



NORDREGIO
Nordic Centre for Spatial Development

Urbanization and the role of housing in the present development process in the Arctic

Klaus Georg Hansen, Søren Bitsch and Lyudmila Zalkind (Editors)

NORDREGIO REPORT 2013:3



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Cover photo: Klaus Georg Hansen

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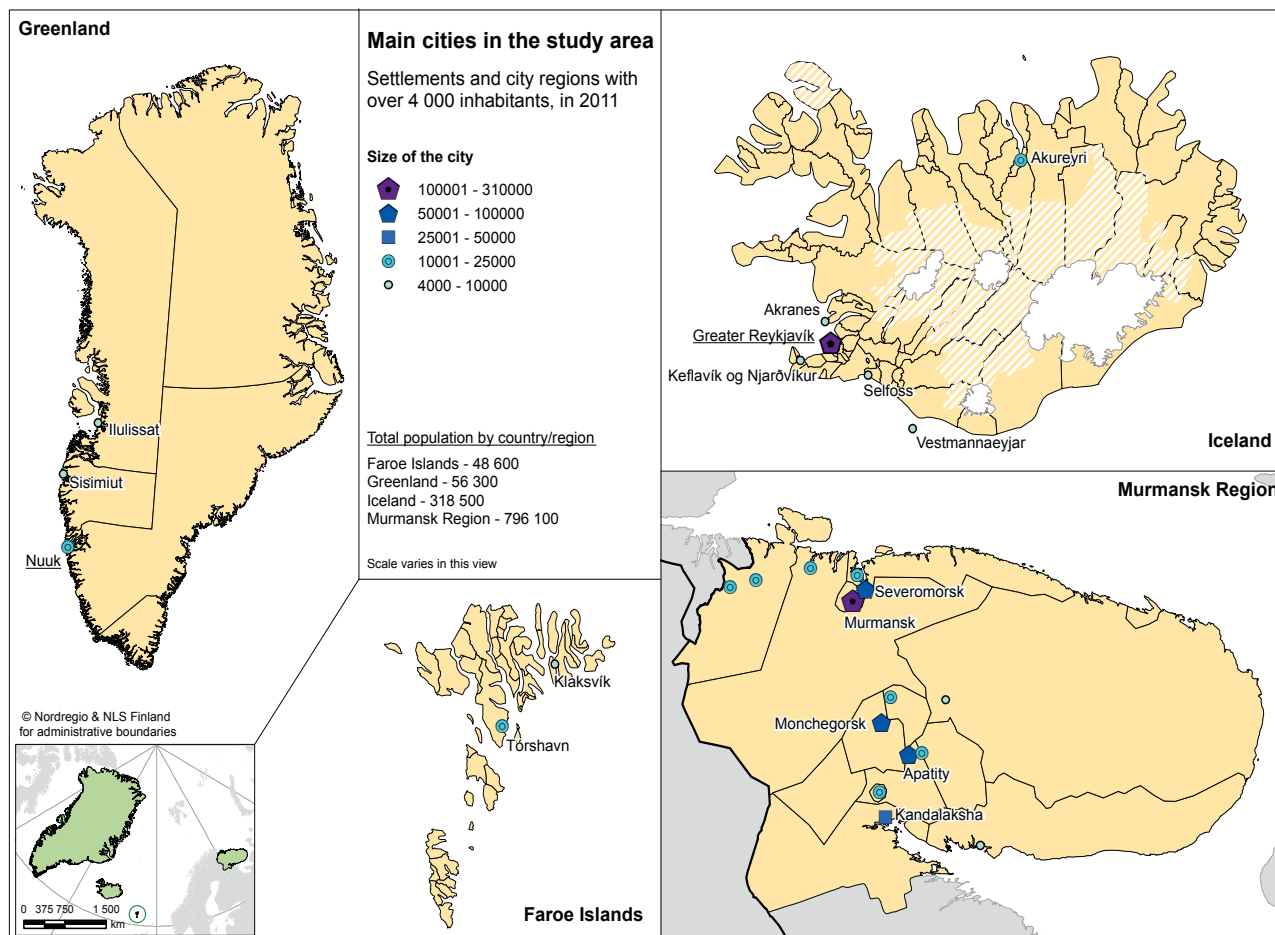
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Stockholm, Sweden, 2013

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Preface



Map 1. The geographical focus in the studies has been on the Murmansk Region, Iceland, and Greenland.
Map by Johanna Roto, Nordregio.

This book is the result of a three year project focussing on the changes in settlement characteristics in the Arctic and emphasizing the housing sector as a means of reflecting the major changes which has characterized the Arctic during the last decades.

Understanding changes in the housing structure on one hand requires an overview of both internal and external processes: internally issues such as market characteristics, community development and the role of the public and the private sector; and externally with globalization processes impacting on life in the Arctic due to changes in i.e. economic relations and communication structures.

The housing sector furthermore mirrors the political, the economic and the social implications of the

changes, and thereby epitomizes as well the challenges and at the same time show examples of good practice that can be applied in other regions exposed to similar changes.

In this context a discussion of what is considered the safe and sustainable development of human settlements has been the starting point of the project aiming at identify common concerns and differences in what could be key directions of the sustainable social and economic development of an Arctic urban lifestyle.

The result of the project is presented through six articles which intentionally outline six different aspects of urbanization and housing characteristics connected to different time periods as well as to different issues that have been important for the on-going changes.

In the first article by Klaus Georg Hansen¹ and Rasmus Ole Rasmussen² on Status of Urbanization Processes in the Arctic some of the main findings from the First International Conference on Urbanization in the Arctic which was held in Greenland in 2012 have been outlined and connected to the present discourse in relation to urbanization processes and settlement structures in the Arctic. The article has its focus on drivers and enablers in the Arctic and connects the discussions in this book to the general development trends in the present situation where the issue of urbanization has become a “hot topic” in the development process.

In the second article by Lyudmila Zalkind³ on the topic of The Social and Economic Characteristic of Murmansk Region the starting point is an outlining of both the long term and the more recent development perspective of the settlement structure and urbanization on the Kola Peninsula since the 16th century and up till today. A key issue in this part of the article is the socio-economic and demographic structures determined by top-down decision processes, and furthermore on how different development policies have been impacting the development of the settlement structure. From this broader perspective the article narrows down by looking into changes in household and housing strategies, illustrating how shifts in policies, especially from public to private ownership, are crucial for the ongoing changes in the Murmansk region representing a highly urbanized region with large city agglomerations and with mining and other strategic issues being the basis of economy of a region characterised by high complexity.

The third article by Søren Bitsch⁴ digs into the topic Household Debt in Iceland as an illustration of how global processes turn out to relate to the urbanisation process through marked impacts on the housing conditions also in the Arctic. One of the important characteristics of the housing challenges in the Arctic during the last decade has been the global financial crisis which, in the case of Iceland, has resulted in rising private household debts. It has turned out that Iceland has been among the countries that have been hit the hardest by the global financial crisis. By means of a short “real-life” case example the article show how wrong it

can go when there only are private ownership in the housing sector and consequently insufficient public regulation and control of the housing market.

In the fourth article by Anna Karlsdóttir⁵ the focus is on The Social and Economic characteristics of Reykjavík, Capital Region. The article on one hand discusses the question of what constitute the present Capital Region in Iceland, and furthermore provide an outline of the processes which have been leading to the present situation where the majority of the population in Iceland is situated in this region whereby the country has become a predominantly urban nation. The article outlines the impacts of different political and institutional issues related to the urbanisation with focus on the implication on the housing situation as well as emphasizing the process of urban sprawling and eventually inclusion of nearby settlements into the Capital region. The article furthermore shows how strategies regarding housing issues have related to the question of financing and thereby to a debate on private versus public involvement in the housing sector. In this context the question of the financial crisis discussed in the previous article by Søren Bitsch has been critical for both policies and practice during the last decade, just as the question of the socio-economic status of households connects to the discussions in the second article in the book written by Lyudmila Zalkind.

The fifth article by Gorm Winter⁶ takes a somewhat other perspective by providing A macroeconomic Impact Assessment on entrepreneurship in The Greenlandic Housing Sector. While the previous articles have had their focus on what has led to the present situation of urbanisation by using the issue of housing as a social indicator of the processes, this article draws the attention towards the assessing of the need for future housing in Greenland. This is done by looking into the question of how the development innovative practices and entrepreneurship in the building and construction sector may become essential for future development. The starting point of the article is an outlining of the expected need for future housing based on the demographic characteristics of the population and the political goals for the supply of homes. In this context the migration patterns are important, and especially the question of changes in population concentrations in different settlements is important issues. A key question in this process is to what extend the necessary skills and qualifications in the building sector are available, but even more important how a change in

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6 Gorm Winther, Denmark.

strategy regarding local production versus dependency on imported materials could be provided. The article provides an overview of the attempts to overcome this situation, and by means of socio-economic comparisons of different building technologies the calculation of the macroeconomic effects of an increased focus on local technology and the local labour force shows potentials in a change of strategy that needs future attention.

The sixth article by Klaus Georg Hansen⁷ brings up an issue of contemporary importance by asking the question: The aluminium smelter project in Greenland – New aspects of an industrialisation process? It is becoming still more obvious throughout the Arctic that the past mono-dependency on renewable resource exploitation through hunting, fishing and herding is becoming still less important, and the economies are moving towards more diverse and complex means of economic activities. These issues have also been dealt with in the articles by Lyudmila Zahlkind and Anna Karlsdottir. Especially the question of increased activities connected to the exploitation of mineral and energy resources is crucial in the public debate, and in the case of Greenland a potential options has been a proposal for an aluminium smelter project in Maniitsoq. It is a town which used to be a former centre for fisheries, but has recently been suggested as a potential future centre for aluminium production in Greenland. The article describes the process behind this decision and at the same time provides an overview of the eras of occupational structure that has characterized Greenland. Besides showing the differences in livelihoods characterizing the occupational structure the article shows how the changes in occupational structure to a large extent impact changes in settlements as well as in housing structures. The article stresses how future development – whether or not it encompasses

urbanization processes – needs to be better prepared for the societal effects of the more intensive involvement in the global industrial market. In the case of Greenland it means to be better suited for survival as a unique Arctic sparsely populated society, and in general to ensure preparedness in relation to political, administrative and public concern from a social science point of view.

The project has been supported by the Nordic Arctic Cooperation Programme and comply with the intentions of the programme on the one hand by showing how the development of the housing sector is an element which needs to be included when discussing the question of a sustainable living environment in the Arctic, and on the other hand by showing how the issue of a proper welfare system is a topic of importance. That exchange of information – and in this connection also learning from the experiences and innovations in welfare approaches within the Nordic Countries as well as with outreach to other parts of the Arctic – is important in the present phase of development in the Arctic. The Nordic model is often considered to be a role model, and it is in this connection important not only to present the model but also to emphasize how changes in the settlement structure and in choice of housing model are still being a part of a learning process!

The project group will like to express gratefully thanks to Odd Iglebaek, Maria Poludennaya, Johanna Roto, Anni Kyster, and Aviaja Hegelund Johansen for contributions to the project. A special thanks to Rasmus Ole Rasmussen, Nordregio, for contributing with valuable and insightful advisory throughout the project.

Lyudmila Zahlkind and Søren Bitsch
September 2013

⁷ Klaus Georg Hansen, Ilisimatusarfik, University of Greenland, Nuuk, Greenland.

Status of Urbanisation Processes in the Arctic

Authors: Klaus Georg Hansen⁸ and Rasmus Ole Rasmussen⁹

Maps: Johanna Roto¹⁰

Introduction

In 2010, the global population reached a milestone with over half of the population living in cities, but a far higher portion of the Arctic population resides in Arctic urban settlements.

In the book *Megatrends*¹¹ it is stressed how “Urbanisation is a global trend which will significantly contribute to the shaping of human life in the future. The Arctic region is no exception ... Since the 1960’s, most of the population growth in the Arctic has occurred in urban centres tied to industrial activities, social services and public administration”. It is emphasized in the book how the urbanisation is a process where society is undergoing transformations, from predominantly rural characteristics in terms of economy, culture and lifestyle, to one which can be characterised as urban. It is furthermore stressed that this process is not an issue up for debate, but a factual situation going on in the Arctic as it is in the rest of the world. For the Arctic it is a process which has been going on for centuries hand in hand with changes in livelihood and occupational structures as emphasized by Klaus Georg Hansen in chapter 6 in this book.

These changes entails a complex set of processes, not only affecting where people live and what they produce, but in who they are, how they live in terms of economic well-being, political organisation and the distribution of power, demographic structure and social relations.¹² This complex set of relations is difficult

to grasp by means of one or a few indicators, but an approach which has turned out to become a measure which reveals much of the complexity is the question of housing. The concept contains the questions of the physical act of sheltering, lodging, establishing dwellings and related infrastructure. But also the social act of providing and organizing houses for a group, a community or an influx of temporary or permanent labour forces. Furthermore the political act of defining and controlling regulatory conditions. Different housing situations may vary for individuals and may depend on age, family, and geographic location.

Choosing the topic of housing as a key issue for the project enables on one hand the project to focus on a broader set of drivers related to the development process, for instance the relationship between the involvement of the public and the private sector. Furthermore the choice of topic opens for social relations and especially the role that the housing sector plays in relation to issues regarding community development. In this context the relatively fast changes taking place more recently has created a demand for examples of good practice that can be applied in other regions, and may be considered entries into a discussion of what may be the future safe and sustainable development of human settlements, and to identify common concerns as well as differences in what could be key directions of sustainable social and economic development of an Arctic urban lifestyle providing recommendations in relation to adequate level and quality of life for the population and sustainable development of human settlements in Arctic.

Challenges in relation to Urbanisation as an on-going process

In the proceedings from the First International Conference on Urbanisation in the Arctic a broad set of issues related to the urbanization processes in the Arctic is presented and discussed. Out of the discussions at the conference a number of recommendations regard-

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11 Rasmussen, R.O., 2011: *Megatrends*, Nordic Council of Ministers, 2011. TemaNord 2011:527. Citation from page 22.

12 Rasmussen, R.O.: *Globalization, Social Issues and Arctic Livelihood*. In: *Common Concern for the Arctic*. Conference arranged by the Nordic Council of Ministers 9-10 September 2008, Ilulissat, Greenland. ANP 2008:750.

ing future research topics were concluded. It is worth in this connection to bring forward a few of these recommendations as they actually relate closely to the issues dealt with in the following chapters of this book. The following is therefore a re-written selective excerpt of some of these recommendations which will be dealt with a bit more in depth below:

■ Recommendation 1: Urbanisation is a global trend which is also taking place in the Arctic. It is therefore important to identify the drivers of the urbanisation process. This is done by the chapters 2, 4 and chapter 6.

■ Recommendation 2: Many researchers are looking at the urbanisation process in the Arctic, and in this connection learning from comparative research important in order to draw on experiences and expertise regarding governance and impact assessments. This is a fundamental approach maintained throughout the book!

■ Recommendation 3: Urbanisation must be addressed explicitly, and public inclusion in the debate is very important, being open for participatory, collaborative governance, and treat research as part of the democratic process. This is an issue brought forward in chapters 2, 4, and 5 and is a key issue in chapter 6.

■ Recommendation 4: The citizens who decide to move or to stay are in control of the urbanisations process and should be seen as the drivers of the process, not just as victims. Again, an issue which is brought forward throughout the chapters.

