar happened in other places in the early history of man, but the difference is that the story of settlement in Iceland was documented avid writers that the Icelanders came to be, after first preserving the knowledge through oral tradition.

The most important body of writing deals with how Iceland was discovered and settled. The most complete of these writings is *The Book of Settlements*, which describes the story of settlement in surprising detail. In the centuries that followed the further spatial development was continuously documented. The life and the issues of the country were further described in the sagas themselves.

In the 1960's, ecology - the study of the system and interdependence of life forms and the environment of man and nature - became an issue of central importance because of serious breaches in this harmony in many places in the world. To put it in a simple and practical way: people started to understand better that if the environment is not healthy and does not match the biota residing there, the life forms will frequently cease to be healthy or even to exist.

During the 1960's interpretation of this necessary harmony shifted towards the natural sciences. The most famous book on the subject was *Design with Nature* by Ian McHarg.

In the present book *Planning in Iceland*, the central theme is also the necessary unity of man and nature, the harmony of the lives of people and the environment in which they dwell. This is also the basic theme of prolific studies in human ecology and the principles that underlie the development that is now taking place in the world.

In the "laboratory" of trial and error in Iceland, through a span of over one thousand, well-documented years, we have a body of findings and an environmental record that evidence both a good fit between man and nature and the times when nature "won". These findings are very practical, as we now, increasingly, have to strive towards an accord of man and nature, an accord that, to be effective, must be based on understanding.

The privilege of the thousand-year laboratory is not the only great thing about studying this "language" of man-nature relationships, in Iceland, there are also two other good reasons. The first reason is that on this island the very geological story of how the island was created, as it arose through volcanic eruptions from the tectonic ridge of the Mid-Atlantic, is easily traceable.

During this geological process the country was also constantly formed by the external forces of ice and waves and weather. This evolutionary story provides a unique possibility for tracing back to the very beginnings how the topology and natural features of the land-originated -and in fact are still being formed.

The second reason why the man-nature relationships are so easy to "read" in Iceland's history is because the survival of both man and natural features were very often at a critical stage in this fragile arctic and volcanic environment. Both humankind and the natural ecosystems therefore reacted very strongly to the changes in the environment.

The pioneer in studying the history of the cohabitation of humans and nature in Iceland was the late geologist S. Thórarinsson, who traced the story of volcanic eruptions and periods of cold years, and demonstrated how

these formed and changed the spatial development of Iceland.

The present volume is divided into five books, together with a lengthy introduction. The introduction and Book One deal with the relationship of humankind and nature as now described.

Book Two proceeds to describe the first steps in the shaping of this settlement. It describes how features like systems of transportation and societal systems such as local governments gradually crystallized into the settlement structure of the 19th century in Iceland.

In the nineteenth century urbanization started in Iceland and Book Three describes the early steps in that process. At the beginning of the twentieth century, Reykjavik already had become a small town.

Several chapters trace its devel-opment into the later part of the century. The development of other towns is discussed at appropriate places in this description of how a modern urbanized structure evolved in Iceland.

Book Four is called "The Evolving of Countrywide Systems". It starts by describing the building up of societal and technical infrastructures, and then proceeds to describe how various Regional Development Plans were conceived of in the 1960´s and 70´s, which were the heyday for that kind of planning.

Another type of planning emerged with the idea of Nature Conservation around 1970, which was the first International Year of the Environment. These plans later evolved into a system of plans on Sustainability. This kind of planning has been greatly promoted by Agenda 21, which resulted from the Rio conference in 1992.

The last chapters of Book Four deal with various other types of plans that need to be given emphasis today, like the utilization of the hydropower and geothermal resources of Iceland.

The last two chapters deal with the necessary future task of planning the utilization of ocean areas, together with the harvesting of fish stocks. The final chapter of Book Four, however, is devoted to the idea that a Country Plan for Iceland is needed.

Finally, in Book Five, the most recent developments are described, starting with a description of some new modes of thought that are emerging with the new millennium. And a new type of thinking and a new set of values mean a different type of planning.

The last chapters of Book Five deal with the latest developments in the main urban areas of Iceland. It has become a rule that in the year of local elections the governments in power publish their plans for the future.

The latest elections took place in the spring of 2002, and the last chapters of the book thus describe these latest plans for the largest towns, meaning plans for Reykjavik and the other main towns of Iceland, which are principally located in the south-west.

The south-west already has almost 80% of the country's population. Here the main harbours are located, as well as Keflavik Airport. Many people are now forecasting that this area will actually become The New Iceland, possibly with over 90% of the population in as soon as about twenty years. Therefore, it is of the utmost importance to study this area, if one wants to get a picture of what the Iceland of the future is going to be like.

Epilogue

This book was first published in Icelandic in 2002. The English edition is intended to give foreign readers access to the story of how settlements and urban areas have evolved in Iceland – from the very first beginnings.

Numerous experts provided good advice and read chapters during the formative stages of the book. The author, however, alone carries the ultimate responsibility.

Some of these experts should be named: Birgir Jónsson, geo-engineer, Stefán Thors, the State Planning Director, Thorsteinn Thorsteinsson, engineer, and Helgi Thorláksson, professor of history.

At the back of the book there are short CVs of about 125 professionals who have been educated or have a long occupational experience in planning. Only people from four disciplines are included, i.e., planning, architecture, engineering and landscape architecture. In writing the CVs, recently published directories listing professionals were of great help. The publishers gave their permission for the use of information and photos from these books.

Only a few authors of detail plans are listed because detail planning belongs as much to architecture as it does to planning.

Though was decided to tell this story of planning in Iceland from the viewpoint of professional people, the making of plans and programmes, of course, also has a political side and many politicians have been interested and active within the field of planning and have often served as heads of planning committees. That politicians are not included in this list and are only occasionally mentioned in the text is not because their work is of less importance, but rather because if this were told from a political perspective, it would be a very different story. Such a story of course needs to be written. It would deal with the development of political ideas on the built environment, both as concerns the settlement policy in Iceland and the planning of urban areas.

The politicians certainly, in most cases, have the final responsibility for the plans, and decisions made based on them. It is, on the other hand, very important that the professional side of planning, i.e., the advice politicians get, is brought into the public domain.

It is important that professionals of planning will be able to position themselves in a way similar to those in medicine and architecture, i.e., that they develop a similar professional responsibility and ambition. Today planning professionals are mostly kept in the background in the presentation of plans. It is therefore important that they are given the opportunity to enter the scene in a professional realm to create a counterweight to the political aspect of planning.

The importance of professionals in public discussion is known from many fields. The role of academics, for instance within the area of economics, is widely acknowledged as an important force to counteract the tendencies of politicians to make decisions based on a short-term view or to be overly. Concerned with their constituencies and to overlook the bioad picture. Academic professionals and theoreticians have the duty to point out the long-term views, as well as basic professional rules.

Many institutions have helped make this book. For the Icelandic edition, grants were received from Hagthenkir, Menningarsjódur, The Urban Studies Centre and the Development Division of the City of Reykjavík. For the realization of the English edition funds were received from Thýdingarsjódur, Saxhóll, the Ministry for the Environment and the Ludvig Storr Fund. My thanks go to them all as well as to those who lent pictures for the book.

The process of translation began, with the author's rough draft that to a certain extent was a reconceptualization, among other things because some aspects needed to be described differently for a foreign audience.

I am grateful to Terry G. Lacy for providing invaluable editorial assistance as well as checking the English text. Sara Stefánsdóttir, Oddfrídur Helgadóttir, Gunnhildur Jóhannsdóttir and Gudrún Bryndís Karlsdóttir helped on various aspects of this edition. My thanks also go to Sir Peter Hall of the University College of London for writing the preface. Sir Peter is one of the most prolific and respected writers on planning in the world.

Finally, a few words on three special Icelandic letters. Some of them appear in place names in old maps and drawings but in the newer ones and in the text they have been replaced by letters used in English as follows: *þ* becomes *th*, *æ* becomes *ae*, and *ð* becomes *d*. The English word *fjord* is so similar to the Icelandic *fjördur* that it is used in place names.