■ Recommendation 5: Economic resources are limited and attention should be paid to public services and the realization of existing inequalities by providing plans to mitigate equity issues. Focus on the economic aspects of urbanization has especially been challenged by the global financial crisis (chapter 2) as well as in relation to where revenues are generated and eventually leaking out of the society (chapter 5).

The major drivers and enablers in changes

It is not the intention here to repeat neither the research being presented during the Conference on Urbanization in the Arctic, nor the topics identified as being Megatrends in the development in the Arctic, even issues and maps from both reporting are incorporated in this chapter.

The focus in this part of the book is on processes that have been emphasized in the following articles as being operating as a framework for the development and thereby constitute major drivers and enablers in rela-

tion to the on-going changes: Change in Development paradigm, Migration patterns, Settlement structure, Housing characteristics, and The Process of Privatization.

Change in development paradigm

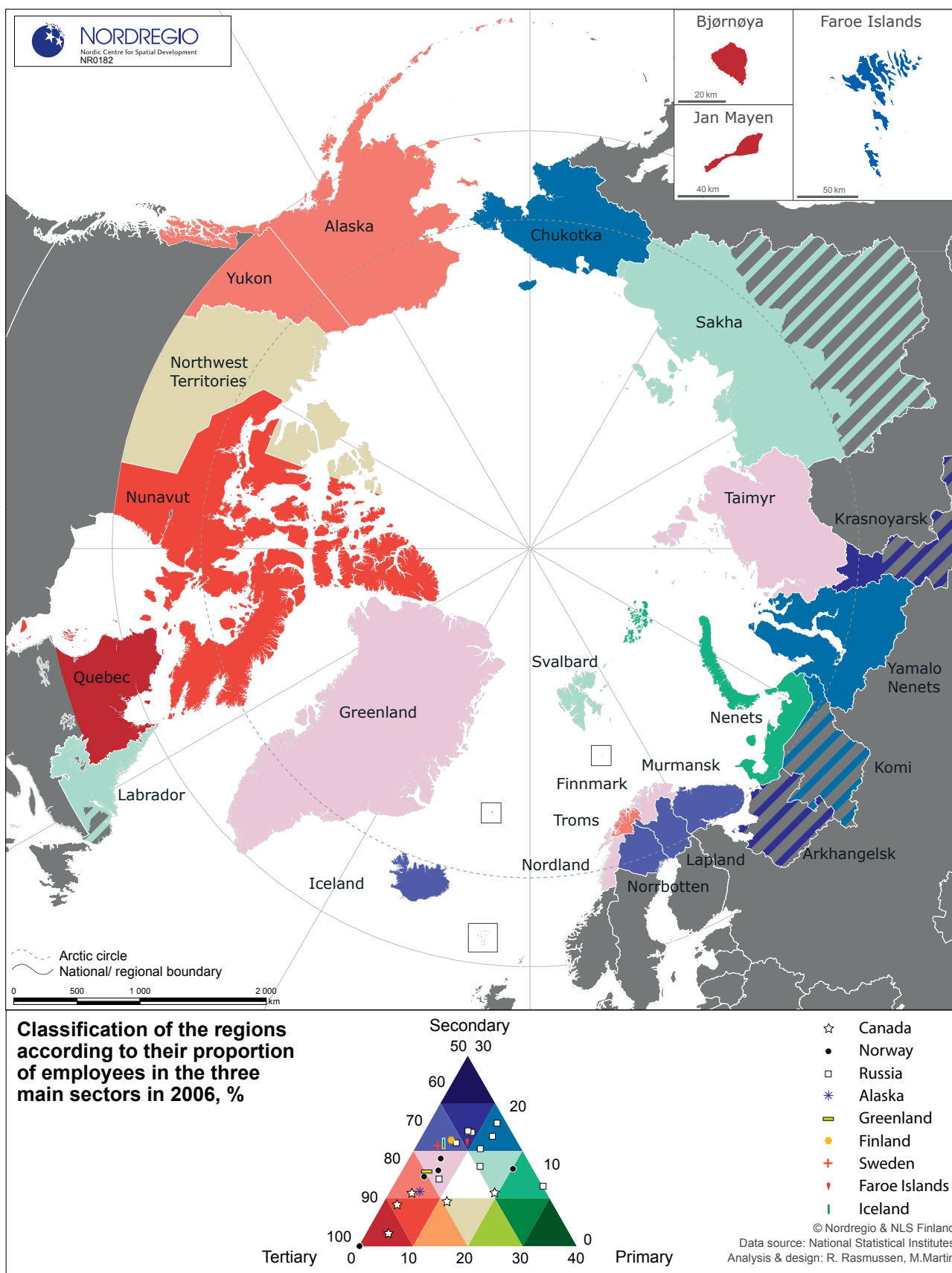
The Arctic is a region rich in natural resources. For centuries local communities have been depending on renewable resources for subsistence and distribution within the community. Development in the Arctic used to be closely linked to the characteristics of the renewable resources found there. In the current development paradigms for most of the Arctic communities, renewable resources still play an important role in the formal as well as in the informal sectors of local economies and at the subsistence level.

The Arctic societies are however affected by and interact with international and global mechanisms driven by change in social, economic and environmental conditions.¹³ These encounters are transforming the Arctic societies, including their economic and political structures. The transformation from societies primarily dominated by hunting activities and semi-nomadic land and sea occupancy patterns to societies mainly dominated by sedentary settlement characteristics has been an on-going process since the 19th century. The modernization processes initiated for most of the Arctic after WWII was supposed to be a turning point in this process with large scale resource exploitation and industries as the cornerstone of the economy was paralleled by concentration and centralization of population and economy as a major goal.

The diversity of the communities is still an important characteristic of the present settlement structure showing distinct differences between large scale and small scale activities, not only generating consequences for the regional, structural and economic patterns, but also for the political relations which are of importance for the development process. Subsistence activities, among other things, are for instance still maintained and constitute a continuous supply of country food for a part of the population.

Besides that the development has been dominated by the general tendencies of capitalism in the West, and of Socialism or Communism in the East, both approaches has resulted in concentration and centraliza-

13 Hansen, K.G. and Rasmussen, R.O. (2013). "New Economic Activities and Urbanisation: Individual reasons for moving and for staying – Case Greenland" in Klaus Georg Hansen, Rasmus Ole Rasmussen and Ryan Weber (editors). Proceedings from the First International Conference on Urbanisation in the Arctic. Conference 28-30 August 2012. Ilulissat, Nuuk, Greenland. Nordregio Working Paper 2013:7. pp 157-182.



Map 1: Classification of the regions in the Arctic according to their proportion of employees in the three main sectors: Primary, Secondary, and Tertiary. The graph shows with colour codes the level of employment, and on top of the graph the different regions are plotted according to the division of activities.

tion through large scale projects and economy of scale as the fundamental mechanisms. From the 19th century and onwards the process of urbanisation, combined with the implementation of a modern administration, made the authorities address the challenges of a growing urban population, by implementing different forms of regulations.

As of today the determining dynamics are depending on the availability of human and social capital needed for the adaptation to the changing conditions. Even though the pattern of changes in resource base has had an impact on the socioeconomic changes it has been remarkable varied, defined through three different types of dynamics. On one hand a self-sustaining dynamic, which is defined as a development process able to react to changes, whether they are due to natural fluctuations or human induced, because they include the necessary human resources and social capital to be innovative and adaptive to challenges and changes. Secondly a dependent development dynamic, which is defined as a development process where the dynamics are defined outside the community itself, and therefore depending on outside decisions, initiatives, and actions. Thirdly a detached dynamic, which is defined as a development process where there is no clear connection between the development that takes place in the community and the surrounding society.

The process has first and foremost resulted in a major shift in economic basis for most places or communities in the Arctic as emphasized by the Map 1 showing the role of the primary, secondary and tertiary sectors in the economy. The status today is that the primary sector occupies between 5 and 40 % of the population, and in most cases with less than 10 % of the population available on the labour market. The secondary sector has a span of activity between 5 and 20 % while the tertiary sector is the dominant sector occupying from 50 to 100 % of the population. This development has been among the major reasons for the booming of the urbanisation in the Arctic during the last decades.

The triangle below Map 1 from Megatrends shows the colour coding used in the map. Along the lower axis the primary sector – hunting, fishing, and mining – is subdivided in percentages from 0 to 40 %. The axis to the right shows the secondary sector – processing, production, constructing – starting from 0 to 30 %. Finally the axis to the left shows the tertiary sector – generation of services such as health care, teaching, retail and wholesale, administration, etc., but also including receivers of services such as social benefits, pensions etc. This axis shows values from 50 to 100 %. The division of the axes reflects the fact that there are no regions with more than 40 % employed in the primary

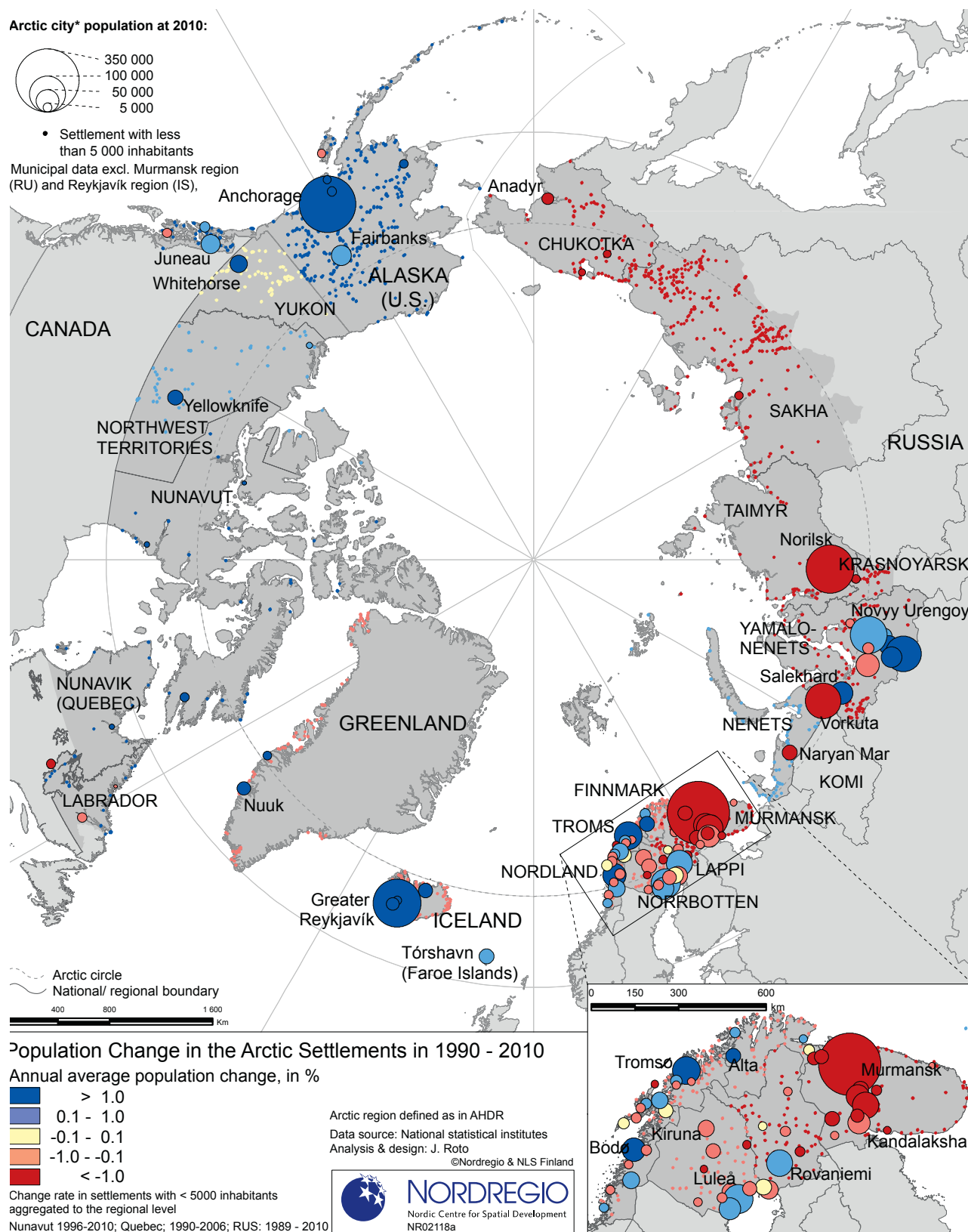
sector, no region with more than 30 % employed in the secondary sector and no region where there are less than 50 % employed or involved in the tertiary sector. The region with the highest employment in services is Nunavik (93 %) followed by Nunavut (88 %) indicated through the red colours. The lowest shares are to be found in Krasnoyarsk and Archangelsk regions in Russia, both at levels around 58 %. The secondary sector is rather high in several of the Russian regions, indicated by the blue colours, but also well represented in the Swedish and Finnish part of Northern Fennoscandia, as well as in Iceland and the Faroe Islands. There is a marked difference in activities, however, as Iceland and the Faroe Islands are characterised by high employment in fish processing industries, while the Russian, Swedish, and Finnish industries are related to processing of minerals, heavy industries and the processing of products from the forestry sector. The primary sector is again high in several Russian regions shown with green colours, as it also is in Labrador. This relates to mining and energy production but forestry is also an important component here.

What the map shows is that even though many perceive the Arctic to be primarily related to hunting and fishing the reality is that the economic activities carried out in this region are diverse and complex. Generally however, almost all regions have less than 10 % of employment in primary sector activities. Most of the regions have between 10 and 20 % of employment in relation to the secondary sector and all regions have more than 50 % of their activities connected to the tertiary sector. More than half of the regions indeed have more than 75 % of the activities connected to this sector.

Migration

Major shifts in the demographic structures of the Arctic are taking place and have been under way during the last decades. Basic demographic parameters such as birth rates and death rates are changing the age structures of the communities, just as changes in migration patterns are influencing the development perspectives for many communities.

Combined with the impact of globalisation on the everyday life it has added to the complexity in predicting future population trends. Changes in age group dependencies, with a diminishing part of the population in the active work force compared to an ageing population, and an increasing level of qualified persons – especially women – looking towards job opportunity outside the traditional sectors, constitutes a serious challenge for many communities.



Map 2: Population change in the Arctic Settlements in the period 1990-2010. Colours show average annual population change with negative changes in red colours and positive changes with blue colours.

In addition an increased interaction with labour markets outside the Arctic has developed, creating a much higher diversity in community structures, and thereby also a need for management approaches able to cope with more diverse situation including questions of indigenous versus non-indigenous and permanent versus temporary inhabitants.

The Arctic has always been depending on human resources. While qualifications in hunting, herding and fishing were previously decisive for survival in the Arctic environment the question of education has become a key field of concerns when unfolding the concept of “development”. For many analyses the question of access to education is perceived as a key indicator of human development as it contributes to the accumulation of human capital. Equally important is the content of education, including how well it fulfils different levels of needs – from the local and the regional to the national and the global needs – and thereby contributes to the role that the social capital may have in a specific setting.

As a consequence, the present educational characteristics of the formal educational systems in the North are reflecting differences in approaches to status of, and changes in the societal and cultural goals. At the same time the divergence between societal expectance and the youth’s response tend to increase.