Trausti Valsson

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Thórarinsson, Gudlaugur: *Hálendisvegir.* Final project at U of Icel., 1991

Thórarinsson, Sigurdur: *Samspil lands og lýds í 11 aldir.* In Saga Íslands I. Reykjavík, 1974

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Valsson, Trausti: *A Theory of Integration for Design and Planning Based on the Concept of Complementarity.* PhD thesis. UC Berkeley, 1987

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Valsson, Trausti (editor): *Um hálendisvegi.* Samgönguráduneytid, Landsvirkjun og Vegagerdin, Nov. 1988

Valsson, Trausti and Jónsson, Birgir: *Ísland hid nýja,* Reykjavík, 1997

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Planners in Iceland

Planners, architects, engineers and landscape architects that have a long career or education in planning (*registered planner in Iceland by the Ministry of Industry).

Andrésson, Baldur (1949-). Studied archit. and plan. at AS in Aarhus, Denmark, 1974-80. Courses at Nordplan, 1983. Career: State Plan. Agency, 1980-87.

Ásgeirsson, Ásgeir Th. (1926-). BS in plan. eng. from MIT, Cambrigde, Mass., 1948. Career: Eng. in the Office of Planning of Town and Villages, 1948- 51. Traffic eng. at the City of Reykjavík, 1955-94.

Ásgeirsson, Einar Th. (1942-). Studied archit. at TH in Hannover, 1963-69. Projects: Ecological architecture from 1986. The first ecological urban plan at Hellnar, 1996. Writings: Many articles.

Ásgeirsson, Kristján (1956-). Studied archit. at the Royal Acad. in Copenh., 1977-84. Career: Reykjavík Plan. Office, 1984-88. Plan. Dept. of Hafnarfjördur, 1988-93. Projects: Beautification of Laugavegur St., Detail Plan of Nónhaed in Kópavogur (1991), with B. H. Sigurdsson.

Ármannsson, Pétur H. (1961-). Studied archit. at Univ. of Toronto, 1981-86. Further studies at CU, Ithaka, 1988-90. Career: Dir. of Architectural Dept. of Reykjavik Art Museum from 1993. Writings: Heimili og húsagerd (Homes and constructions), 1967-87, AB Publ., 1987. The Development of Reykjavík in the 1920s and 30s and the Impact of Functionalism. Ad Notam Gyldendal, Oslo, 1995. Einar Sveinsson, City Architect of Reykjavík, Reykjavík Art Museum, 1995. Numerous articles and television projects.

Baldvinsson, Baldvin E. (1945-). Civ Ing from DTH in Copenh. 1971. Career: Reykjavík Development Office, 1972-85. Chief eng. at Reykjavík Traffic Dept.

Bergmann, Börkur (1952-). Studied architecture at ENS des BA, Paris, 1972-78. PhD in Sémiotique at E des HE en SS, Paris, 1978-79. Career: Prof. of Archit. at the Univ. of Québec. Projects: Plan. of the Cartier Airport area in Montréal (1990), not built. Other: Resid. area in Kópavogur, 1980, with others. Writings: On the IBA-Exhibition in Berlin, 1988. Module de Design de l'environnement. Research into the history of Modernism in Iceland. Results pending. Structure of settlements in the Saint -Laurent Valley, research 1986-90, see SILO nr. 5/6, 1996.

Birgisson, Finnur (1946-). Studied archit. at TU, Hannover, 1968-74. Career: Dir. of Planning in Akureyri, 1979-88. Projects: Master Plan of Akureyri, 1990-2010 (1989-90). Master Plan of Dalvík. Detail Plan of Innbaer and Fjara, Akureyri (1983-85). Various detail plans in Akureyri and Dalvík. Writings: numerous articles.

Bjarnason, Hördur (1910-1990). Studied archit. at TH in Darmstadt, Germ., 1931-34. Studied at TH in Dresden, 1934-37.
Career: Deputy of State Planning Commission, 1938-39. Head of Office 1939-44. State Plan. Dir. from establishing of that office, 1944-54.
Writings: numerous articles in newspapers and magazines, such as a regular column called "Baerinn okkar" (Our Town) in newspaper Vísir, 1948-62.
Other: In the State Planning Commission 1954-79.

Bjarnadóttir, Hólmfrídur* (1970-). BS in Plan. from Univ. of Newcastle Upon Tyne, 1996. MS in Plan. from same univ., 1996.
Career: State Planning Agency, 1996-99. Nordregio in Stockholm from 1999.
Writings: articles, mainly on EIA, in the publications of Nordregio.

Bjarnadóttir, Valdís (1946-). Studied archit. at TH in Darmstadt, Germ., 1986-74.
Career: Own office, Thverá.
Projects: Master Plan of Reykjanesbaer and Grindavík.
Writings: The Planning of the Old Neighbourhoods' Traffic, 1991 and various plan reports.

Björnsson, Benedikt (1950-). Studied: archit. at AS in Aarhus, 1974-81.
Career: State Planning Agency in Reykjavík, 1982-88. Also in the Akureyri Office, 1988-93.
Projects: Master Plan of Eyjafjardarsveit and Svalbards-strandarhreppur, 1995. Reg. Plan of Eyjafjördur (2002).

Björnsson, Jakob (1926-). Cand. Polyt. in electrical eng. from the DTH in Copenh., 1953.
Career: Prof. at Univ. of Icel., 1972. Dir. of the Energy Agency, 1973-199?.

Björnsson, Valgeir (1894-1983). Civ Ing from DTH in Copenh., 1921.
Career: City Engineer and Register of Lots in Reykjavík, 1924-43. Dir. of Reykjavík Harbour, 1944-65.

Bragadóttir, Halldóra (1960-). Studied archit. at TH in Lund, Sweden, 1980-85. Courses at ILAUD in Siena, 1984.
Projects: Detail Plan for residential service and industrial area at Fífuhvammur in Kópavogur (1994) at the Town Plan. Dept. in Kópavogur.
Other: planning of the Naust neighbourhood in Akureyri, 1997, 1st prize, with others.

Bragadóttir, Helga (1954-). Studied archit. at Ah in Oslo, 1975-80.
Career: at the Reykjavík Planning Office from 1984. Work and training at the City Plan. Office in La Rochelle, France, autumn 1991. Dept. Head of Building and Plan. in Reykjavík from 2002.
Projects: At the Reykjavík Planning Office; Detail Plan for a residential area in the Borgar neighbourhood (Part B) in Reykjavík (1995). Neighbour-hood Plan for City Section 7.
Other: Detail Plan of West-Seltjarnarnes, 1994. 1st prize with Á. Sveinbjörnsdóttir and I. Kristjánsdóttir.

Briem, Richard Ó.* (1950-). Studied archit. at TU in Berlin, 1971-76. Studied at the Royal Inst. of City and Landscape Plan., Copenh., 1977-80. Projects: One of the authors of Reg. Plan of the Capital Area, 2002-2024. Other: Plan. of Geldinganes, 1989-90, 1st prize, with others.

Einarsdóttir, Bergljót (1956-). Studied archit. at NTH in Trondheim, 1977-82. Long distance studies in GIS in Amsterdam. Career: Reykjavík Plan. Office, 1985-87. At the State Plan. Agency from 1991. Planning Dir. of Gardabaer since 1999. Other: Urban Living, competition of The Physicians' Assoc., 1984, 2nd prize, with others.

Einarsson, Sigurdur (1957-). Studied archit. at the Royal Acad. in Copenh., 1978-85. Projects: Master Plan of Bessastadahreppur, 1991, 1st prize, in co-operation with J.Ó. Ólafsson and Th. Hauksson. Town Council Square and Skátagil in Akureyri, 1987, 1st prize. Other: In the Plan. Commission of Hafnarfjördur since 1994. Gjóla – On Planning in Northern Areas, 1995, a citation. In the joint committee on the Reg. Plan of the Capital Area, 2002-2018, chair for a part of the time

Eiríksson, Svanur (1945-). Studied archit. at TH in Münich, 1963-71. Continued studies in planning at same univ., 1970-72. Career: Archit. in offices in Germ., working in planning an on the Olympic Village in Münich. Projects: Downtown area in Akureyri (1979 and 1996).

Elíasson, Jónas (1938-). Civ Ing from DTH in Copenh., 1962, Lic.techn., 1973. Career: Prof. at Univ. of Icel., from 1973. Projects: Chair of a study group studying the plan of the Fossvogur Valley (1990). Member of committee of planning of electrical distribution in Icel., 1985-88. Writings: Numerous articles.

Elmarsdóttir, Matthildur Kr.* (1966-). BSc in geography from Univ. of Icel. MSc in Plan. from Univ. of Toronto, 1994. Career: At the Reykjavík Harbour and the Univ. of Icel., 1994-95. Planner at Akureyri, 1995-98 at the State Plan. Agency since 1998. Writings: Various reports.

Erlingsson, Ólafur (1944-). Civ Ing from NTH in Throndheim, 1969. Career: representing VST in the Capital Area, Reg. Plan, 2002-2024. Other: 2nd prize on the planning on seaside towns, 1972, with others.

Gíslason, Gísli (1958-). BS in geology from Univ. of Icel., 1982. Landscape archit. from Lbh in Ås, Norway, 1991. Career: At the Nature Conserv. Council, 1980-88, Dir. 1984-88. Own office since 1988. Projects: Reg. Plan for the Central Highlands 2015. Writings: Various reports.

Gíslason, Unnsteinn* (1952-). Studied archit. at the Royal Acad. in Copenh., 1974-80. Further studies at Nordplan in 1984.
Projects: For the State Planning Agency: Master Plan of Bíldudalur 1986-2007. Master Plan of Selfoss 1987-2007. Master Plan of Eyrarbakki 1987-2007. Master Plan of Ólafsvík 1989-2009. A number of detail plans and EIA.
Writings: Assistance in the publishing of planning documents

Gudjónsson, Gylfi (1947-). Studied archit. at CWU in Braunschweig, Germ., 1967-73.
Career: State Plan. Agency, 1969.
Projects: A plan for Súdavík (1995), with S. J. Jóhannsson. Master Plan of Mosfellsbaer, with others.
Other: Nordic competition on the plan. of the Westman Islands, 1976-77, 2nd prize, with others. In the Plan. Committee of Reykjavík, 1978-82. In the State Archit. Conserv. Committee, 1983-86.

Gudlaugsdóttir, Ingibjörg R.* (1939-). BS in geography at Univ. of Icel., 1983. MUP from Hunter Coll., NY, 1988. Courses at Nordplan in 1985.
Career: At the Reykjavík Plan. Office, 1982-85 and 1988-02. Head of Master Plan Dept. Head of Innovation and Development since 2002.
Writings: Numerous articles.

Gudmundsson, Egill (1952-). Studied archit. at Ah in Oslo, 1972-78.
Projects: Detail Plan of the Húsa neighbourhood in Grafarvogur (1989), Smáratorg commercial centre in Kópavogur (1997-).
Other: The residential area on Eidsgrandi, 1980, 1st – 3rd prize with I. Sveinsson. Central area of Bessastadahreppur and the environment of Bessastadir, 1991, 2nd prize, with others.

Gudmundsson, Gunnar B. (1925-). Civ Ing from DTH in Copenh. in 1952. TH in Delft, 1963-64, in tidal and coastal engineering.
Career: Dir. of Reykjavík Harbour, 1965-88.

Gudmundsson, Halldór (1948-). Studied archit. at Royal Acad. in Copenh., 1971-76.
Projects: Proposal of Civil Aviation Authority for plan. of the Reykjavík Airport (2001).
Other: in the Traffic and Planning Committee in Reykjavík, 1996-98.

Gudmundsson, Ormar Thór (1935-). Studied at TH in Stuttgart, 1955-62. MS at Harvard, 1966.
Career: Plan. Dept. of the Reykjavík City Eng., 1962-64. Head of Dept., 1964-65.
Projects: Plan and buildings in the Hlídar and Brekkubyggd neighbourhoods in Gardabaer (1998). Master Plan of Neskaupsstadur (1981).
Other: Master Plan of Seltjarnarnes, 1976, 1st prize, with others.

Gudmundsson, Sigurdur* (1949-). BES and URP from Univ. of Waterloo in Canada, 1972. M of Phil from Newcastle

Upon Tyne in UK, 1975.
Career: Dev. Inst., on plans for settlement and occupational development, 1975. Head of Development Dept. of Reg. Dev. Inst., 1985-98. Advisor on reg. development at the National Economical Inst., 1998-02. Head of Office April-June 2002. On the board of NordREFO, 1977 and in other Nordic committees. Participation in Nordic research projects.
Writings: A number of reports and articles.

Gunnarsson, Ragnar Jón* (1957-). Studied archit. at Royal Acad. in Copenh., 1977-83.
Career: State Planning Agency, 1986-87 and 1990-94. In the Reykjavík Planning Office from 1997-2002.
Projects: Master Plan of Skagaströnd, 1998-2008. Detail Plan for Akra Square in Akranes (1989).
Writings: Various articles and lectures on GIS, Info-technol, and the plan. and design process.

Haflidadóttir, Hafdís (1954-). Studied archit. at AS in Aarhus, 1979-86. MAUD at W Univ. in St. Louis, 1993-95.
Career: Reykjavík Plan. Office, 1988-99. Planning Dir. of Hafnarfjördur, 1999-03.
Projects: In the R Plan. Office: Master Plan of Reykjavík, 1996-2016 and development plans for the downtown.

Hall, Örnólfur (1936-). Studied archit. at TH in Stuttgart, 1957-64.
Projects: Master Plan of Seltjarnarnes, 1976, 1st prize with O. Th. Gudmundsson, M. Baldursson and G. G. Einarsson. Plan for the area south of Skeidarvogur, 1981, 1st prize with O. Th. Gudmundsson.

Halldórsson, Gardar (1942-). Studied archit. at RWTH in Aachen, Germ., 1962-68.
Career: State Architect, 1979-96.
Projects: Planning of coastal towns, 1971, 2nd prize, with others.
Member of the State Plan. Committee, Chair,. 1982-84 and 1991-93. In the Plan. and Building Commission of Defence Areas since 1982. In the Plan. Commission of Reykjavík, 1970-78.

Halldórsson, Ólafur Brynjar (1957-). Studied archit. at Ah in Oslo, 1978-84.
Career: Reykjavík Plan. Office from 1984. Projects: For the Reykjavík Plan. Office: Master Plan of R, 1996-2016 (1994-97), Part A in the Borgar neighbourhood (1995-96).

Hallgrímsson, Helgi (1933-). Civ Ing from DTH in Copenh., 1958.
Career: Dir. of Roads, 1992-2003. Member of State Plan. Committee, 1992, Chair,. 1993-94.

Hallgrímsson, Hrafn (1938-). Studied archit. at TH in Helsinki, 1959-70. Courses in planning at Nordplan, 1979.
Career: Planning Office of Helsinki, 1971-73.
State Plan. Office, 1976-82. Head of Building and Plan. Dept. in the Ministry for the Env. since 1991.

Hannesson, Gudmundur (1866-1946). Physician from Univ. of Copenh. 1894.
Career: Prof. of Med. at Univ. of Icel., 1911.
Projects: Wrote a proposal for the first plan. law, 1921. Member of the State Plan. Commission for many years. The Commission worked on the first plans on towns in Iceland. Most of them were drawn at the office of the State Architect. In 1944 a special office was established for planning. Local people gradually overtook the planning of their towns.
Writings: "Um Skipulag Baeja" (On the Planning of Towns), 1916 and a great number of articles, such as in the journal of physicians.

Hardarson, Sigurdur (1946-). Studied archit. at TH in Otnäs in Helsinki, 1966-72.
Career: Plan. Dept. of the Reykjavík City Eng., 1971. Head of Reykjavík Plan. Commission, 1972-82. Member of Reykjavík Plan. Com., 1982-86.
Writings: Articles and radio programs.

Helgadóttir, Dagný (1949-). Studied archit. at Royal Acad. in Copenh., 1970-76.
Projects: In co-operation with G. G. Pálsson: Plan for Downtown Reykjavík (1983-86). Plan of Borgarholt in Reykjavík, 1990-94.
Other: Plan for south Mjódd, 1981-82, 1st prize with G. G. Pálsson.

Helgason, Ingólfur (1937-). Studied archit. at C of Arts in Edinburgh, 1956-65. Continued education in plan. at same univ., 1965-68.
Writings: Some articles in Thjódviljinn, primarily on public transport.

Hermannsson, Stefán (1935-). Civ Ing at the DTH in Copenh., 1961.
Career: City Eng. of Reykjavík, 1992-03. Member on joint committee on Reg. Plan in the Capital Area for 2000-2024. Chair part of the time.