A key issue in this connection is empowerment. On one hand the empowerment of the individuals enables a proportion of students to continue past primary school through secondary school graduation, and, in some cases, even beyond to technical colleges and post-secondary institutions. On the other hand the empowerment of the communities is helping to react on the on-going changes, not only by adjusting to external requirement, but by reacting to these requirement in a manner where education not only serves the external but also the internal requirements, and even where the most critical concerns are for control, relevance, and access to education.

It is important to emphasize that empowerment is a multi-dimensional concept leading to divergent consequences. Individuals may be empowered to fulfil important functions in the community, and thereby enable them to stay. But it may just as well empower the person to leave the community, looking for adequate challenges and opportunities elsewhere and this is crucial for the migration patterns which have been evolving during the last decades.

The Map 2 above shows the changes in settlement size during the last 20 years and clearly illustrates the process of dwindling smaller places versus increased concentration of the population in larger urban settle-

ments.

It has for long been supposed that improvements in the communication opportunities in the Arctic would provide a much needed valuable tool and a major contributor to sustainable development, capacity-building, human health and welfare in the region, and that it would be essential that residents in the Arctic is given access to cost-effective telecommunications systems with sufficient carrying capacity.

An important question, however, is to what extent the initiatives have been sufficient, have generated the expected outcome, or maybe even have had the adverse effect? In the Nordic countries, for instance, the expansion of broadband internet connections has taken place at the same time as out-migration of population and industries has speeded up. In a survey on the consequences of broadband development among rural companies dependent on customer interaction, several companies have indicated that access to broadband internet instead of attracting new business activities has retracted businesses away from the sparsely populated areas.

Similar processes have been seen in connection with other infrastructure constructions, as for instance new roads and tunnels not only provide better access to remote communities, but also new options for leaving the places. That has to a large extend been the case on the Faroe Islands. Increase in web-based education services has been argued to have had similar effects as even very high speed broadband connections are not able to replace the direct human interaction. What is often forgotten in this connection, however, is that an increased population density enables the option for better services in relation to for instance child care, education, and leisure time activities, and this provides a life which is considered attractive by many, even such an approach may disregard the risk of generating disparities, economically as well as socially.

The Map 2 from Megatrends provides an overview of all settlements in the Arctic, with a focus on population change during the period 1990-2010. All settlements with less than 5,000 inhabitants are shown as dots while settlements with 5,000 or more inhabitants are shown as circles with an area equivalent to the population number. The colours indicate the changes, with yellow showing places where no changes have taken place, while red indicates those places with a declining population, and blue places with a population increase. The insert shows a map of the northern part of Scandinavia (plus Finland and the Kola Peninsula) where the settlement density is highest. The map highlights the complex nature of the pattern of change and, in addition, that there is a marked divide between regions.

Most of the smaller places in Fennoscandia and Russia have been declining markedly in size while a substantial number of the larger places have also suffered the same fate. Changes in the demographic parameters especially in terms of declining birth rates have been a major factor here though out-migration from smaller to larger places, and continued migration out of the region as a whole have also been important here. The places which have experienced major growth in Fennoscandia and NW Russia are places where educational opportunities are available. Similar patterns are shown in the North Atlantic region where Thorshavn, Reykjavik, Akureyri, Nuuk and Sisimiut have been the big receivers, while most of the smaller places have experienced a decline. In the Western part of the Arctic a few of the smaller places and most of the larger places have experienced population growth while the remainder of smaller places have experienced either moderate growth or decline. There are differences in the reasons for growth. In Alaska in-migration is an important factor, just as the still relatively high birth rates contribute to growth in even the smaller settlements in spite of the fact that out-migration plays an important role here also. A similar situation is experienced in the Canadian territories, although with a different weight on the various parameters involved; Yukon and NWT with in-migration contributing while high birth rates remain important for Nunavut, Nunavik and Labrador and Newfoundland.

Settlement size

For most of the Arctic, the majority of the population is today living in large settlements – towns and villages. Half of the population in Arctic North America and in the North Atlantic – Alaska, Canada, Greenland and Iceland – are living in settlements larger than 25,000, even this size group only covers around 1 % of the total number of settlements. In the other extreme more than half of the settlements have less than 250 inhabitants, but only covering around 4 % of the population. This pattern – a few large settlements in combination with a large number of small places clustering around the large places – is a general characteristic of the settlement structure in the Arctic.

Most small settlements are placed in relation to a land-sea or land-river continuum and primary based on the high productive parts of the sea and rivers where resources for fisheries and hunting of sea mammals are abundant.

Another characteristic group in the Arctic settlement structure is the medium-large scale settlements dominated by administrative and educational activities providing public and private services to the rural

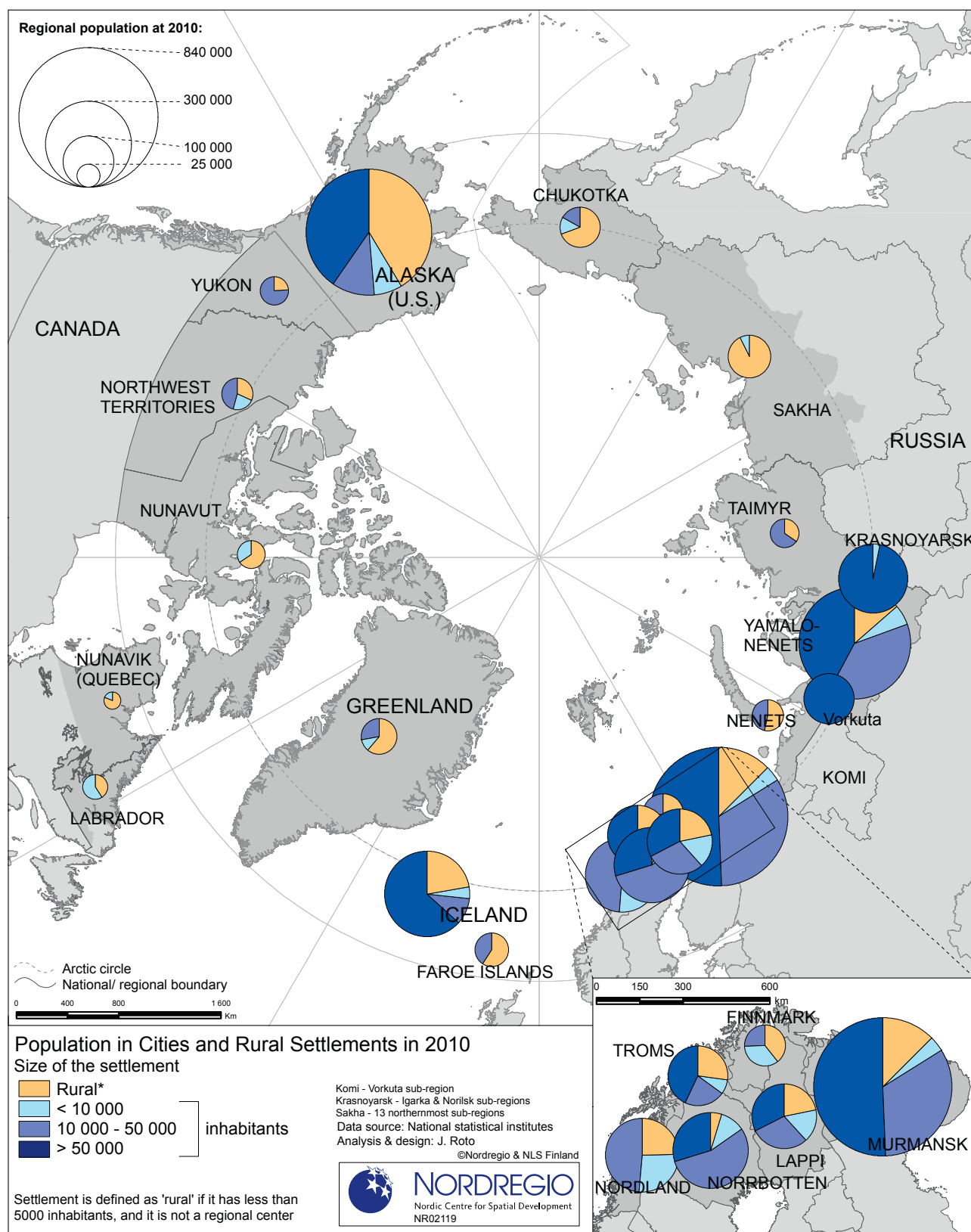
areas.

The result has been settlement patterns which can be described as a conglomerate of a conscious and rather similar settlement policy, a very different commercial and industrial policy, and of course also heavily influenced by the settlement pattern which has been the result of the traditional use of renewable resources.

The traditional resource usage required a dispersed and flexible settlement structure, but through the process of modernization and industrialisation it became necessary to create infrastructure and labour markets, just when the social institutions, which were required for the reproduction of the labour force, became necessary.

Above all, it created a requirement for a much more centralized instead of the traditionally dispersed structures (Rasmussen, 1998; Duhaime, 1987; Hansen 2008). The concentration process has been continuing, with growing population in the large settlements and a decline of the share of the population living in the small settlements (Duhaime, 1991; Duhaime, Frechette and Robichaud, 1996).

The Map 3 from Megatrends provides an overview of the role of different settlement sizes in the Arctic. The settlements have been subdivided in groups of less than 10,000 inhabitants, 10,000-50,000 inhabitants, and more than 50,000 inhabitants, with shades of blue indicating these three groups. At the same time settlements with less than 5,000 inhabitants and not defined as a regional centre are characterised as rural population. The size of the circles is relative to the total population in the regions. While Alaska, NW Russia, Fennoscandia and Iceland are characterised by cities with more than 50,000 inhabitants constituting a substantial part of the total population, the NE part of Russia, Canada and the remaining parts of the North Atlantic region have no settlements of that size. The highest concentration of population in large settlements is in Iceland, followed by the Kola Peninsula and Alaska. In the other regions with this size of cities the share is around 25 %. In the regions without larger settlements the share of rural population is instead very high. The largest share of rural population is in Sakha and Nunavik, between 80 % and 90 %, but it is also very high in Nunavut, Greenland, the Faroe Islands and Chukotka. These regions are instead characterised by a relatively large part of the population living in rural environments, Sakha with around 90 % of the population, followed by Nunavik with around 80 % in such circumstances. In Nunavut, Greenland, the Faroe Islands and Chukotka the rural population constitutes more than 50 % of the total population according to the definition used.



Map 3: The division of population settled in rural areas (yellow) and different urban settlement types according to population size.

Privatization

In most parts of the Arctic a high level of involvement of public activities has been dominating. The reasons for this involvement may have been different – geopolitical considerations, colonial characteristics, regional policies etc.

The question of what constitutes welfare is different in the different parts of the Arctic, just as the means of providing welfare to the population has been different. Varied aspects of what indicators of social wellbeing can be useful in determining different aspects of welfare have been scrutinized in connection with the Arctic Social Indicators.

At the same time the public system of welfare is under pressure due to demographic changes as well as from tougher competition on the global industrial arena. The funding of the comprehensive welfare regimes to a larger and larger degree depends on income generated by supplying the increasing demand caused by the growth in new industrialised countries in Asia and Latin America. The role of the state in maintaining a proper level of welfare for the population is considered to be an important task in most of the Arctic while the means of providing it differs considerably.

Important consequences have nevertheless been quite similar: a large public sector with the state and regional authorities involved in most regulation and planning measures. Parallel to this, however, a private sector has emerged and challenged the public authorities as the main provider of services.

In many parts of the Arctic the result has been a situation with an increasing delegation of former centralized public authorities towards local and regional involvement. But first and foremost, a process of delegation public authorities to the private sector which eventually has turned out to be still stronger.

It is a situation which characterizes most sectors, but it tends to have been increasingly apparent in connection with the housing sector. While previously housing has been highly dependent on state or municipal involvement – often connected to public subsidies – an increased focus on the private sector involvement has been still more dominating. Consequently, the housing sector may serve as a very good case in this relation.

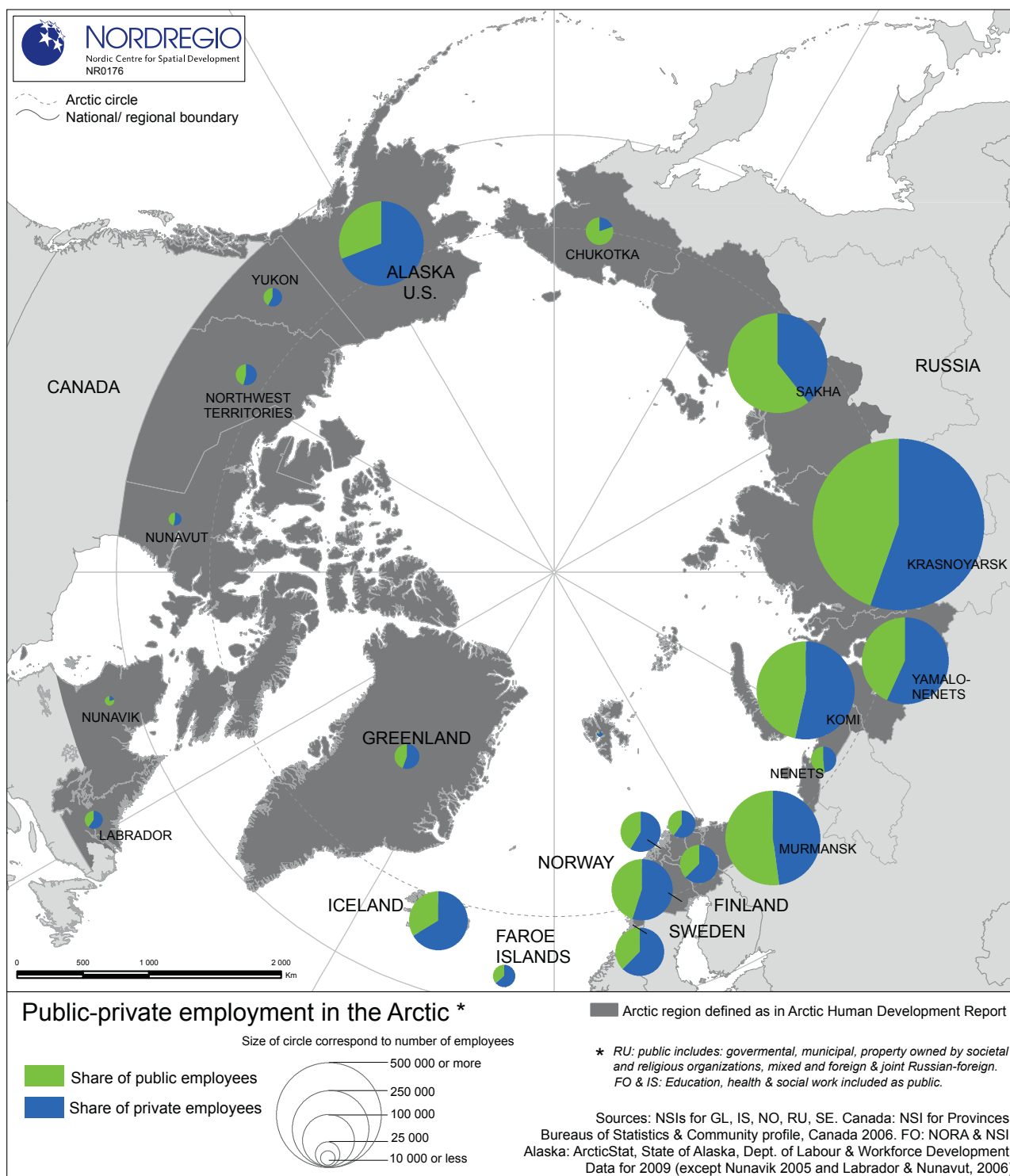
The Map 4 from Megatrends shows the distribution between employments in public versus private activities in the Arctic, and reflects the role of these two types of activities in the economic structure of the region. According to the OECD the public sector today represents between 5 % and 28 % of the workforce in most OECD countries, with the numbers remaining rather stable over the last decade. Looking at the Arctic there is around a 50/50 division between the two sectors on

average. The public sector has a huge influence on livelihoods in the Arctic simply by providing around half of all employment in the Arctic region. But as shown on the map marked differences exist. In NW Russia the public sector is slightly below 50 %. This is similar to the situation in Fennoscandia and the Faroe Islands. An exception here is Murmansk where the private sector is below the 50 % mark. Greenland is close to the 50/50 mark, while Nunavik, Nunavut, Chukotka and Sakha are regions where the public sector contributes more than 50 % of the employed workforce, in the case of Chukotka this is substantially more. From NWT towards Alaska the public sector involvement declines, with Alaska being the part of the Arctic where the Public sector contributes least. What is not shown on the map however is the fact that public employment could be subdivided into government-related activities versus public (quasi-)corporations. While the first type dominates for instance in Fennoscandia, with only a small percentage of jobs in public corporations, the percentage is substantially higher in Canada and in Greenland.

Housing

While most of the Arctic is characterised by a large public sector where the state authorities have been involved in most regulation and planning measures, the delegation of power and responsibility to lower administrative structures has been introduced, promoting and maintaining strong local autonomy and democratic accountability. Parallel to this, a private sector has recently emerged and is increasingly replacing the public authorities as the main provider of services. This includes the privatisation of resources – renewables through Individual Transferable Quotas, Community Quotas etc., as well as non-renewables – resulting in what may once have been a public resource being turned into a form of private ownership, in some cases with unexpected local consequences. Similarly, the privatisation of responsibility for individual amenities such as housing contributes to the fostering of a more locally based economy. Due to the high costs of establishing infrastructure and maintaining connections in the Arctic, however, the public and cooperative sectors will continue on as significant economic players.

One of the main elements of the transfer economy is welfare payments, unemployment compensation and pensions. In addition, transfers may also help to create jobs in the community directly through government employment or indirectly by subsidising private development. Finally, transfers provide goods and services to people, schools etc., in the form of food assistance or



Map 4: Public-private employment in the arctic. Green colours show the share of public employment while blue indicate the share of private employees.

housing. In addition to direct public support, Cooperatives have been another contributor to the continued maintenance of the sparsely populated regions in the Arctic.

Meanwhile on land, the concentration of amenities, necessities and choices in regional or larger centres draws mobile elements of the population there too, at the expense of more dispersed and historically resource-dependent places. Voluntary migration has generally been selective for younger age and higher ambition, to the detriment of source communities left behind. Around the circumpolar North in recent decades, we have also seen migration selective for gender – women, more often than men, voting with their feet about the relative attractions

Just as public employment has been a trademark for the Arctic, also public housing has made an important contribution to the improvement of housing conditions in the Arctic. Rented dwellings – apartments, terraced or semidetached houses as well as individual houses – often in connection with employment and with favourable rental conditions as part of the employment contract, is still important in many regions.

The current situation is shown on the Map 4 from Megatrends, and illustrates a division between the regions – Greenland, Nunavik, Nunavut, NWT, Chukotka, Taimyr and Nenets – where most of the dwellings are rented, and the other regions where there is a dominance of owner-occupied dwellings. In the Faroe Islands almost all dwellings are privately owned. Only a few apartments are rented out and these are typically basement apartments rented by students or single persons. Nunavik, Nunavut and Greenland are among the regions where the majority of dwellings are owned by public organisations, for instance in Greenland by the Government of Greenland or by the municipalities, or in a few cases by large companies. Looking back just fifteen years the picture would have been very different. In Russia where the majority of dwellings today are privately owned, fifteen years ago most of the dwellings would have been either state owned or owned by cooperatives. The same picture would have been seen in Greenland with fewer dwellings privately owned at that time. The processes toward privatisation in Rus-

sia and Greenland have been very different, in Russia the process occurred over a very short period of time, while in Greenland the process has been much more evolutionary over nature. A similar process is only now taking off in the Eastern Arctic in Canada.

Conclusions

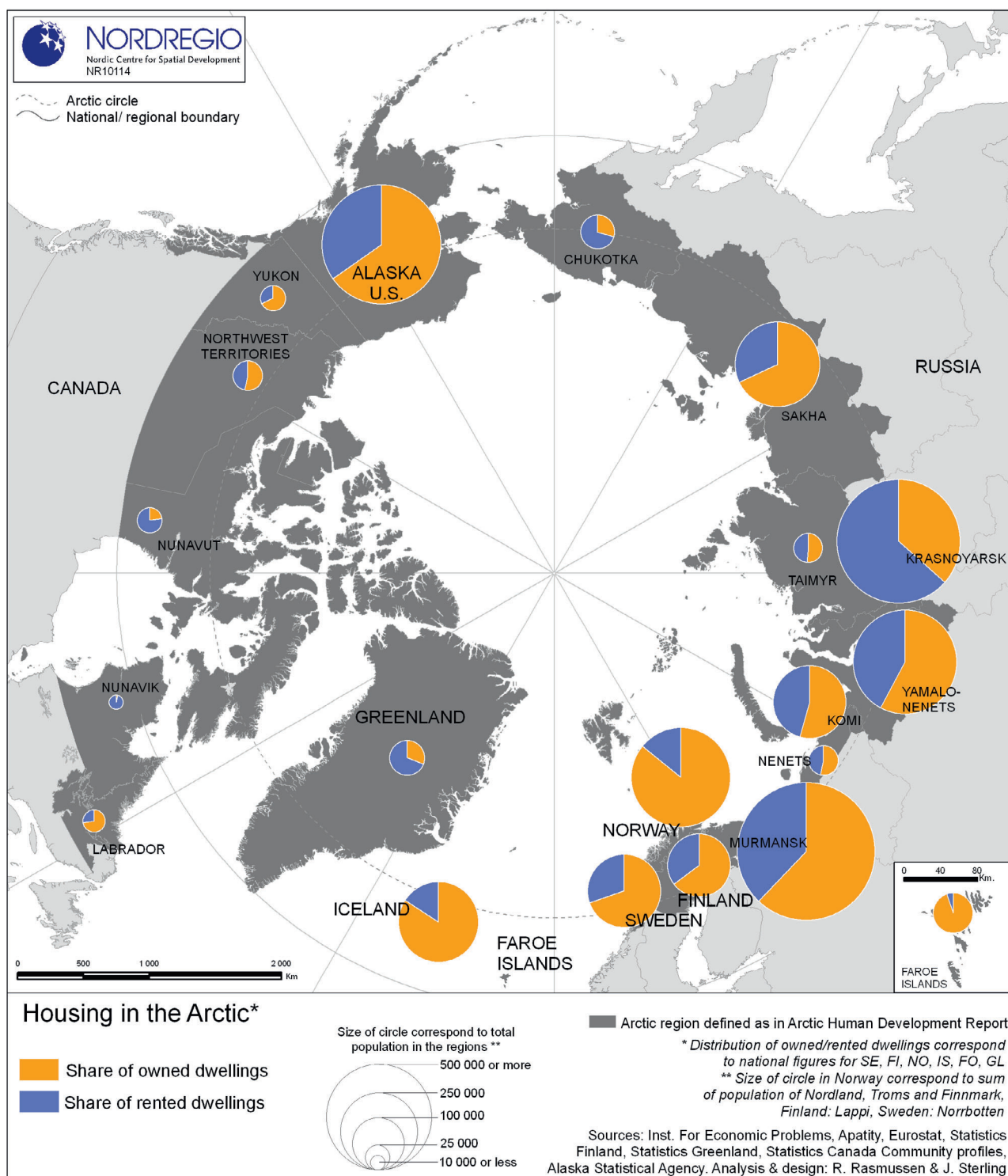
In the following chapters – representing the heart of the project – a series of case studies are presented. In the project proposal a central idea has been to focus on the individual cases and move towards more general characteristics of the development processes, and eventually identify reasons and arguments for regional differences.

The cases have been arranged in an order which enables the reader to recognize common features which can be used as pointers towards what might be considered major trends. The goal of identifying these trends has been to establish a set of plausible drivers and enablers that illustrate the likely processes of change in a medium to a long term perspective.

The task has, however, also been to seek and identify regional differences in development opportunities, hindrances, as well as policy constraints. Through the structural analysis, resulting from the case studies, a set of drivers have been identified.

Among the drivers are the social and cultural characteristics of the cases, the innovative capacity through the ability to respond to changes, economic robustness given by the diversity of the regional economies, the internal and external markets, the spatial characteristics, and the governance of the regions. Last but not least the challenge of globalization reflected through the global financial crisis with its aftermath taking place during the project period and therefore very much influential on the interpretations throughout the case studies.

The case studies provide concrete examples of different approaches to vulnerability and robustness. With the focus on housing as a common denominator throughout the project the interaction between the variety of economic, social, demographic and political processes has been identified.



Map 5: Housing characteristics in the Arctic based on the division of dwellings as owned (yellow) or rented (blue).

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The Social and economic characteristic of Murmansk region

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Settlement system and urbanization process of Kola Peninsula

The Murmansk region is in the Kola Peninsula where 99 % of its territory is located to the north of the Polar circle. The first settlements on the Kola Peninsula have appeared in the 14th-15th century on the coast of the White Sea, which is on the southern border of peninsula. There were coast-dweller (Pomor) villages which population were fishermen, catching of sea animals and salt production. The village Kandalaksha was the center.

In 16th century, after the Kola jail was built in the north of peninsula, Kola village became a center of administrative where all the administrative offices moved to the village. Within the 16th-18th centuries, settlements in the north of peninsula developed. Along the coast of Barents Sea, new settlements of fishing appeared. During the same period «a monastic colonization» was going on in peninsula, orthodox monasteries (Pechengsky, Kandalakshsky) as settlements and the cultural, economic and social centers of corresponding territories developed.

The basic transport ways connecting settlements of peninsula among themselves and with other regions of the country and the world were passed by sea. In this connection, the coastal system of compact settlement of rural was generated to the beginning of 20th century on peninsula.

On border of the 19th and the 20th centuries, the process of an urbanization of Kola Peninsula began. In 1899 at the coast of Barents Sea in Ekaterina's harbor, the first city was established; it was Aleksandrovsk (now Polarniy). It arises on a new place within three years in connection with building of new trading port. Here, the administrative center of Kola village moved too.

In 1915 at the same coast in Kola bay, building of military port began and the settlement which quickly grew was coated and next year receives the city and administrative center status; Romanov-on-Murman



(nowadays region capital - Murmansk). For maintenance of an overland steady transport a railroad line between Murmansk port and the central regions of the country Murmansk-Petrozavodsk was built in 1915-1916.

This railway, and also arrangement of the basic deposits of natural resources define further the settlement system on Kola Peninsula.

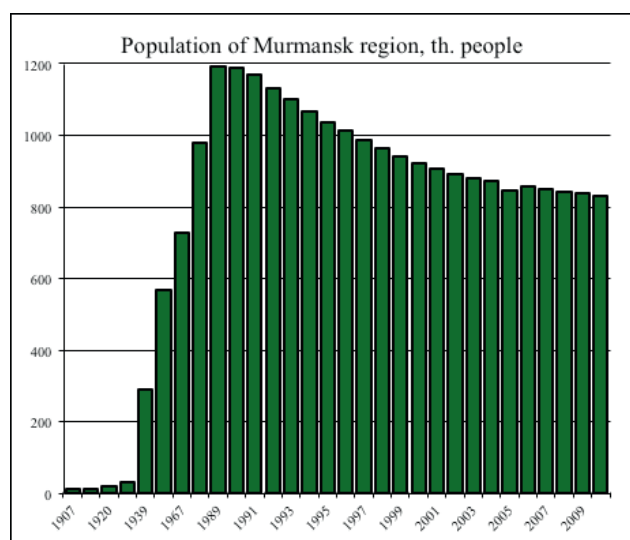
Since the 1930s, the period of industrialization on peninsula began. The big industrial complexes on extraction and processing of minerals were under construction. Around the 1950s and 1960s, the former settlements of builders became cities. New cities were connected to the basic transport highway of region, the railway with additional branch lines. The main automobile highway of region was also coated down along the railway.

Nowadays there are 4 of 6 agglomerations – Murmansk, Monchegorsk, Hibinsky and Southern, along this road. One agglomeration more is located in the southwest of peninsula – Kovdorsky and one in the northwest – Pechengsky. The settlement of the structure is from the south to the north at length of 262-284 km, and at width from 2 to 30 km. In cities and other urbanized settlements lives 92 % of the population in Murmansk region.

At the end of the 20th century on Kola Peninsula, the meridian system in city settlement was formed. The first stage of an urbanization and region development has been caused by a militaristic policy of the Russian state and the second stage, a policy of fast industrialization of the country. The urbanization did not carry gradually but it accelerated character for 30 years from 1959 to 1989, where the urban population had increased twice from 500 thousand people to 1 million people, and in comparison with 1939, 4 times.

The Social and Economic status of Murmansk region

Demographic indicators and structure of the population



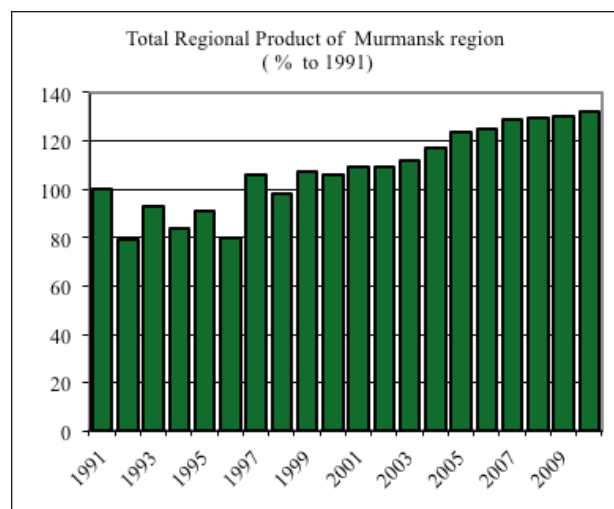
The population's maximum quantity in Kola peninsula had reached 1 million 190 thousand people (Appendix 1) in 1989. At the same time as the beginning of the social and economic reforms in Russia, the migration out of the peninsula began. Within the 1990s the Murmansk region lost annually 2-3 % of the population on the average and before the year 2000, it was 1 % of the population. As a result for 20 years, the region's population had decreased almost with 40 %, basically at the expense of negative balance of the migration.

Most heavily for 20 years, is that the quantity of youth has decreased with almost 60 % and the population of able-bodied age¹⁴ with 30 %. The quantity of the population which are elder of able-bodied age had increased with 1.4 times.

Last years, the rates of decrease in population of region were slowed down but there are tendencies of migratory outflow, also as well as natural population loss.