Hjaltason, Thórarinn (1947-). Civ Eng from Univ. of Cambridge, UK, 1970. Civ Ing from DTH in Copenh., 1979 (Speciality: Transportation).
Career: At the Reykjavík Dev. Office, 1974-77, Plan. Office of Capital Area, 1980-85. Town Eng. of Kópavogur, from 1999.

Ísaksson, Gylfi (1938-). Civ Ing from TH in Münich, 1964.
Projects: Reg. Plan of Sudurnes, 1987-2007. Reg. Plan of Flói, 2011, with others.

Jeppesen, Knútur (1930-). Studied archit. at the Royal Acad. in Copenh., 1958-64.
Career: Became a member of office Höfdi in 1967.
Projects: Detail Plan in the Breidholt neighbourhood, 1966-1974, with S. Jónsson and G. Jónsdóttir.
Other: Detail Plan for downtown Mosfellshreppur, 1984, 1st prize, with G. Jónsdóttir and others.

Johnsen, Smári (1976-). BSc in Env. and Civ. Eng., Univ. of Icel., 1999. MSc in city plan., TU in Delft, 2003.

Career: At the City of Reykjavík, 1997-98. At VSO Consulting, 1999-01, 2003. Projects: Work on a plan proposal at Reykjavík Harbour, 2003.

Jónasson, Snaebjörn (1921-2001). Eng. from Univ. of Icel., 1946. Further studies at ETH in Zürich, 1947-48 and MIT, 1951. Career: Dir. of Roads, 1976-91. In the State Plan. Committee, 1976-91, Chairm. of joint committee for Capital Area, 1977-91, Chairm. of Reg. Plan. Committee for the Eyjafjördur, 1978-91. Chairm. of Reg. Plan. Committee for East-Bardaströnd and Dalir Counties,199-. Joint committee on Reg. Plan for the Central Highlands, 1994-2000.

Jóhannesson, Bjarki* (1949-). Eng. from Univ. of Icel., 1974. Studied archit. in TH in Lund, Sweden, 1974-77. Studied Plan. at Univ. of Illinois, 1981-83, MS in 1983. PhD in Plan. from OP, Oxford, 1986-88.
Career: Reykjavík Plan. Office, 1979-81. Plan. Dir. of Hafnarfjördur, 1983-86. City Plan. Dept. of Malmö, Sweden, 1989-98. Projects: Master Plan of Reykjavík – eastern area, 1981-98. Master Plans for areas in Malmö, residential area in Östra Torn at the Öresund Bridge (1990-96), Head of Programs Dept. of Reg. Plan. Inst. in Saudárkrókur, 1998-03. Head of Env. and Tech. Dept. in Hafnarfjördur, 2003-.
Writings: The Socio-cultural Role of City and Neighbourhood Centres in Modern Society, PhD thesis, 1992. Numerous articles.

Jóhannsson, Sigurdur (1918-1976). Civ Ing from DTH in Copenh., 1962.
Career: Dir. of Roads, 1956-76. in the State Plan. Committee, 1956-76. Chairm. of the Reg. Plan. Committee for the Capital Area, 1964-76.

Jónsdóttir, Gudrún (1935-). Studied archit. at the Royal Acad. in Copenh., 1958-63.
Career: Head of Reykjavík Dev. Office, 1979-80, and the Reykjavík Plan. Office, 1980-84. Projects: Plan for the Selja neighbourhood in Reykjavík. Reg. Plan South of Skardsheidi (1994), Reg. Plan North of Skardsheidi (1997). Reg. Plan of Skagafjördur, proposal, (2000-). Other: The Thingholt neighbourhood, 1st prize (1975-76). Detail Plan for Mosfellshreppur, 1984, 1st prize, with K. Jeppesen and others. In the Plan. Comm. of Reykjavík, 1990-98. Chairm. of Torfu Assoc., 1972-79. A member of State Plan. Comm., 1985-90. In the Nature Conserv. Council, 1993-96.
Writings: Reports on planning proposals, articles.

Jónsdóttir, Salvör* (1959-). BS in geography from Univ. of Icel., 1984. Continued studies in geography at same univ., 1990. MS in planning from Univ. of Wisconsin, 1994.
Career: Árbaer, archit. museum, 1980-86. State Plan. Agency, 1986-97. Research on environm. issues at Univ. of Wisconsin, 1997-02. Assoc. lecturer, Univ. of Wisconsin, 1999-02. Head of the new Plan. and Building Dept. in Reykjavík from 2002.

Writings: Numerous articles, primarily on country planning, archit. heritage and GIS.

Jónsson, Birgir (1946-). BS in geology from Univ. of Manchester., 1969. MSc in geo. eng. from Univ. of Durham, 1971.
Career: Geo. eng. at the Energy Institute, reader at Univ. at Icel.,1976-. Assoc. Prof. since 1999, Chair of Project Management Assoc., 1990-92.
Writings: Reports and articles. The book "Iceland the New" (1997) with T. Valsson.

Jónsson, Emil (1902-1986). Civ Ing from DTH in Copenh., 1925.
Career: State Lighthouse and Harbour Dir., 1937, with pauses, until 1969. Member of Plan. Committee of Towns and Villages, 1938-44 and 1954-57.

Jónsson, Gudlaugur G. (1951-). Studied archit. at the OTC, Oxford, 1962-63. Studied at RWTH in Aachen, 1964-72.
Career: Ministry for the Env., 1992-95. State Plan. Agency, 1995-96.
Other: In the Reykjavík Plan. Committee and Environm. Committee, 1982-86.

Jónsson, Pétur H.* (1956-). Studied archit. at AS in Aarhus, 1979-80. Studied at the Plan. Dept. of the Royal Acad. in Copenh., 1980-87.
Career: State Plan. Agency in the summer of 1983 and 1984. Own office.
Projects: Master Plan for Skálholt, Laugarás and Reykholt areas, in Borg and at Írafoss. Numerous plans for summerhouse areas in the upper south lowland.

Jónsson, Stefán (1913-1989). Studied archit. at the Royal Acad. in Copenh., 1956-60.
Projects: Detail Plans for Árbaer and Selás neighbourhoods (1961-62), plan for Lower-Breidholt (1963-65) and Ártúnshöfdi, industrial area, 1969, with R. Vilhjálmsson. Master Plan of Saudarkrókur (1969). Plan for the Selja and Mjódd neighbourhoods (1974) with R. Vilhjálmsson, G. Jónsdóttir and K. Jeppesen.

Kjarval, Jóhannes S. (1943-). Studied archit. at H-W Univ. in Edinburgh, 1966-73. Studied plan. at same univ., 1974-75.
Career: Dept. Head at Reykjavík Plan. Office, 1983-86. Plan. Dir. of Hafnarfjördur, 1987-99. Dept. Head at the Reykjavík Plan. Office, 1999-.
Projects: Plan for residential areas in Kringla district in Reykjavík (1976-79), with H. Viktorsson.
Other: Master Plan for Mosfells-hreppur, 1978, 1st prize, with others.
Writings: New Laugavegur Road, 1985, with K. Ásgeirsson. The Old Neighbourhoods Investigations, History, Settlements, 1980 with G. Jónsdóttir and Y. Th. Loftsson. Master Plan of Hafnarfjördur, 1990-2010 and 1995-2015. Reports, with others.

Kristiansen, Málfrídur Klara (1956-). Studied archit. at Ah in Oslo, 1977-84. Further studies, JF at C for MP and R, the JHU,

Baltimore, 1984-85.
Career: Reykjavík Plan. Office, 1987-88. Kópavogur Plan. Office, 1988-99 State Plan. Office from 1999.
Projects: Detail Plan for NW part of Fífuhvammur area in Kópavogur: 600 flats (1995), for the Town of Kópavogur.
Writings: Neighbourhoods Plans for East and West Kópavogur (1992-92), with others. Neighbourhood Plans 4 and 5 in Reykjavík (1987-88), with others.

Kristinsson, Jón (1936-).
Studied archit. at TU in Delft., 1966.
Career: Prof. in Environm. tech. at TUD, 1992-2001.
Projects: Numerous projects in his area of speciality.
Writings: Numerous articles on energy savings and environm. matters. The Royal Shell Environm. Prize in 1999.

Kristjánsdóttir, Sigrídur* (1967-). BS in geography from Univ. of Icel., 1974. MUP Univ. of Washington, Seattle, 2000. PhD to be finished in 2004 at Univ. of Birmingham, UK.
Writings: Reports and articles.