¹⁴ Male 16-59 years old, female 16-54 years old.

Dynamics of a total regional product



The basis of economy in the Murmansk area is made by the mining enterprises. In 1990-1998 there was a recession of industrial production in Murmansk region and therefore, the region's TRP total amount was decreased.

Stable growth of a total regional product began with the beginning of 21-th century (Appendix 3) but with small decrease because of crisis in 2008-2009. But in 1999, the volume of TRP had reached level of 1991 and during the following period by 2007, it had increased with almost 25 %. Decrease in volume of TRP in 2008 was insignificant and had made 0.5 percentage points. Thus, the TRP per capita increase in 2008 remained positive was caused by the decrease of population's advancing manufacture reduction.

Incomes and Expenditures of households

In Murmansk region, as well as in all northern regions of Russia, the average level of incomes till the 1990s was higher than the average in Russia. It was reached by additional charges to salary paid by the state as indemnification for work in northern conditions. These additional charges are in the government of economy sectors but its relevance is leveled at the expense of low levels of a basic salary from which they pay off.

During the 1990s, the recession of real incomes of the population was observed (Appendix 3) and in the years of 2000, it was lifted. The volume of incomes received in 2009 was 2.8 times, which means higher than a living wage in 1999 that was 2.1 times. Growth of incomes has not compensated the previous recession until now.

During 1990-2010 there was a considerable growth

of a share of expenses of households for residence payment. In the beginning of the 1990s, the share of expenses of a household by this term was very low at the expense of the administered state policy. 95 % of the expenses on housing services and general overhaul of houses were financed from the state budget. From the beginning of 90th years the state gradually reduced the expenses on these purposes and accordingly, the share of payment by the population of housing ratio was increased. At the end of the 1990s household of Murmansk region paid on the average about 90 % of housing services.

Expenses of the population on housing services payment in Murmansk region are one of the highest in Russia. For 11 years from 1999 to 2010, the share of payment of housing services grew more than twice from 5 % to 12 % in total amount of expenses. There is only operational expenditure of households, which enters into this sum (cost of expendable resources, fee of the operating and serving organizations). During 2003-2007 these expenses in Murmansk region grew 2.9 times. The amplitude of a housing expense ratio has made 2.4 times – from 18 % of consumer expenses at households with the minimal available resources to 7.5 % – with the maximum of available resources.

All available housing stock has not corresponded to requirements on heat consumption. That produces constant growth of cost of heating and its share in housing ratio on expenses of the population. If it made it 39 % in 2006 from housing and communal services of cost, it means that it already will be on 45 % in 2010. In some towns of the region, payments for heating are higher than twice of average for region level and the average for the whole country is 4 times more.

There is no real estate tax, which since 2005 is paid by households and which had grown from 2008 to 2010 on the average 40 times in this sum¹⁵. Also in this sum, there are payments on mortgage loans (the interest rate makes 11-15 % annual), which also can make a considerable share of expenses and deductions on repair of apartments and renovation of houses that have not been considered.

The problem of high level and growth of expenses for housing services is caused by several factors. First of all, it is the high specific resources consumption of housing stock, which connected with design features of houses for which discrepancy to northern environ-

mental conditions, modern requirement in resource saving, infringements of Rules, Regulations for Building Design and use of buildings is significant. The second factor is constant general growth of tariffs for the municipal goods and services on the average on 15-20 % annually. The third factor is the existing system of a municipal infrastructure. The system of the centralized water supply and heating is maladaptive for demographic and economic situations of change. In particular a structure like this of municipal maintenance does not allow reducing water- and heating supply organizations of expenses to proportionally reduction of population in cities and settlements that increases financial capacity by budgets of a remaining part of households.

Housing structure and quality

In Murmansk region, near main enterprises, the worker towns were built with typical “soviet architecture”. Mostly, it was 5-floors panel-wall buildings with small rooms and kitchen, provided with electricity, central heating, water supply and sewerage system. These conditions were much better than in other Russian towns. In 1980, the new types of houses begun to built. Mostly, there were 9-16 floors houses with bigger living space.

The Government funded all construction. In 1990, housing construction was stopped because of lack of money. In 2000, new house building for reach people started without high activity. The average size of apartments at new building has considerably grown. In 1990-1995, the average size of a new apartment was 56 sq. m. and a total area for 2008-2009 was 120 sq. m. Since 2005, 152 cottages with the average area of 200-250 sq. m. were constructed. Most of them are concentrated in the regional capital, Murmansk.

So, majority of the population lives in panel-houses, which are 30-50 years old.

For the last 20 years in Murmansk region the level of urbanization and housing service has been one of the highest in Russia (Appendix 2). It is because the volume of housing remains invariable and because there is a decrease in the population. In 1990, there was 14.5 sq. m. dwelling for one person in Murmansk region, and in 2010 it was 24.3 sq. m. This growth is received due to population decline.

The structure of available housing remains almost invariable throughout the considered period. The area of available housing of apartment houses is about 95 % of available housing. The share of individual cottages and townhouses grows slowly and was less than 3 % in 2010. Hostels and places for stay depending on time (sanatoria, asylums, etc.) are the insignificant part of available housing.

15 The real estate tax pays off from inventory cost of apartments. This cost pays off city Bureaus of technical inventory, and decisions of the regional government to this cost establish recalculation factors on every year. The rate of the real estate tax is established by town councils within 0.1-0.4 % from inventory cost of housing.



Accordingly, the majority of the population around 90 % lives in separate apartments of multifamily housing (own or municipal), nearby 1 % in individual dwelling. The structure of living in hostels, communal flats and tenants of commercial habitation has changed only. The share of first two categories has decreased in 2010 in comparison with 1990 about from 12 % to 2 % but the share of the third category has increased from 0.5 % to 7 %.

The average size of apartment makes about 50 sq. m. of a total area and actually has not changed during 1990-2010. The share of one-room apartments is 22 %, of two-room it is 50 %, of three-room it is 26 % and four or more rooms it is 2 %.

The Size of kitchen is about 4-6 sq. m for houses that were built before middle 80s and for later construction of houses, it was 8-9 sq. m. for later construction houses. Size of rooms is different. In most cases, one room is bigger, about 16-18 sq. m and others 9-14 sq. m.

The Murmansk region ranks the first place by improvement of housing across the Russian Federation (Appendix 4). All housing stock of the region is electrified. More than 95 % of housing stock has the centralized hot and cold water supply and sewerage and 98 % has the central heating.

By the end of the 90th years physical deterioration of building designs and engineering communications in houses became about 60 %. In the beginning of 2008 about 25 % of housing stock of the region has overcome a threshold of 50 % deterioration, and 13 % of housing

stock had more than 66 % physical deteriorations.

Level of investments in general overhaul of dwelling houses remains stably low for all last years. During the 1990s general overhaul was almost not spent. Because of increase of deterioration of designs and engineering networks in the beginning of 2000, public funds in the limited volumes were allocated for carrying out of partial general overhaul. Volumes of allocated financial resources grew in nominal numbers. In the same time expenses on general overhaul in 2006 have made 515 million rub that in the comparable prices were 50 % lower than in 2000. In 2007-2010, the real expenses on general overhaul have increased but have not reached the level of 2000. In 2009, partial general overhaul have been spent in 192 houses of the region where in 2010 were in 156. Cost of this overhauling was more than 1 billion rub. At preservation of today's rates of carrying out or renovate by 2025 was 54 % of housing, hereby, will more than 50 % have physical deterioration.

The Individual dwellings until 1950 of construction were completely electrified, but a part of them had no cold and hot water supply and had no own systems of heating, including an oven. Modern individual houses and townhouses are completely arranged well and as a rule have independent system of a heat supply and hot water supply.

Presence of forecourt for infrastructures also depends on the time of house building. As a rule, there are small territories with children's playgrounds at the majority (about 80 %) of houses. But now these territo-

ries are transferred under parking because of the architectural decisions of the Soviet period did not provide enough parking places for cars.

In the 1980s, the method of garbage removal with containers began to be applied in Murmansk region and under container platforms; a part of forecourt has passed territories that were initially provided for other purposes.

The policy of housing changes

Housing reform was one of the main processes in the Russian Federation during the last twenty years. This reform has significantly affected the situation in the Murmansk region.

The principal possessor of real estate of country has including housing stock as the main approach of solving citizen's housing problem until the early 1990s where they granted them public housing (including departmental and municipal) to use the subject of the conditions of labour agreement. In urban areas, apartments in blocks of housing cooperatives granted the pittance of citizens but in urban ones and in towns dwells the population usually in houses (individual housing facilities) constructed or acquired at their own costs.

In 1991, a new law was adopted about housing's privatization. The Federal Government was interested in quick privatization process of houses, so throughout all the country special privatization, agencies were established. Apartments were free of costs to the citizens their only duty was to pay real estate documents for preparation of the cost. It was restricted to private housing units which are in state of emergency, apartments in colleges, shared apartments, houses of regulated military towns, on the areas of national and natural parks, botanic gardens and so on.

The main purpose of privatization of housing units was sufficient decreasing of state financing of housing utilities in conditions to the deficiency of strict budget. The reduction on the budget expenditures for communal and housing-service through the establishing of a free market for dwellings, was aiming at increase of dwelling quality, improvement of housing services, as well as an overall reduction of federal and regional budget expenditures for communal and housing service.

In Murmansk region, 48 % privatized housing units were privatized for 1999.

At the same time, rate of municipal ownership in some settlements in Murmansk region is still rather large, from 30 % to 80 % of housing stock. As the rule municipal housing units are distributed between dif-

ferent blocks and houses practically, all residential units are combined with origins of ownership of private and municipal.

Preserving of such a large rate of municipal form of housing, partly ownership is the result of that transaction of ownership to its inhabitants, which also means transaction of responsibility of management of houses and operation. Previously, mass ownerships got their rights for transaction of management function that was fulfilled by a municipal company, which was as a rule a local monopolist. Subsequently, at new legislative Acts it was specified that responsibility of the houses' management and operation would be granted to owners.

Additionally, privatization process of houses was slowed down by the program of relocation of population from northern regions of Russia to the regions with more livable climatic conditions. Russian federation's Government since early 1990s manages this program. The main goal of this program is relocation from arctic regions by such people who have worked out their manpower resources in the North and who don't have financial possibilities to migrate on their own. Volume of financing for people of relocation by the Government is not sufficient for providing housings for all people who want to leave the North.

In year 2008 in Murmansk Region 420 citizens received State Housing Certificates and fixed up with housing in Midland Russia. In year 2009, it is planned to provide 892 more ones¹. But, when the financing volume is on approximately 28 thousand people, even the present certificate granting will be doubled that will prevent an opportunity for present standing in the waiting list to receive their own housing before the 30 years has gone.

In 2005, the Decree of the Russian Federation's Government was adopted, according to which 100 % of payment of housing and utilities costs for population were announced. Thus, every region has right to prescribe the level of housing and utilities costs for population.

In year 2006, the federal budget compensates 5 % of the communal services for the Murmansk region and in 2010, 0 %. Since 2007, the federal budget has stopped to finance gaps between prescribed levels of communal costs and norms of repayment by population.

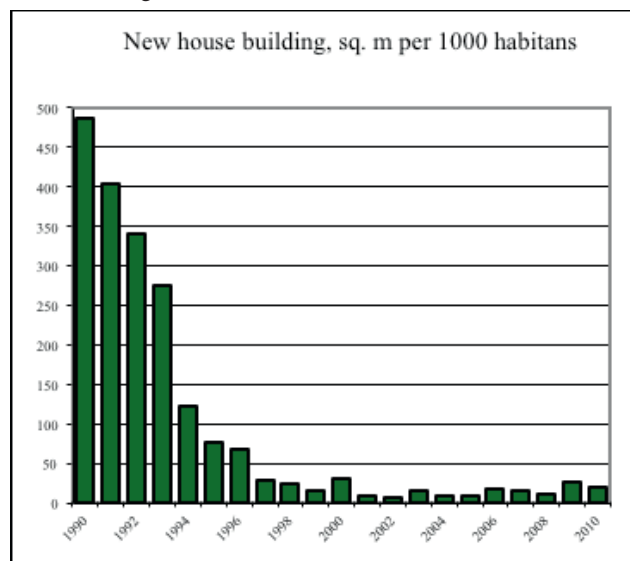
In 2005, new system of personal subsidy was established for poor people. Since 2007, granting donations for low-income population became an obligation of regional budgets and regional governments started to establish their own standards of donations; granting. It was established for every region that right to donations has two categories of citizens: 1) families, for whom paying communal costs exceed 22 % of the whole in-

come; 2) families, whom the income is less than the rate of wage. In some regions there are additional categories of citizens who have rights for donations, for example lone people whom income is less than 1.5 % of the rate of wage. According to the legislation, municipalities have rights to grant donations to other categories of citizens for their own decision but costs of such donations have to be for municipal budgets.

The problem of heating supplies remains very serious for the northern regions. All towns and cities have centralized systems of heating supplied. The warmed-off infrastructure, accumulated debts of population and companies, which leads to that in winter season many towns and cities meet without heating. Under such conditions, as a rule region' budgets (in exceptional cases – the federal one) additional the donations get granted to municipalities for buying fuel for heating of the infrastructures repair.

Building and renovation

Since the 1960s, tenement houses were actively under construction for growing population. In the mid-nineties housing construction was almost stopped. In 2000 weak revival of building activity basically on the expense of building of the elite of tenement expensive of house cottages and townhouses, which were observed.



The average size of apartments at new building has considerably grown. In 1990-1995, the average size of new apartment was 56 sq. m. of a total area; in 2008-2009 it was 120 sq. m. Since 2005, 152 cottages with the average area of 200-250 sq. m. were constructed. Most of them are concentrated in the regional center, Murmansk.

Low volumes of housing and concentration of the bulk of building in a narrow segment of elite dwelling leads to that this process yet doesn't render significant

influence on neither on indicators of security population habitation nor on the housing fund.

Renovation of buildings at the moment means repair/replacement of elements of designs and networks. The basic direction of the renovation is prevention of physical deterioration of communications and separate constructional elements of buildings. One more of a direction of renovation is carrying out of resource saving where arrangements in particular, works on heating system.

By the end of the 1990s, physical deterioration of building' designs and engineering communications in houses was about 60 %. In the beginning of 2008 about 25 % of housing stock of region has overcome a threshold of 50 % deterioration, and 13 % of housing stock had more than 66 % physical deterioration.

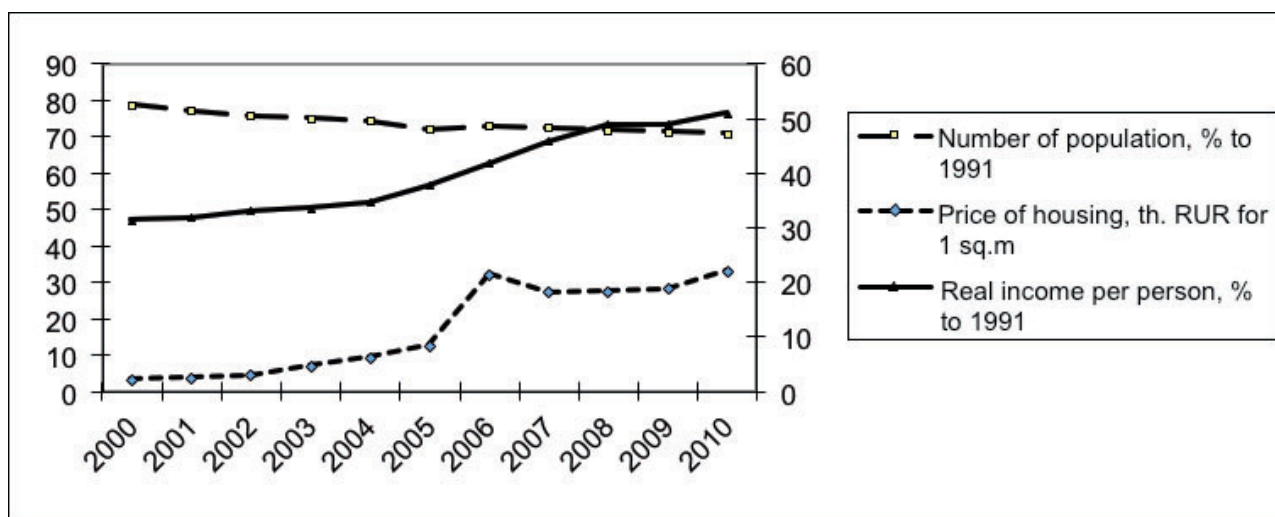
Level of investments in general overhaul of dwelling houses remains stably low for all last years. During the 1990s, general overhaul were almost not spent. In the beginning of year 2000, because of increase of deterioration of designs and engineering networks, was the state funds in the limited volumes allocated for carrying out of partial general overhaul. Volumes of allocated financial resources grew in nominal numbers. In the same time, expenses on general overhaul in 2006 have made 515 million rub that is 50 % lower than in 2000 of the comparable prices. In 2007-2010, real expenses on general overhaul increased but didn't reach the level of 2000. In 2009, partial general overhaul was spent of 192 houses of the region and in 2010 of 156. Cost of this overhaul has made more than 1 billion rub. At preservation of today's rates of carrying out or renovate by 2025 was 54 % of housing, hereby, will more than 50 % have physical deterioration.

According to the experts, the moral depreciation of construction of dwelling is more than 70 %. The most part of housing is constructed before the 80s and only about 15 %¹⁶ of the housing is with enough high characteristics on comfort. The bulk of housing¹⁷ of the region has qualitative characteristics¹⁸ that can't be

16 Houses so-called «a Stalin lay-out» are characterized by high ceilings, a big kitchen and a hall.

17 Houses concerning by "the Khrushchev's" period. In the majority they are panel houses with the lowest consumer properties.

18 For example, in some series of houses the height of ceilings doesn't exceed 2.50 m – it is impossible to change this parameter. Other series of houses have so thin walls that it is actually necessary to put up one more wall around them to reach comprehensible level of heat consumption and sound insulation. Roof decks, by which the most part of the housing is covered with, have operation term twice lower, than pitched roof, etc. The problem of a condition of concrete panels and term of their operation is also important, because the considerable part of housing of the region is made by houses of this kind.



Pic: Dynamics of estate market in the capital of Murmansk region in 2000-2010.

improved or it demands expenses for reconstruction, which are non-comparable to new building. Housing was constructed in 1980-1990 of so-called «the improved layout» that also doesn't correspond to modern requirements by a number of characteristics (sound and a heat proofing, a condition of internal networks) that produces necessity of considerable reconstruction.

Real estate market

The legal estate market has appeared in the region after the 1991, when Privatization Law was passed. People received right to sell and buy flats and the volume of the transactions constantly grow in Murmansk region. The small recession, which was taking place in 2009, has not affected the general trend. In 2010, there have been spent more than 11 thousand transactions that are 25 % more than in 2009. The quantity of housing purchased by mortgage has grown too. In 2010, it has been registered more than two thousand such transactions, while in 2009 only was 1.2. Mortgage is about 18 % of transactions in real estate market.

In Murmansk region, the prices for housing constantly had grown except for 2009 when the price index has fallen to 8 percentage points. During the 90s, the rise in prices was gradual and stable. The first considerable jump of the prices occurred in 2002-2003 that was on 1.9 times. The following jump has occurred in 2006, which was on 2.2 times.

Dynamic of housing price in the region, in many respects, is defined by estate market of Murmansk city, the capital of the region. About half of regional population lives in Murmansk as well almost half of housing stock situated in Murmansk.

Main trend of housing price in Murmansk is the

growth although population has been decreased. The jump in 2005-2006 was caused mostly not by the macroeconomic reasons but the main source of such lifting of the prices was optimistic expectations by sellers and buyers. In most cases, these expectations have been associated with development of the Barents Sea Shelf. Thereby, some companies started to open offices in the town of Murmansk and bought some flats for their staff. When the development of the Shelf was moved to uncertain future, housing price went down. This fall was not that much and was on 15 % although the preceding jump was on 3.4 times. The crises of 2008-2009 had no significant impact on reducing housing price and now the price level is increasing and has reached the highest level of 2006.

So, the processes of estate market are not always clear and easily understood. On the one hand, a decrease of population results in increase of housing supply and on the other hand, a growth of real income increases the housing demand. Theoretically, these processes should balance each other and equilibrium price should fluctuate slightly. We can assume that there are additional factors, pushing the price up.

Firstly, the desire of sellers is to sell expensive. Sellers, who want to move to other regions, want to get as high price as possible, because housing prices in Central Russia are higher than in Murmansk. Secondly, income growth generates demand for more upscale housing, which is a deficiency due to a low level of construction. Thirdly, possibly, though the level of the resident population decreases but the level of temporary residents is high, it is not fixed by the statistic office. It probably means that people prefer to live in other places, and come here only for work.

Conclusion

The Murmansk-region is a highly urbanized region with accurately expressed city agglomerations. The mining makes the basis of economy of the region complex. Region TRP stably increases but real incomes of the population lag behind growth of TRP.

The basis of housing in Murmansk-region is made by apartment houses of the 60-80 years of construction. Houses are completely electrified. The majority of houses are provided necessary by engineering net-

works. The most part of housing has centralized water- and heat supply in the region. Hereby, the most part of houses have low level of comfort that are not qualified to the modern requirements on resource-saving, which concludes that the infrastructure of housing is poorly developed.

Housing construction is very limited and basically, is concentrated in a segment of elite dwelling.

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Appendix 1: Demographic indicators of the population of Murmansk region

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Population, ppl	1170,4	1133,3	1100,5	1066,9	1037,2	1012,1	987,9	964,1	941,1	922,9	905,7	889,8	880,0	872,8	846,6	857,0	850,9	842,5	836,7	831,8
Urban population share, %	91,8	92,1	92,2	92,3	92,0	92,2	92,0	92,2	92,2	92,3	92,3	92,2	92,0	91,5	91,4	91,3	91,3	91,2	91,2	91,2
Share of population in, %:																				
Younger able-bodied citizen	25,9	25,1	24,2	23,4	22,6	21,7	20,8	19,8	19,3	18,9	18,5	17,9	17,2	16,6	16,1	15,7	15,5	15,6	15,7	16,2
Able-bodied citizen	64,0	64,0	64,3	64,5	64,9	65,1	65,6	66,3	67,7	67,9	68,0	68,6	69,2	69,4	69,5	69,4	68,9	68,3	67,4	66,5
Older able-bodied citizen	10,1	10,9	11,5	12,0	12,5	13,1	13,6	13,9	13,0	13,2	13,5	13,5	13,6	14,0	14,4	14,9	15,6	16,1	16,9	17,3
Migration outflow, thous. ppl	-16,2	-31,1	-22,6	-20,9	-15,7	-13,4	-15	-16	-14	-15,4	-14,2	-12,9	-6,2	-4,4	-5,0	-5,1	-4,9	-7,4	-1,0	-5,1
Natural loss of population, thous. ppl	4,6	1	-3,2	-3,5	-3,4	-1,9	-1,2	-0,6	-2,5	-2,8	-2,9	-3,1	-3,6	-2,8	-3,2	-2,5	-1,2	-1,1	-4,8	-0,3

Appendix 2: Indicators of housing and new building in Murmansk region

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Average housing of population of total area in sq. m on one citizen	14,6	15,2	16,4	17,0	18,2	18,3	19,1	19,3	19,6	21,4	20,2	20,4	22,3	22,3	22,5	22,7	22,8	23,0	23,2	23,3
Input of new housing, sq.m/ 1000 ppl.	403,6	341,4	275,0	122,4	76,2	67,2	29,5	24,5	15,3	30,3	8,8	5,6	14,8	8,0	9,3	17,0	15,0	11,1	26,3	19,0
Cost of 1 sq.m of new building, thous. rub.									7,4	6,1	6,9	3,4	9,0	10,3	19,9	25,2	19,2	36,2	33,0	
Price, thous. rub./ sq.m.:																				
Primary market										9,4	10,5									
Secondary market										3,4	3,9	4,7	7,1	9,5	11,8	21,3	22,9	26,4	25,7	23,4
Price index in the secondary market, December by December, %											115,4	138	138	123	123	240.	107	116	92,1	

Appendix 3: The basic social and economic characteristics of Murmansk region

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Monetary incomes counting on soul of the population, thous. rub..	0,3	0,64	69	900	3573	744	1079	1332	1559	2465	3550	4620	5893	7135	8367	10373	12580	15221	18773	20998
Real monetary incomes (in % to previous year)	...	59	113	66	86	92	102	89	85	117	102	104	101	103	109	111	110	107	100	103
TRP in the current prices, billion rub.	n/a	n/a	n/a	5870	14357	16435	18191	23,7	42,0	55,1	57,6	68,4	80,6	125,0	132,9	158,1	191,6	215,9	n/a	n/a
TRP, in % to previous year	87,5	78,1	80,4	83,1	89,3	78,6	104,7	96,7	106,0	104,2	101,6	98,0	101,1	103,8	102,4	102,7	102,2	99,8	n/a	n/a

Appendix 4: Accomplishment of housing of Murmansk region, on the end of the year, in % to the size of the area of housing stock

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Housing stock area, provided by:																			
water supply system	...	...	96,8	97,1	97,3	97,3	97,5	97,6	97,6	97,6	97,6	97,6	97,6	97,7	97,7	97,7	97,7	97,7	97,7
sewerage	...	...	96,6	97	97,2	97,1	97,3	97,5	97,4	97,5	97,4	97,4	97,4	97,5	98	97,6	97,6	97,6	97,6
central heating	...	...	97,2	97,6	97,7	97,7	97,8	97,9	97,9	98	97,9	97,9	97,9	98	98	98	98	98	98
bathrooms (shower)	...	...	93,6	94,4	94,7	95	95,4	95,6	95,2	95,3	95,2	95,1	95,2	95,4	95	95,2	95,3	95,3	95,3
gas	...	...	35,7	34	35,3	34,6	34,7	35,4	37	36,6	37	36,2	36,2	35,6	35	34,8	34,7	34,7	34,7
hot water supply system	...	...	94,7	95	95,2	95,7	96,1	96,2	96,1	96,1	96	96,1	96	96	96	96,1	96,1	96,1	96,1
electric stove	...	...	54	55,4	53,9	55,4	55,9	54,7	53,2	53,6	53,3	53,1	53,2	54,4	55	55,2	55,2	55,2	55,2

ⁱ Information about realization of priority national project "Accessible and comfortable housing for the Russian Federation's citizens" in Murmansk Region on the first quarter of year 2009.:// www.gov-murman.ru

Household debt in Iceland

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Abstract

One of the important characteristics of the new global financial crisis is the role of rising household debt. Iceland's households were some of the hardest hit by the global financial crisis.

This paper provides a short "real-life" case example of how wrong it can go when there only are private ownership in the housing-sector – and insufficient public regulation & control.

Short term speculation and hunt for private equity (badly) timed with the effects of major crisis in the capitalist market economy – especially the international finance-sector – shows the "dark sides" of the urbanization strategy, based solely on private ownership housing.

Being on the one side; a home - something to live in for people and families – and on the other side; a capital-asset vulnerable coupled to the evils of the privatized capitalist banking sector that are gone all wrong – the so called casino-economy.

Summary

Distressed households combined with negative housing; equity falls hard into debt. Families with children being relatively harder hit by household debt.

New public regulation, such as debt restructuring measures and debt relief measures were strongly necessary in order to avoid a complete meltdown of the Icelandic household debt and to avoid an even further drop in the dramatic fallen house-prices since 2008.

The government had to bail out the biggest mortgage lender in Iceland (Housing Finance Fund). The State and The Banks had to take over and administrate some 4,000 houses units.

Adjusted for inflation property, prices are still down on 30 % since pre-crisis 2008. If the weakened currency value of the ISK is calculated, the housing prices can be argued to be even more down.

Falling house prices, yet rising rent prices. The share of rental housing is gone up from 14 % to 20 % in the insufficient public regulated private renting market. Rental prices are affected by the speculation.

From the extreme of no down payment when buying a home/house - to a raise in demand for up to 30

% in down payment is a major difference, especially for young people whom are the first-time buyers. Some effects are non-functional in mobility in the housing market.

Overproduction and waste of entrepreneurs in the number of newly build housing-units.

The discovery of that the free private housing market not being "free" at all and not creating the necessary security came as an unexpected surprise for many Icelandic people, especially for families with children. May this short fact-based paper contribute as an eye-opener for others?

Keywords

Iceland, housing and household's debt, crisis, financial crisis, public regulation, debt relief measures, housing equity, property prices, financial distress, debt restructuring measures, Housing Finance Fund (HFF), private rent market, mortgage lenders, inflation indexed loans.

Prolog

In the historical dimensions, Iceland has experienced a big increase in the housing sector in the eight years period of 2000-2008 when property prices grew more than 150 % (Inflations adjusted 70 %).

Iceland's households where among the most indebted in the World, up from 80 % of GDP in 2000 to 120 % of GDP in 2008.

The square meter prices when buying a house or apartment in the capital region of Reykjavik topped in the summer 2008 at between 450,000 ISK-500, 000 ISK (Approximately 6,200 US \$ per square meter at the time).

The crisis hits

In the autumn of 2008 three of Iceland's largest private banks – Glitnir, Landsbanki and Kaupthing, defaulted with a threatening debt of potentially up to ten times Iceland's GDP.

The banks were put into receivership and the government managed to reduce the debt to three times GDP, leaving foreign debt within the liquidated banks.

The State has only accepted the domestic/internal



They are the examples of the new housing in the suburb of Reykjavik Iceland (Photos by Søren Bitsch).

debt – and has transferred the private debt to the individual Icelandic debtors, resulting in that the State only took on public debt of one time GDP and the Icelandic citizens (companies and households) a bigger private debt of two times GDP.

On the ashes of the three defaulting banks, three new ones were re-established: Islandsbanki, Arion Bank and Landsbanki.

A giant discount/write-offs of domestic debt (households + companies) was implemented. It was between 4,891 billion ISK and 2,177 billion ISK. Most write-offs

were given to companies.

The currency ISK decreased by 50 % and the stock market crashed with 90 % of its values and house prices decreased by 30 %. Unemployment rose from zero to top in 9 % and the inflation skyrocketed to an average of 12 % in the period autumn 2008 to end of 2009. (Inflation peaked in short periods at 18 %)

Financial distress and negative housing equity

Already in the run-up to the autumn 2008, the collapse of Iceland's banking industry was 12 % of indebted households in financial distress. In the third quarter of 2008, it has raised to 23 %.