Loftsson, Yngvi Thór (1956-).
BS in geography at Univ. of Icel., 1977. MS in landscape archit. from Univ. of G., Ontario, 1986.
Career: Reykjavík Dev. Office, 1977-83.
Projects: Master Plan of Reykjavík, Regional Plan of the Central Highlands, 2015.
Writings: Öskjuhlíd, Nature and History (with H. M. Sigurdsson), reports with plans.

Magnússon, Kristinn Ó.
(1948-). Eng. from Univ. of Icel., 1948. Degree in plan. from CHTH in Götheborg, Sweden, 1976.
Career: Town Engineer of Hafnar-fjördur, 1995-03.

Norddahl, Skúli H. (1924-).
Studied archit. at NTH in Throndheim, Norway, 1947-51. Course in plan. at KTH in Stockholm, 1952.
Career: Plan. Dept. of Reykjavík, 1956-60. At Town Engineer in Kópavogur, Plan. Dir., 1969-89.
Writings: Articles, reports and radio lectures.

Ólafs, Björn (1939-). Studied archit. at ESA in Paris, 1958-63. Continued studies at Inst. d'Univ. in Paris, 1963-64.
Projects: Plan. work in Egypt and England. Marina in Grafarvogur (1998-2000) and in Arnarnesvogur (2000-02).
Writings: Articles in newspapers.

Ólafsson, Árni (1955-).
Studied archit. at CHT in Götheborg, Sweden, 1976-80.
Career: Plan. Dir. in Akureyri, 1989-2000.
Writings: Plan. of Sea-side Towns in Iceland, CHT, 1979.

Ólafsson, Gestur* (1941-).
Studied archit. at Coll. L., Leicester, 1961-66. Continued studies in planning at Univ. of Liverpool, 1966-68 and Univ. of Pennsylvania, 1966.
Career: London City Council. Head of Plan. Office of the Capital Area, 1980-88.
Projects: Detail Plan for the Borgar neighbourhood in

Reykjavík. Master Plan for Mosvallahreppur and Akureyri.
Other: Detail Plan for Hraunholt, 1990, 1st prize, with H. Viktorsson and others.
Writings: Numerous articles. Editor and publisher of the magazine AVS (AS) from 1988.
In the Plan. Comm. of Reykjavík. A reader and later part time Assoc. Prof. in plan. at the Eng. faculty of Univ. of Icel., 1974-88.

Ólafsson, Gunnar (1915-1959).
Studied archit. at NTH in Throndheim, Norway, 1936-40.
Career: Re-planning of towns in Norway. Head of the Plan. Department in Reykjavík, 1955-57. Plan. Dir. of Reykjavík, 1957-59.

Ólafsson, Hilmar (1936-1986).
Studied archit. at TH in Stuttgart, 1957-66.
Career: Dir. of Reykjavík Dev. Office, 1972-78. Projects: Detail Plan for the neighbourhoods north of Grafarvogur (1982-).
Other: In the Planning Committee of Reykjavík, 1978-82.

Ólafsson, Jón Ólafur (1958-).
Studied archit. at the Royal Acad. in Copenh., 1976-83.
Competition: Town Centre of Bessastadir Community and the Domicle of the President 1991. 1st prize with S. Einarsson and Th. Hauksson.
Awards: Gjóla - On planning in northern regions with S. Hardarson and S. Einarsson.

Ólason, Pálmar (1938-).
Studied archit. and art history at the Univ. of Rome, 1958-60.
Studied archit. at CHT in Götheborg, Sweden, 1961-66.
Studied plan. at same univ., 1964-70.
Projects: Master and detail plan projects for Gardabaer (Gardahreppur), from 1973, the latest a Master Plan of Gardabaer, 1995-2015 (1995-97).
Other: In a joint Committee on a reg. plan for the Capital Area, for Gardahreppur, 1972. On the board of Nordplan, 1990-96.

Pálsson, Einar B. (1912-). Civ Ing from TH in Dresden, 1935.
Career: At the City Eng. Office in Reykjavík, 1936-61. Reader at Univ. of Icel., 1973-74 and Prof. at the Faculty of Eng., 1974-84. In charge of the following subjects: Urban Planning, Transport Techniques, etc.
Projects: Traffic survey for the Capital Area because of a master plan of Reykjavík. Road plan for Kópavogur and Seltjarnarnes. New road plan for the Reykjavík Bus Co. and Master Plan of Akureyri. Dr. H. C. at Univ. of Icel., 1991.

Pálsson, Gudni B. (1946-).
Studied archit. at the Royal Acad. in Copenh. Exam., 1977.
Projects: Plans for downtown Reykjavík with D. Helgadóttir.

Pálsson, Gústaf E. (1907-1977).
Dipl. Ing. in Eng. TH in Dresten, Germany 1934.
Career: City Eng. of Reykjavík 1961-72..

Pálsson, Zóphónías (1915-).
Cand. Geom. in geophysic eng. from the Royal V Lhs of Copenh., 1939. Further studies in geoeng., 1944-57.

Career: Eng. at State Plan. Agency, 1945-54. State Plan. Dir., 1954-85. Took initiative in forming a joint committee for the plan. of the Capital Area in 1961 and for the Akureyri and Eyjafjördur area.

Pétursson, Róbert (1940-). Studied archit. at Univ. of S in Glasgow, 1961-67. Further studies in plan. at Nordplan, 1973.
Career: State Plan. Agency, 1968-75.
Projects: Master plans for various towns for the Plan. Agency. Master Plan of Sandgerdi, 1987-2007 and Húsafell, 1990-2010.

Pétursson, Samúel Torfi (1976-). BSc in Env. and Civ. Eng. from Univ. of Icel., 2001. MSc from TU in Aarhus, 2003.
Writings: On urban renewal and plan. eng.

Ragnarsson, Árni* (1949-). Studied at AS in Aarhus, Denmark, 1970-77. Final exam. from the Plan. Dept. Studies at Nordplan, 1980, with an emphasis on tourism and planning.
Career: State Plan. Agency, 1977-83. Head of the North Country office in Saudárkrókur in 1979. Est. project for Regional Plan of Skagafjördur, Master Plan of Vestman Islands, 1982-02. Master Plan of Saudárkrókur, 1982-02.

Ragnarsson, Gunnar Ingi (1944-). Eng. TH in Darmstadt, Germ., 1970. Dipl. Ing. from same univ. 1973, emphasis on traffic and planning.
Career: Eng. at Traffic Dept. of Reykjavík, 1975-80. Runs the office Thverá, from 1981.

Reynarsson, Bjarni* (1948-). BS in geography and sociology at Univ. of Icel., 1973. PhD in geography and plan. from Univ. of Illinois, 1980.
Career: Reykjavík Dev. and Plan. Offices, 1973-98 (with breaks). Deputy Plan. Dir., 1992-97. Dir. in the Dev. and Social Dept. in City Hall, 1999-03. Reader at Univ. of Icel. since 1977.
Projects: Research, and editing of plan reports.
Writings: Numerous articles.

Richter, Adalsteinn (1912-). Studied archit. at the Royal Acad. in Copenh., 1940-44. Further studies in plan. at Nordplan, 1974 and later.
Career: Plan. Dir. of Reykjavík, 1959-82.

Rögnvaldsson, Jón (1939-). Dipl. Ing. from GH in Stuttgart, 1964.
Career: Eng. at Dir. of Roads in various offices. Dir. of Roads since 2003.

Saemundsdóttir, Sigurlaug (1938-). Studied archit. in THF in Karlsruhe, 1957-64. Further studies in plan. in USA and in Münich, Germ., 1968-69 and 1972-77, alongside work.
Career: Plan. Dept. of the City Eng. of Reykjavík, 1964-65. Work at TU in Münich, 1972-73, and research in planning from 1974.
Other: Planning of sea-side towns, 1971 (Master Plan of Thorlákshöfn and Regional Plan for SW Iceland), 2nd prize with

G. S. Baldursson and others (no 1st prize given). Grant from the Icelandic Science Fund, 1968 for work in city plan. In the Env. Commission of Urban Village Forum, 1994-1995.

Saemundsen, Einar E. (1941-). Landscape archit. from AS in Copenh., 1972.
Career: Chief of Park Div. in Kópavogur, 1987-93. Own office since 1993.
Other: Reports with plan proposals.