- One year later the share of households in distress peaked in the third quarter of 2009 at 27 %
- The share of households with negative housing equity was in the third quarter of 2008 15 %. The number rose to 37 % and peaked in the second quarter of 2010.

“Most households in distress in January 2007 had only a small negative margin but the situation had deteriorate considerably when the banks collapsed. The share of households in acute distress was almost quadrupled to 10½ per cent. Roughly half of all acutely distressed households at year-end 2010 were families with children, in which over 70 per cent had foreign-denominated loans” (Olafsson & Vignisdottir 2012b, 37).

Households in acute distress are defined as having a negative margin exceeding 100.000 ISK a month.



A rare sights in Reykjavik a social housing unit in the suburb of Reykjavik. (Photo by Søren Bitsch)

ISK indexed mortgages: In Iceland, the House-loans and mortgages are indexed to the consumer price index. The idea is to preserve the purchasing power of the borrowed money (Bonds).

But as the crises sent the inflation up to 12 %-18 %, the households got extremely indebted. Some households ended up owing almost 40 % more on the mortgages than before the crisis, even though the households have paid their monthly payments.

Or said/explained in another way: households paid their monthly payments but still owed the same or more as before the crisis hit.

Foreign currency loans (FX loans)

Some households have financed their cars and houses-loans in foreign currency, Euro, Swiss Franc or a mixed bag of currency. The debt burden on these loans of course became enormous because the ISK was put up to 50 % towards many other currencies.

- A total of 68,348 FX-loans was issued.
 - 14,179 of the FX-loans of mortgage/housing-loans.
 - 45,668 of FX-loans of car/motor vehicle loans.
 - 8,501 ISK-denominated portions of mixed loans.
- (Olafsson & Vignisdottir 2012b).

Private rent

Some landlords took advantage of the growing demand for rental housing in the after match of the hit of crisis. That meant a rising price for rental housing while prices for private ownership were falling. The percentage of the housing market that was used for rental rose from 14 % to 20 %.

One special effect came from speculation in buying some of the best apartments centrally located in the capital Reykjavik, for use as rentals for wealthy tourists primarily from USA+UK and Germany.

The income from just one week of rental to tourists equalizes more than one month of payment for ownership of the apartment. This is also due to lax public control of taxation of this “grey-zone” private tourism-rental business.

Housing Finance Fond (HFF)

Until 2004 the HFF and the pension funds were the only lenders for the purpose of financing housing in Iceland. A deregulation opened the mortgage market for the big privatized banks.

The stroke from the crisis and the competition from the private banks resulted in capital problems for the HFF. The state had to pump equity into HFF approximately 500 million US \$ (46 billion ISK) in the first round.

Now in 2013, the HFF stands on the brink of a new capital problem that needs some approximately 1.7 billion US \$ (200 billion ISK).

But the State cannot afford such a big amount without causing doubt whether the public debt can stand under control or not. This is important for Iceland to keep the trust of and meeting the demands of (low-interest) international patrons (IMF), and to avoid further currency devaluation.

It is the pension fund that holds the majority of the bonds from the HFF, causing some risks for the Icelandic people's future value of pension-savings.

Public regulation

The production of an unprecedented nationwide household-level database, containing detailed information on each of Iceland's households of approximately 122,000 and each individual loan of Iceland's citizens of approximately 326,000 became a powerful analytical tool.

It was possible to construct profiles:

- Payment profiles for each loan.
- Income and living expense profiles for each household.
- Housing wealth (housing equity) for each homeowner.

The knowledge was used in the unique targeted regulation program: Debt Restructuring Measures.

The households there where in "double trouble", both in financial distress and with negative housing equity could be identified:

- 10 % of the Icelandic households were in "double trouble".
- 28 % of all households by families with children had fallen into financial distress.

Debt Restructuring Measures

- Freezing of installments and interest payments on foreign-denominated loans in a period.
- Payment smoothing of indexed mortgages, linking them to the "modified mortgage payment index" instead of the consumer price index.
- Payment smoothing of foreign denominated mortgages.

Debt Relief Measures

- Reduction of mortgage debt to 110 per cent of the underlying property of value.
- The special interest rebate is calculated for each household according to their debt and equity position,

based on their payment and housing wealth profiles.

- Introducing a new "Debt-Ombudsman" function a place where citizens can complain/seek advice about their debt. Here, a staff of more than 100 caseworkers was necessary.

Present status

The two political parties in Iceland that had formed government in 2009 – the Social Democrats and the Left-Wing Greens introduced the measures of household's relief of debt.

They have actually managed to help approximately 7,000 households from crossing over the line into severe financial distress specifically and on a more broad sense managed to avoid a complete meltdown in the housing market/prices.

They have done quite a good job recovering the general Icelandic economy to keep the unemployment down and secured that Iceland got access to vital low interest of international loans.

But the political opposition managed to focus the voters on the one subject/question:

- If enough household debt had been written off?
- If enough debt relief measures had been implemented?

The opposition started with the original deal/discount the three new banks got. The opposition claimed that it is possible to negotiate a better deal that includes more write-offs for households.

The Social Democratic/Green government lost to the newly election (27th April, 2013) to a coalition of the Independence Party and the Progressive Party (Won 38 seats out of 63). The top agenda of the election-theme being:

- Household debt (Bigger debt write offs to the households + more debt relief measures)
- EU membership (A majority of Icelandic whom not are interested in EU membership)

The winners of the election promise more economic aid to the indebted and technically insolvent Icelandic households, claiming that nothing has been done and that the new government can do more than the outgoing!

Many Icelandic voters seemed completely to have forgotten that the new government where the exact parties that got the Icelandic households economy overheated and stressed in the first place and was among the architect's behind the expansion of the big banks leading Iceland into a major economic crisis.

“The elected prime Minister promises everyone a relief from their mortgage debts via a special state “debt correction fund”. The only problem is that the state doesn’t have any money to do this and they are running a budget deficit every year” (Black 2013).

The Icelandic government must spend a high percentage of its total tax revenue, just to pay interests to foreign creditors of approximately 18 %.

Any differ from this interest payment will most likely result in that the international rating-bureaus will downgrade the Icelandic state-bonds from BBB- to BB+, meaning they will get the status “Junk-Bonds”.

Any such scenario would raise the interest level on the foreign loans and risks, causing further devaluation of the Icelandic Kronur (ISK). Which again would cause raising inflation and even more indebted households plus falling house prices (inflation and currency value adjusted prices), meaning more negative equity.

The new Icelandic government must “balance its debt relief policy on a knife edge”.

Situation

It is relevant to focus on problems in the Icelandic economy coming from huge private household debt causing insecurity among private housing owners.

Even though the write-off of private debt from the banks was big, the main part was in favor of companies leaving private households and the Housing Finance Fund with many economic problems.

The debt relief measures did a lot of good, but primary helped on “the tip of the iceberg” of Iceland’s severely indebted households.

It is fair to say that a relative big part of Iceland’s households are still very indebted and that any upward changes in the international interest level and/or any rise in inflation and unemployment can send a problematic big share of all Icelandic households into severe long term debt.

This could also trigger that even more young people want to rent their housing and rent for longer time. It is not an unrealistic scenario that inflation adjusted house prices could drop more over the middle and

longer perspective, giving rise to more negative equity.

Perspective

A small Nordic open capitalist market-economy with own currency and only operating with private ownership in the housing sector gets hit by the new Era of World economic crisis.

A study of the case of Iceland raises warnings to all other nations with likewise or similar conditions: do not only focus on public debt, private debt (household’s debt) matters too.

- The size of the banking sector should not grow bigger than approximately 3½ times GDP.
- Household debt should not rise to more than 100 % of GDP.
- Use house-financing loans that do not push housing prices up to “bubble-size”.
- Limit, phase-out or ban the use of highly speculative loans like: FX-loans, interest – only loans and no down payment to financing of housing.
- Already in the non-crisis time built up a plan of how to deal with economic problems and pressures coming from raising private debt stressed households with negative equities.
- The housing sector should have an alternative to private ownership; a public regulated and controlled private renting sector or a public supported social housing sector. Not all families get to have an economic life, which is suited for the burdens and risks of private ownership.
- A housing sector with a 70 % ownership and a 30 % regulated rental split could avoid many social problems and help to avoid housing-price-bobbles and hereby provide better social security mobility and flexibility especially in time of crisis in the urban housing areas.
- More and more observers are beginning to realize that the real debt problem of EU and the rest of Europe is not so much the public debt (like Greece) but more the private debt of companies and households. The relevance of studying and learning from the Icelandic case experience is calling out to countries like Spain, Portugal, Holland even France and especially Denmark. Denmark having the World’s biggest private household debt on 140 % of GDP!

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The Social and Economic characteristics of Reykjavík, Capital Region

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The old cliché that real estate is location location location is somewhat true, but it's also patterns of change, patterns of development, patterns of transportation. Those are all crucial factors, and a geographer can understand that. (Gil Grosvenor 2010)

The Social and economic characteristic of the Capital Region

With a population of around 201 thousand, (Hagstofan 2013) in the metropolitan area of Reykjavík (consisting of 7 municipalities, Reykjavík, Kópavogur, Hafnarfjörður, Garðabær, Álftanes, Seltjarnarnes and Mosfellsbær) the capital area covers an area of 1062 km², ten times larger than the size of Paris (105 km²), National land survey 2011.

Since the independence of the Icelandic republic in 1944, the Capital has incrementally grown in several different phases. The growth of the urban structure has led to considerable urban sprawl. In this report Reykjavík city municipality will primarily be in focus. But

since the urban area as previously mentioned has 7 municipalities which are continuous and are interwoven as labour, service and living region, it will be referred to as the Capital area of Reykjavík in the cases where it is treated more extensively.

Before the independence of the Icelandic republic in 1944, Copenhagen was the functioning capital of the nation. After the invasion of the British Army during WWII and later in the postwar period, the build-up effects of the American NATO military base, real urban cluster was formed in the south-west corner of the country Reykjavík capital region.

Today, Reykjavík and its surrounding municipalities in the South West region make up a high degree of the total population which makes Iceland to a predominantly urban nation (see table 1). Iceland is a subarctic nation where the main urban region now inhabits around 80 % of the population. It has Akureyri the next largest urban settlement as its only real urban alternative and it has in surrounding urban clusters in the polarized spectrum of the Icelandic settlement structure.

Year	Total Iceland No. Of inhabitants	Annual increase%	Reykjavík	Annual increase%	Akureyri	Annual increase%
1930	108,861	1.5	28,304	6.0	4,286	5.6
1940	121,474	1.2	38,196	3.5	5,813	3.6
1950	143,973	1.9	56,251	4.7	7,188	2.4
1960	175,680	2.2	71,926	2.8	8,835	2.3
1970	204,578	1.6	81,693	1.4	10,755	2.2
1980	229,187	1.2	83,766	0.3	13,420	2.5
1990	255,708	1.2	98,038	1.7	14,174	0.6
2000	282,849	1.1	111,345	1.4	15,385	0.9
2011	318,452		198,393		17,559	

Table 1. Development of population in Iceland, main population centers Reykjavík and Akureyri 1930-2011. (Hagstofa Íslands 2012 and Hermann Óskarsson 2010).

That development has not always been favored in politics however. Strong political currents following independence and movements all along the 20th century till this day advocated that the „Icelandic farmer culture“ was the „haute couture“, or interpreted in Carl Sauer sense; the meanings were infused with a normative orthodoxy describing the essence of the country (or the national culture) (Entrikin, 1984). These same political movements evolving around primarily the progress party and the independence party, verbally and politically, treated the town or the urban structure as a threat to the “idyll” in similar manner as the anti-urban, anti-industrialisation discourse in Europe (Burchardt 2002). Famous were the ironic writings of a nationally known fictional author Þórbergur Þórðarson (1924) earlier in 20th century – where growing bad culture was traced to the origins of the urban structure and urban life that was in its embryonic formation at that time in Reykjavík. Prominent political figure in early 20th century of the Icelandic politics, Jónas Jónsson always connoted with the farm Hrifla (NE Iceland) was deeply convinced that urban settlements like Reykjavík was a wrong place for human beings. Though this was the peak of the anti-urban campaign in Iceland, contemporary political agendas are still influenced by grains of this belief till this day (Hall et al. 2004).

Urbanisation, industrialization and modernisation of the Icelandic society as well as the development of the capitalistic economic system was developed two-three decades later than in other neighbour Scandinavian countries. There was also belated organisation of labour forces and the political party system.

Settlement system and urbanization process of the Capital Region

Reykjavík is built on a peninsula called Seltjarnarnes. The first settlement in Reykjavík was built to the west and the only extensions possibilities have therefore been to the east, south east and north-east.

The urban development in Iceland can be claimed to have accumulated from the 1930s where 56.5 % of Icelandic citizens had settled in urban communities (Sveinsson, 2011). From 1890 to 1930, the increase in urban population went

from around 8 thousand to 61 thousand inhabitants (Sveinsson 2007). At the time housing facilities were considered poor in comparison to the Nordic countries which later generated proposals for housing reforms (Friðriksson, 2007).

Individual ownership policy has been the dominating trend in housing development not only in the rural but also in the rapidly growing urban areas where around 94 % of the population lives (National land survey 2011). Housing is a large part of the families monthly costs, and for many, it represents a security. Living in a boom and bust economy has generated a firm belief among the majority, that owning/owing own housing is a form of security for pension. In Iceland housing solution after WWII were characterised by strong selfsufficiency and individual ownership policy. The imperative society powers, the family, the relatives and construction co-ops were the main foundations ment to solve the housing situation (Sveinsson, 2011).

Social housing has never been the hallmark of housing in Reykjavík. The first construction of workers houses was initiated by law 1929 (Althingi 1929) and happened during the great repression. An era affecting the economy of the nation seriously. These problems led to a decrease in emphasis on social housing and contributed to a housing composition with minor emphasis on workers housing until and after 1980 (Sveinsson 2007). All the period from 1930-1970, construction of workers houses were only around 4 % of total housing in Iceland. In 1932, new laws on housing co-operatives were passed but they were ment to, contrary to the Scandianavian model, solely build individually owned apartments for their members. The cooperative element was limited to the construction phase. But after that, the apartments were owned by individual families.

Overall the housing development in Capital region of Reykjavík as well as in other urban settlements around the country can be said to be heavily influenced by the political economy where different reigning parties in government and those who head municipal authorities put their mark heavily on the policy development in housing from time to time. The Sociologist Jón Rúnar Sveinsson who has researched development of housing in Reykjavík, extensively, divides housing development coarsely into four phases after 1940. The following account of the housing development is largely built up around his account on the development (Sveinsson 2007).

Effects of forming of the Republic of Iceland



Figure 1 and 2. British Baracks in Pingholt WWII and Pingholtsstræti summer 2013.

With the british invasion during WWII in 1940, the long term development of housing took off. During the war years there was serious crisis in housing of the capital region due to massive influx of labourers from the

countryside. Many rural settlements were abandoned in the hope for better economic fortunes. When the war ended, significant changes had been brought about in housing.



Figure 3. Kamp Knox in Reykjavik in the post WWII period (source: Ljósmyndasafn Reykjavíkur 2013)

The first government formed after the establishment of the republic of Iceland 1944-1947, seemed both to be determined and have the capacity to form a coherent

housing policy of the post-war era. The so-called innovation government though resigned from power only two year after its formation and therefore also its

policy. The economic situation worsened significantly the last years of the forties, the initial years of the new Icelandic republic.