Samúelsson, Gudjón (1887-1950). Studied archit. in Copenh., 1909-15 and 1917-19.
Career: State Archit., 1919-50.
Projects: Plan of Háborg at Skólavörduholt Hill (1944). First formal plan for Reykjavík (1927), with others. Detail plan for the Univ. of Icel. (1937-40).
Writings: Articles and reports. Books on GS: "Íslensk byggingalist" (Icelandic Architecture, 1933), "Íslensk bygging (Icelandic Construction, 1957), "GS Aldarminning – sýningarskrá" (GS 100 Years. An Exhibition Catalogue, 1987). A Prof. and Dr. Phil. hc from the Univ. of Icel., 1947.
Other: Plan. Commission of Towns and Villages, 1927-50. Proposals for plans of Ísafjördur, Bolungarvík, Akureyri and Hafnarfjördur among other. Television: "Steinarnir tala" (The Stone Talks, 1988).

Sandholt, Thór (1913-1978). Studied archit. at Univ. of Liverpool, 1932-37. A degree in plan. from same univ., 1938.
Career: Dir. of the Plan. Dept. of Reykjavík, 1949-54.
Writings: Articles on planning and traffic. In the joint comm. of plan. in Reykjavík, 1948-54.

Sigbjörnsson, Ragnar (1944-). Eng. from DTH in Copenh., 1971. PhD from same univ., 1974.
Career: Reader at the Univ. of Icel., 1979-89. Prof. from 1990. Chairm. and Dir. of the Eng. Inst., for a long period. Dir. of Research Inst. in Earthquake Eng.
Writings: On research and mapping of earthquakes and other natural hazards.

Sigurdsson, Birgir* (1951-). BS in geography from Univ. of Icel., 1978. MS in plan. at Univ. of Liverpool, 1988.
Career: Plan. Office of the Capital Area, 1980-85. Reykjavík Plan. Office, 1985-88. Plan. Dir. of Kópavogur from 1998.
Projects: Plans for Reykjavík and Kópavogur.
Writings: Planning reports.

Sigurdsson, Haraldur* (1965-). BS in geography from Univ. of Icel., 1986. MSc in plan. from Univ. of Toronto, 1993. BA in history from Univ. of Icel., 1992.
Career: State Plan. Agency, 1988-90. Icelandic Geophysic Survey, 1996-98. Reykjavík Plan. Office from 2000.
Projects: Master Plan of Reykjavík, Stokkseyri, Kópasker, Raufarhöfn, etc.
Writings: Articles in AVS and a manuscript on the history of the State Plan. Agency.

Sigthórsson, Haraldur (1961-). Dipl Ing from Univ. of Karlsruhe, Germ., Dr. Ing. from same univ., 1993 (in traffic eng.). Career: Dept. Eng. at the Traffic Dept. of City Eng. in Reykjavík, 1992-98.

Sigurdsson, Örn (1942-). Studied archit. at S Univ. in Glasgow, 1962-63. Also in CWU in Braunschweig, 1960-72. Projects: Detail plans in Reykjavík; Laugavegur (1992) and Sogamýri (1986). Writings: "Nesid, thróun til vesturs" (The Peninsula Development – To the West, 1999). Numerous articles on densifying the settlements in the Capital Area, and on the airport issue. One of the founders of "Betri byggd" (Better Settlement) and chairm. for many years.

Sólnes, Júlíus (1937-). Eng. from DTH in Copenh., 1965. Lic.techn., 1965.
Career: Prof. at Univ. of Icel., since 1972. Chairm. of the Plan. Comm. for the Capital Area, 1979-86. First Minister for the Environment in Iceland, 1999.
Writings: Numerous articles and reports.

Skarphédinsdóttir, Hrund (1975-). CSs in BS in Env. and Civ. Eng. from Univ. of Icel., 2001. MSc from the Royal Technical Univ. in Stockholm. Final thesis at the Regional Plan Dept., 2003.
Career: At the Teiknistofa Arkitekta from 2003.

Sveinbjörnsdóttir, Ágústa (1951-). Studied archit. at the Royal Acad. in Copenh., 1972-77 and 1978-81.
Career: Reykjavík Plan. Office from 1987.
Projects: Detail plan for residential area and outdoor area in Seltjarnarnes, 1996-, with H. Bragadóttir and I. Kristjánsdóttir. At the Reykjavík Plan. Office; Plan for S-Mjódd. Neighbourhood plans for sections no. 3 and 6.

Sveinsdóttir, Audur (1947-). Cand Hort from in landscape archit. from Lbh Ås in Norway, 1973.
Career: Assoc. Prof. at Lbh at Hvanneyri.
Projects: Regional plan for Thingvellir, Grafningur and Grímsneshreppur, 1995-2015, 1996. Master Plan for Hólar in Hjaltadalur, 1989, with others.
Writings: "Gardurinn, hugmyndir ad skipulagi" (The Garden, Planning Ideas).

Sveinsson, Björn Ingi (1951-). Eng. from Univ. of Icel., 1977. M. Ing from Univ. of Calif., Berkeley, USA, 1997.
Career: Dir. of projects in Calif., 1979-89, in Iceland 1989-03. City Engineer of Reykjavík, from 2003.

Sveinsson, Einar (1906-1973). Studied archit. at TH in Darmstadt, Germ., 1927-32.
Career: Chief Architect of Reykjavík, 1934-74. Plan. Dir. of Reykjavík, 1934-49.
Projects: Detail plans for most neighbourhoods in Reykjavík, 1934-47, e.g. Nordurmýri, Melahverfi, Hlídar, Raudarárholt, Tún, Laugarnes and Vogar.

Writings: Numerous articles.
Other: Einar Sveinsson, architect, an exhibition at Kjarvalsstadir, 1995. A booklet.

Sverrisdóttir, Hlín* (1965-). BA in geography from Macalester Coll. St. Paul, 1986-88. MLA and MRP from Cornell Univ., NY, 1988-93.
Career: State Plan. Agency, 1993. Reykjavík Plan. Office, 1995-01.

Theódórsdóttir, Ásdís Hlökk* (1966-). BS in geography from Univ. of Icel., 1991. M Phil in plan. at Univ. of Reading, UK, 1993.
Career: Reykjavík Plan. Office 1994, State Planning Agency from 1995. Deputy Plan. Dir. from 1998.
PhD study at KTH in Stochkholm from 2001.
Writings: Many articles, mainly on envi. and stratetic impact assessment.

Thorbjarnarson, Thórdur Th. (1937-1992). Civ Ing from DTH in Copenh., 1963.
Career: City Eng. of Reykjavík, 1973-92.

Thorlacius, Hrafnkell (1937-). Studied archit. at TH in Darmstadt, Germ., 1956-64. Further studies at Nordplan, 1969-70.
Career: Office of Peter Bredsdorrf, Copenh., 1964-65, at the Master Plan of Reykjavík.
Projects: Plan and program for Vestman Islands after the eruption in 1973. Detail plan for Foldahverfi in Reykjavík (1982-86), with H. Ólafsson.

Thoroddsen, Bolli (1901-1974). Eng. from DTH in Copenh., 1926.
Career: City Eng. of Reykjavík, 1944-61.

Thoroddsen, Sigurdur (1940-). Studied archit. at TH in Helsinki, 1960-66. Further studies at Nordplan, 1970-71.
Career: At the State Plan. Agency from 1967, Chief Archit. from 1972 and Deputy Plan. Dir. 1995-98. For the Plan. Agency: master and detail plans for towns, mainly in the SW and south country.
Other: City Centre of Kópavogur, 1969-70, 1st prize. In the Plan. Comm. for the Defense Areas, from 1982.

Thors, Stefán* (1949-). Studied archit. at the Royal Acad. in Copenh. in the Plan. Dept., 1970-76. Further studies at Nordplan, 1978.
Career: State Plan. Agency, 1976-79. Dir. of the east country office in Egilsstadir, 1979-81. State Plan. Dir from 1985.
Projects: Master plans for a great number of communities, e.g. Egilsstadir, Vopnafjördur, Reydar-fjördur, Eskifjördur, Fáskrúdsfjördur, Grundar-fjördur, Dalvík and Neshreppur.
Writings: Numerous articles. "Landsskipulag og áaetlanagerd, forsendur" (Country Plan and Programs, 1984), with S. Gudmundsson. "Landnýting á Íslandi og forsendur fyrir landnýtingar-áaetlun"(Land Use in Iceland and Preconditions for a Land Use Plan, 1986), with H. Sveinbjörns. and A. Arnalds. In the State Plan. Comm., 1982-85.

Thorsteinsson, Geirhardur (1934-). Studied archit. at TH in Munich 1957-62. Plan. studies at Nordplan 1978.
Career: Vinnustofa arkitekta, 1976-83. State Plan. Agency from 1992.
Projects: Supervisor of Plan. of Fell- and Hólar neighbourh. in Reykjavík, 1965-75. Detail plan. of Sudurhlídar in Kópavogur (1988), with others.
Writings:: Many articles..
Other: Member of the Plan. Committee of Reykjavík 1964-72.

Thorsteinsson, Thorsteinn (1951-). Eng. from the Univ. of Icel., 1974.
Career: Eng. at the Plan. Office of the Capital Area, 1986-88. Reader at the Univ. of Icel. from 1985, adjunct from 1990.

Thorvaldsson, Thorvaldur (1933-). Studied archit. at the Royal Acad. in Copenh., 1955-62.
Career: Dir. of Reykjavík Plan. Office, 1984-02.
Writings: Articles on archit. and plan.

Thórarinsson, Thórarinn (1943-). Studied archit. at Edinborough Univ., 1966-69. EC of A, 1972-75.
Career: at the Reykjavík Plan. Office from 1980. Supervision of the planning of the Vatnsmýri area.
Projects: Detail plans for Húsa and Rima neighbourhoods with E. Gudmundsson.
Other: Plan for Videy, 1988-89, 1st prize, with A. G. and B. Ó. Svavarsson. Nordic group of architecplan and design for the exhibition Winter City, in Tromsö, Norway, 1990.

Thórirsson, Jón (1954-). Studied archit. at Royal Acad. in Copenh., 1976-83.
Career: Reykjavík Plan Office, 1983-84. State Plan. Agency, 1989-90.
Projects: For the Reykjavík Plan. Office: Detail plan for Skúlagata (1984).
Writings: Guide on detail planning 1990.

Valdimarsdóttir, Ólöf Gudný (1954-). Studied archit. at AS in Aarhus, Denmark, 1977-83.
Career: Worked in various offices in Iceland and in own office from 1989. Dir. of Plan. of Akranes, 2002.
Writings: Numerous articles on architecture and planning.
Other: Chairm. of Nature Conserv. Council from 1997.

Valdimarsson, Hannes (1940-2003). Civ Ing from DTH in Copenh., 1966.
Career: Harbour Dir. of Reykjavík, 1988-03.

Valsson, Trausti* (1946-). Dipl. Ing. from TU in Berlin, Arch. and Plan Dept., 1967-72. PhD in Environm. Plan. from Univ. of Cal., Berkeley, 1980-87.
Career: Reykjavík Dev. Office, 1972-79. Teaching pos. in plan. and env. matters at Univ. of Icel., 1988. Prof. from 2000.
Projects: For R Dev. Office: Environment and OutdoorL, 1972-79. Master plan of Reykjavík and Úlfarsfell area (1973-78).
Writings: "Reykjavík – Vaxta-broddur" (Plan History of

Reykjavík, 1986). Idea on the first Iceland-Plan(1987). City and Nature (1999). Planning in Iceland (2003). Six other books and about 80 articles.
Other: Urban Living, essay, 1st prize, 1986.

Viktorsson, Haukur (1935-).
Studied archit. at TH in Stuttgart, 1957-66.
Projects: A plan for a town centre in Kringlumýri, Reykjavík (1967-70).
Other: Bernhöftstorfan, 1971, 1st prize with U. Arthursson. Master plan for Mosfellshreppur, 1978, 1st prize, with others.

Vilhjálmsson, Reynir (1934-).
Gardener from Icelandic Ortological School, 1953.
Further studies at the Royal School in Denmark, 1952.
Landscape archit. from the Royal Acad. in Copenh., 1965.
Career: Höfdi Office, on the planning of Árbaer and Breidholt, 1965-84. With own office since 1990.
Projects: Green plans for Árbaer, Selás and Lower-Breidholt. Prizes in many competitions.

Zimsen, Knud (1875-1953).
Eng. from DTH in Copenh., 1900.
Career: City Eng. and Building Inspector of Reykjavík, 1904-07. Mayor of Reykjavík, 1914-32.

Zoega, Geir G. (1885-1958).
Eng. from DTH in Copenh., 1911.
Career: Dir. of Roads, 1917-56. Chairm. of State Plan. Comm. for Towns and Villages, 1921-56.

Zóphaníasson, Bjarki (1946-).
Studied archit. at GI of Technol. Atlanta, USA, 1966-67 and ETH in Zürich, 1967-72. Studies in multidisciplanery dev. assist. at ETH.
Projects: Detail plan for town centre Weil am Reihn (1988).
Other: Plan for Thingvellir, 1972, 1st prize.
Writings: Urbanism and Industrial Culture/Industry and Urban Culture, Birkhäuser Publ., 1990.
Other: Research grant from NATO, 1974, for studies in scientific regional planning and long term forecasting for Iceland.

Glossary

With focus on schemes and institutions in Iceland

Archaeological register A list kept by the National Archaeologian of the archaeological remains listed or proposed for conservation.

Architectural heritage The main institution in this field is the *Húsfridunarnefnd* committee. In the largest towns there are also institutions that have the task of making proposals on what buildings, or which parts of buildings, should be preserved for cultural, aesthetic or environmental value.

Central areas There exists a hierarchy of central areas with a varying combination of shops, institutions and services: *A regional centre serves* as a centre for a region. *A city centre district* is the centre of a city. *A town centre* serves a town or a part of a city that functions independently. *A neighbourhood centre* serves a neighbourhood. *A shopping centre* or a mall is a centre mainly for shops.

Classification of streets Streets and roads divide into different categories, often defined by their functions. The 1965 Plan of Reykjavík introduced four types of roads: primary, secondary, tertiary and quaternary roads.

Collecting roads (tertiary rd.) These roads collect the traffic from the residential areas and lead to their connecting roads, which then connect to the primary roads.

Complementarity If two aspects are designed to work together, for instance, city and nature, they enhance each other so that an extra value is produced.

Connecting roads (secondary roads) They connect neighbourhoods to the net of primary roads.

Conservation areas Areas that have architectural, historical, environmental and/or a general value which call for conservation or protection of some kind.

Conserved buildings Conserved buildings are divided into two groups, A and B. *Group A* contains houses conserved in their totality. *Group B* contains houses and buildings which are only conserved because of their exterior, parts of the exterior or their interior. Conservation is legally registered as an obligation for the building or construction in question.

Country park (Icel. *fólkvangur*) An area protected under the Nature Preservation Law as an outdoor area in collaboration with the local communities in the area.

Country plan A plan covering the whole country that deals with the main aspects of land use and infrastructure. Other terms used are national plans and settlement development plans. In Iceland these plans are mostly used for co-ordinating governmental actions and to create a frame for the regional plan level.

Catastrophe areas Areas that are likely to be threatened with a natural disaster such as floods, avalanches, landslides and earthquakes. The word 'risk' is introduced as an assessment is made of what chances and what protective measures should be taken in such areas.

Database Planning makes use of many types of databases, including demography, trade and car ownership.

Detail plans They are made for neighbourhoods or any other sections within the frame of the master plan. The detail plan accounts for the use of land, the road system, types of residences, occupations and services, housing, institutions, playgrounds, outdoor areas, etc.

Development planning Mostly used for inducing improved developments in older neighbourhoods, sometimes called Urban Renewal Plans.

Ecology The science of how organisms work and interrelate with each other and with the environment. The term human ecology is defined as a parallel.

Eco street Street designed, or redesigned, to increase environmentally friendly qualities. Such streets often give priority to pedestrians. The street paving is varied, and trees and planting introduced.

Environmental Impact Assessment (EIA) The law on this is based on a directive from the EU. An impact assessment is required for large scale or dangerous constructions or plans. The method was first developed for the assessment of individual constructions and was primarily carried out after most of the design had taken place. Today the assessment procedure is planned to be introduced earlier in the planning process.

Environmental principles There are four main principles: *User Pays Principle,* which says that those who use an environment or a resource shall pay for the protection or maintenance of these qualities. *Polluter Pays Principle* says that those who pollute shall pay for the damage and its rectification. *Co-operation Principle s*ays that disagreements shall be resolved among the parties involved. *Pre-cautionary Principle:* This

principle orders that plans or projects shall not be allowed, or be continued, if an environmental harm is to be expected.

Infrastructure Internal structure in a country, region or town. There are social, economic and technological infrastructures. The most important infrastructure in planning is the road system.

Integration Most planning starts out with separate sector plans. Today there is pressure for integrating such plans into one whole, e.g. sea, road and air transportation into a single transportation plan.

Interface area An area designed to connect areas, like a coastal area designed to connect the ocean and land areas.

Intersection There exist many types of intersections like *grade separations*, where roads intersect at different levels. Intersections with exit lanes in a soft curve are called *diamond intersections*, or if they go in a loop, *clover leaf intersections*.

Land-use categories For instance, areas for *residences*, *industry*, *shopping*, *warehousing* and *outdoor life*.

Land utilization The type of function a land area is used for, such as the use of fields for different kinds of crops.

Master plan A plan level beneath a regional plan. Such a plan is made for every community – sometimes for more than one community at a time. Its purpose is to show the main policy of a community in a physical plan, e.g., in terms of how the settlements should develop, what land uses there should be, as well as the placement of the main traffic lines. The master plan gives a frame for the detail plans.

Mixed land use If an area is a mixture of different functions or building types, it is called mixed land use. Social mixing (integrating) is often used to reduce social problems.

Natural wonders (Icel. *náttúruvaetti*) A category, according to the Natural Conservation Law, containing, waterfalls, volcanoes, caves, locations of fossils or rare types of rocks, etc.

Nature conservation area An area where it has been decided that the natural environment should be preserved with as little alteration as possible.

Nature conservation register (Icel. *Náttúruminjaskrá*) A list of areas and artefacts that have been conserved or where proposals have been made on conservation. The State Treasury has the pre-emptive right of purchase of such areas when those who hold the property, according to the Farmland Act, have waived their right to ownership. A more scientifically based proposal on artefacts and units of conservation was presented in 2003.

National park (Icel. *thjódgardur*) A conservation area of high value. Earlier it was a prerequisite that the state was the sole owner of the land.

Nature reserve (Icel. *fridland*) An area conserved according to law because of the special value of a feature of the landscape, vegetation or zoology.

Neighbourhood unit planning An ideology that says that the neighbourhood should be planned as a society in itself. This type of planning has not been very successful in Iceland.

Official institution area An area primarily intended for state or local government institutions.

Plan (incl. programme) A plan, with a programme, created to guide the development in an area, community, region or part of a community. It is presented with maps, special drawings and reports. There are five types of plans: country plan, regional plan, master plan, neighbourhood plan and detail plan.

Planning period The period that a plan is intended to cover. The period of a master plan is commonly between twelve and twenty years.

Planning process How work on a plan proceeds. It includes preparatory work, development of aspects, collecting and analysing of data, creation of alternatives, policy making, and co-operation with the government in question as well as with the public. The final steps are: decision making, advertising, environmental impact assessment, governing of the plan and review. Lately, there is much growth in the inclusion of interest groups and the public, called participatory planning.

Playgrounds They divide into many categories according to what age groups they are meant to serve, their general nature and the distances from homes.

Ratio There are different types of ratios. The most commonly known is the *lot ratio*, which is the ratio between the total number of square meters in a building and the area of the lot. In addition, there is the *ratio of a square area* in terms of various types of activities. The ratios are also often presented as units per area, such as the *number of flats per hectare*.

Recreational areas There are many types of recreational areas according to the type of activity they are meant to serve, how large an area they are intended to serve, etc.

Regional plan Such a plan covers at least two communities. The goal of a regional plan is to create a co-ordinated policy on the development of settlement and infrastructure in a region, and to support economical development. The regional plan is the frame for the master plan level.

Strategic Environmental Assessment (SEA) A new directive from the EU implemented in Iceland in 2004. The SEA is a further development of EIA that takes this type of thinking to a higher level of law, and of the creation of law, strategy and plans. The main idea is that environmental goals and concerns are introduced at the initial stages of every project and at the creation of the plan will be worked on in close co-ordination with the environmental values.

Street side drawing A drawing that shows rows of houses on one side of a street. The designing of street sides follows aesthetical or other points of view.

Summerhouse area An area planned for summerhouses outside towns. Their use in winter has increased so they are often called leisure houses or even second homes, as now the concept of double residency has started to evolve in Iceland.

Sustainable development A principle that proclaims that the use of resources should not damage or reduce their capacity. Only in this way can their utilization become sustainable. This principle not only covers the natural environment but it also points out the need for the same type of thought in conceiving and analysing social and economic environments because all of these three elements are interdependent.

Threshold limit The limit where the use of, or the tolerance of, environmental features reaches its breaking point. In tourism, the term carrying capacity is used.

Topological map A map that shows the main features of a land or a territory, whether natural or man-made. It contains, for example, demarcations of communities, streets, lines of elevation, etc. Such maps are the basis for physical planning. In addition, many thematic maps are created for planning purposes.

Trading station rights The first urban villages in Iceland were given certain rights or privileges, the first six of them in 1786. The various types of urban centres are assigned certain rights, each of them according to their status.

Traffic surveys They are conducted to investigate the nature, volume and combination of traffic. The data collected in this way provide the basic information for traffic modelling.

Trends Investigations are conducted into various types of trends, such as the need for certain types of residences. Such surveys are used as a foundation for predictions of the need for certain types of land use in the preparatory phase of a plan.

Urban sociology The sociology of urban communities: the development of communities in towns and their characteristics, e.g., age and income structure.

Urban Studies Centre (Icel. *Borgarfraedasetur*) Established in co-operation with the University of Iceland and the City of Reykjavík in 2001. A primary emphasis is put on urban sociology and participatory planning.

Visual axis planning (Fr. *point de vue*) The method of letting the visual features guide some of the main lines of the plan, like letting the axis of a main street or an open area be directed towards a monument, as in the planning of Washington DC and Paris.

Zoning The division of functions in an urban area into detached spaces so that they do not disturb each other. Example: the separation of polluting industries from residential areas.

"An extraordinary feat of scholarship"
"Thorough in research, comprehensive in its scope,
always highly readable"
"Provides a model for other scholars in other countries to follow"

Sir Peter Hall, *Professor of Planning at UCL, London* (*In the Preface*)

"An important catch"

Stefán Thors, *State Planning Director of Iceland*

"A very informative book that I believe will prove to be of great importance"

Styrmir Gunnarsson, *Editor in Chief, Morgunbladid, Reykjavík*

TRAUSTI VALSSON

Studied architecture and planning at TU Berlin 1967-72. Worked at the Reykjavík Development and Planning Office, e.g., on the "Green Revolution" and the Master Plan of Reykjavík's future areas.

Valsson finished his PhD in Environmental Planning at UC Berkeley in 1987 with his thesis: A Theory of Integration. A part-time position at the University of Iceland in 1988. The first Professor of Planning at the University in 2000.

Valsson has written a great number of articles and books, this being the eleventh. One other book has been published in English: City and Nature, in 2000. Valsson has won several prizes for design and planning and received a number of grants and awards.

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PLANNING IN ICELAND

FROM THE SETTLEMENT TO PRESENT TIMES

This book gives an overview of the development of settlements and urban areas in Iceland from its first settlement in 874 to present times. Iceland, being an island with a well-documented history, can be seen as a study in miniature of how human habitat evolves and changes in an interplay with the forces of nature.

As Iceland remains small and sparsely populated, it is eminently suitable for studying how the various aspects of society, nature and planning interact. Until the advent of this book the story of planning in Iceland has been unknown to the world. Iceland is here a case study of the history, processes and difficulties encountered in planning, and scholars and students may find the book a good base for further study. The 1250 maps and pictures, and countless references, make it highly useful for such purposes.

Because of recent developments, Iceland may be most interesting because of what it has not yet become: The economy is booming and there is an abundance of hydro- and geothermal energy. The clean air and water and vast unbuilt spaces also provide exciting possibilities, especially with a warming global climate.

The capital, Reykjavík, is of interest to many, not least because of is energetic young population. The book provides a good insight into Reykjavík and its development. Because of its wide scope the book gives a rare overview of how a human community has evolved in history and where it is headed in the future.