Little by little, an era of construction began. In the first part of the fifties many families were becoming more affluent reaping benefits of increasing incomes generated by the wars military settlement. Those families had managed to build their own houses. After the initiation of import barriers as a part of a declared import substitutional policy strategy in 1947, construction of housing was set back. The government therefore implemented a fiscal policy ment to raise funds for a mortgage loan system.

Institutional build-up around housing

Rental housing arrangements have not the same organisational framework as in the Nordic neighbour countries. In comparison with European countries and because of its historical political economy as described above, Iceland has experienced a belated development

in social housing. The identity of Icelanders though predominantly becoming an urban nation was not reflecting this reality of densely settled population, but rather the opposite. The mindset of Icelanders was predominantly set towards the rural as described above. The first part of twentieth century was in Europe a transformative era both in terms of social structural shift (the fall of a number of monarchies and increase in number of national states and at the same time a significant development in housing in European cities). As an example, 64,000 social housing initiatives were realised in Vienna, Austria between 1920-1935.

In UK the years between 1916-1922, there was characterised a period in British building council where houses and flats were owned by municipalities that was based on new legislation on housing (initiated and managed by David Lloyd George and Neville Chamberlain).

The creation in a Nordic context of the non-profit housing companies became a trend from in the beginning of the 20th century, till the end of the great depression. This was the era of the establishment of

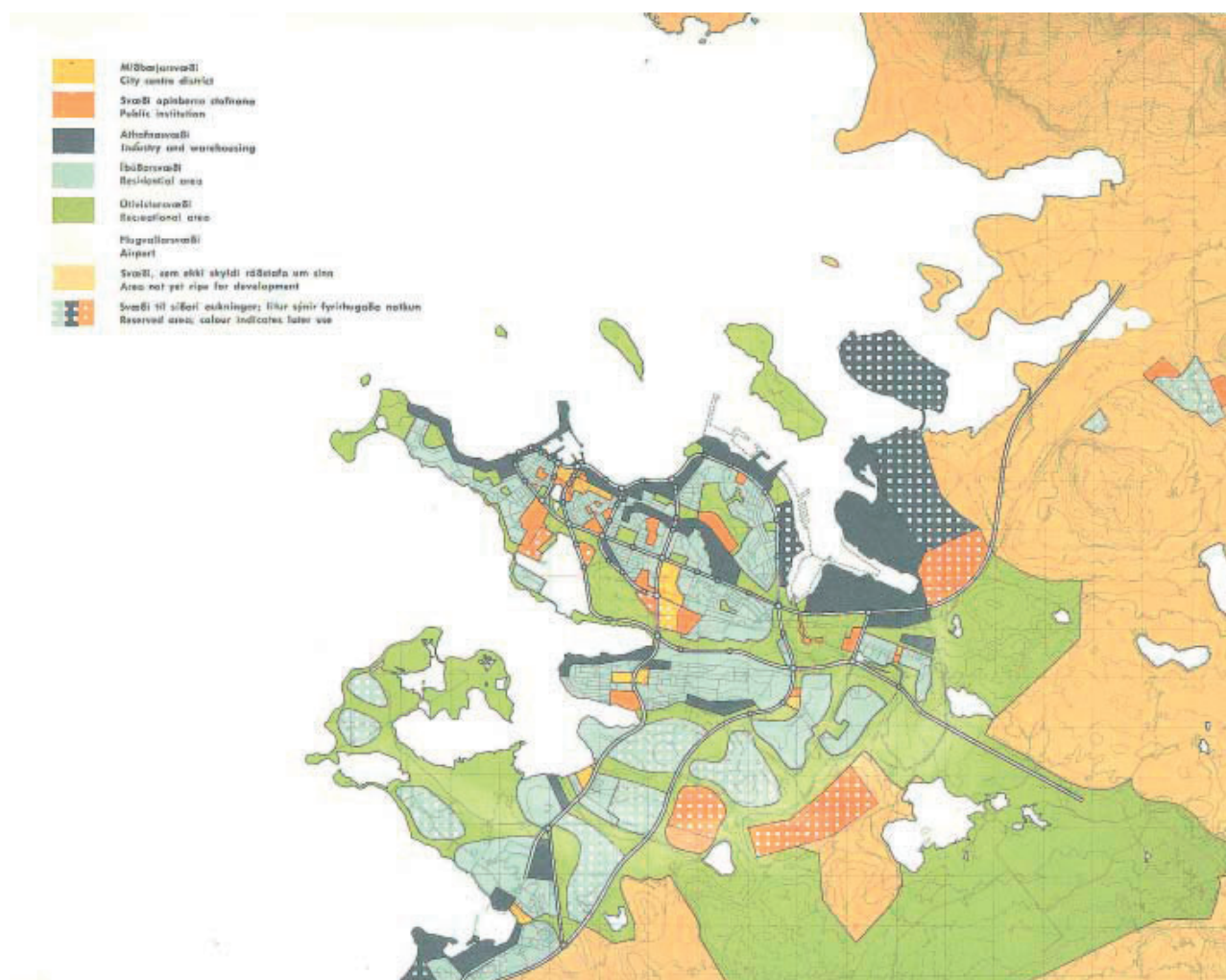


Figure 4. – Reykjavik Master Plan 1962-1983 (Source: Nes planners 2001)

HSB in Sweden, OBOS in Oslo and BL in Denmark (Rannsóknarnefnd íbúðalánasjóðs 2013).

Reykjavík was in the post WWII era a fast growing urban settlement. It generated a sore need for housing. Families who managed to build own houses in the urban lived tightly (Bernharðsson 2002). The military barracks were little by little taken over by Icelanders as the military left. It was hard to raise finances to new building-works because of the import restrictions policies and hence get rid of the barracks that caused unhealthy and poor living conditions (Nes planners 2001). This need and the fact that significant proportion of the housing stock was unhealthy mobilized the authorities to lay out the first grand planning scheme for a neighborhood inspired of before mentioned principles. This was Smábúðahverfið in east Reykjavík and other neighborhoods in East part of Reykjavík. Most of the houses constructed were inspired by the functional architectural style. The hallmark of Icelandic Architecture. It was presented in a technology, developed in the period using locally retrieved stones, crushed shells and basalt stones to render the exterior walls of the building. The planning proposal was passed in year of 1951 and it was fully built in 1955 (Bjarnason og Gylfason 2004). As an example of how rapidly Reykjavík was developing as an urban structure in this period and following ten years, the inhabitants of Reykjavík increased by 70 % and the

built landmass increased by 700 % in the period 1945-1965 (Bjarnason and Gylfadóttir 2004).

Infrastructure and organisational framework for housing, construction and planning were forming in this period. The First legislation for facilitating funding individuals and families for housing construction was initiated by a legislation in 1952. A bill was passed on financing fund for smaller dwellings and was primarily aimed at people who at their own initiative started house construction. The situation in the construction was though heavily impacted at this time by import restrictions on building materials (timber, cement etc.)

This led to a more formal institutionalisation in the establishment of the housing management set by the parliament in 1955, and later with the establishment of the state housing institute from 1957. Over the years, the housing institute which was driven by the state, became the enforcement arm for a lending system and was financed by the state construction fund (byggingarsjóður ríkisins). The technical banking service was provided through mortgage division of Landsbanki, that hosted the construction fund. After 1964 a mind-set shift could be identified in that the fiscal system was involved in housing issues, by a 1 % taxation from the income tax that was devoted to the housing system (Sveinsson 2013).

In 1965, an agreement was made that solely focused



Figure 5. Höfðaborgin in the forties, part of barracks that were torn down in mid sixties. Source: Ljósmyndasafn Reykjavíkur 2011.

on housing reforms. Unformal and unofficial negotiations between few key politicians and labour union leaders led to official announcements of a reform in housing for lower income groups. The declaration included intentions on building annually 250 apartments for the next five year period, 1,250 flats in total. A special committee ment to be responsible for the implementation was settled (Framkvæmdanefnd byggingaráætlunar) (Sveinsson 2013). It eliminated the bad barack housing that was replaced with more modern dwellings and lay the foundation for the largest suburban settlement structure in Breiðholt in late 1960s and seventies (Bernharðsson 2002).

Reykjavík story is a story of expansion and modernization and the seventies and eighties followed the trajectory of new neighbourhoods to the east that contributed to its urban sprawl. The neighbour municipalities in the capital region were hardly distinctable as separate towns anymore. The capital region had become one coherent urban structure.



Figure 6. Modernisation in east part of Reykjavík in fifties and sixties. (Source: Þjóðminjasafn Íslands)



Figures 7 and 8. Frakkastígur in 1970s and same street summer 2013

The first phase of the rise of Breiðholt by 1970s lasted two years. 312 apartments in 48 stairwells of apartment block were built in a period of 22 months, equivalent to two apartments being built everyday. This first phase was the largest project of Icelandic construction



Figure 9. Breiðholt in 1975. No trees but a lot of multi family buildings.

Table 2. *Composition of housing mass by construction period 1971-2006*

Composition of housing mass by construction period(year) 1971-2006						
Year(s)	Private house	duplex	3-5 a.h*	6-12 a.h*	+13 a.h*	Apartm N.R**
2006	1,052	126	208	460	1,867	36
2001-2005	3,640	440	1000	1,772	4,783	51
2001-2003	1,890	188	507	1,003	2,201	15
1996-2000	2,861	356	962	1,422	1,568	59
1991-1995	2,983	342	623	2,302	1,545	47
1986-1990	3,468	542	528	1,996	1,419	74
1981-1985	4,915	530	488	1,731	982	85
1976-1980	6,181	692	355	3,068	1,494	73
1971-1975	5,401	524	306	3,395	1,548	66
*= apartment house, **= Non residential						

Source: *FMR various annual reports*

industry ever and also the first planned mega project in construction in Iceland (Bernharðsson 2002).

In the seventies the state's housing fund started to lend housing loans for buyers and not only for construction as earlier. The Icelandic pension system had been initiated and from 1970 a legal framework for pensionsfunds had been ratified. The Icelandic pension fund system is built on funds that are closely bound to professions and sometimes regions. They became important in providing loans for house buyers. In this period the ratio of generally larger private residences increased (Sveinsson 2007).

Three main trends characterised the housing market until 1983. The banks only provided limited loans to buy housing. The state's housing fund provided loans to 20 years that in most cases only funded 30-35 % of the cost of buying housing (Sveinsson 2007). Meanwhile the ratio of families living in own housing grew to around 85 % at the end of the before mentioned period while rental housing became more of a fringe phenomenon. In this period people built their own houses reaping benefit from increased purchasing power parity (PPP) through inflation and economic growth. According to a survey conducted in 1979, 83 % of families in Reykjavík lived in own housing and 91 % in neighbour municipalities in the capital region. Only in the

oldest parts of central Reykjavík the ratio of rental housing owned by private individuals was eminent. They were though in many cases in dilapidated conditions. Majority of the youngest age groups lived in rental housing but as soon as they turned 28 almost half of them lived in own housing. Among the 35 year olds, around 95 % lived in own housing. The diminishing and small group of people in age group over 35 lived in rental houses owned in most cases by municipalities (Sveinsson 2007).

Rising inflation from mid seventies impacted Icelandic families significantly, resulting in a shift in 1980s housing policy. The most important shift happened with the introduction of the index rate, an inflation security for the financial institution from 1979. This was valid for all longterm loans for housing from then on. New social housing laws passed by the parliament and they included an increased emphasis on so called worker housing. The new laws also presented intentions for 2/3 of all apartment buildings in Iceland to become social housing. The labour unions gained increased power both through the boards of the housing organisations for workers, but also through board membership in the states building fund and the workers of building fund (Sveinsson 2007).

Table 3. *Number of apartments 2000-2009.*

Number of apartments 2000-2009 - all types of residences (attached housing, detached housing, etc.)										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Iceland	104,400	106,723	108,577	111,157	114,447	117,182	121,035	125,683	129,366	130,065
Capital area	64,210	65,875	67,237	68,983	71,841	73,335	75,640	77,626	79,596	80,000
Reykjavík	43,700	44,365	45,076	46,131	47,189	47,768	48,530	49,190	49,638	49,721
Kópavogur	8,320	8,770	9,002	9,249	9,589	9,946	10,533	11,104	11,524	11,563
Seltjarnarnes	1,560	1,585	1,586	1,588	1,590	1,588	158	1,588	1,586	1,615
Garðabær	2,540	2,661	2,750	2,804	3,043	3,108	3,441	3,633	3,915	3,981
Hafnarfjörður	6,280	6,583	6,847	7,128	7,408	7,774	8,260	8,644	9,244	9,342
Álftanes	.	.	.	.	682	696	720	750	780	785
Mosfellsbær	1,810	1,911	1,976	2,083	2,266	2,379	2,483	2,627	2,817	2,899

Source: *FMR various annual reports.*

Inflation continued and in 1983, the inflation ratio rose to between 6 and 8 % and a new government froze all intended wage rises to counteract. With the index security now in effect, families purchasing power parity was affected by continuing inflation causing a growing concern for families and their financial problems. This fuelled a growing public concern and mobilized the organisation of renters to establish a workgroup on coop housing as a housing alternative, with the Swedish system as a rolemodel (Sveinsson 2007). It resulted in establishment of „Búseti“, a popular organisation who gained over 2,500 members in its first weeks of existence. From 1986, a new housing law took effect. It raised the value to ratio of loans to 70 % (from 30 % earlier). The right to obtain loans was independent of family size and income. The pensionfunds were obliged to devote 55 % of their disposable income to the state's building fund. This improved the access to housing loans and resulted in overwhelming response from the public. In the first year of the new laws effect the number of loan application rose to 10,000. In 1990, applications exceeded to 20,000 (Sveinsson 2007).

The Icelandic housing loan system went through significant changes in the eighties. Public intervention had until then been limited but at the end of eighties it seemed as if the states participation in financing of housing would become significant. House constructors demands on improvements in the financing of housing led to a six year period of seeking an adequate system for housing loans resulting in the introduction of the

house bond system (húsbrefakerfi) that was in effect for the next 15 years.

In spite of significant changes through the period, the red thread of the Icelandic housing system, the privately owned housing remained. A revision of the law in 1990 ment that even people preferring social housing arrangements were eligible to apply for housing loans on same foot as private lenders. Under the leadership of Jóhanna Sigurðardóttir, minister of social affairs at the time, construction of social housing and alternative ownership forms of housing was increased and reached its peak in 1990 when over 800 new social apartments were under construction throughout the country. In the period 1988-1994, social housing was 36 % of the housing stock opposed to first part of eighties where it was only 15 % (Sveinsson 2007).

Major shifts in last 20 years

Throughout the nineties the extent of the state run housing, loan system grew until the millenium. Paralelly political forces wished to diminish state intervention in the system resulting in a radical shift in 1998. The view held by the government was that the social housing loan system had become too stagnant and extensive and required revision aimed at transferring the general housing loan system from the state's housing instituion to the bank sector. The government consisting of the progress party and the independence party eliminated the social housing system.

Table 4. *Financing residential housing in the Capital area.*

Financing residential housing - Capital area - Rate of financing sources %											
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004 first months	2004 last months
Payout	24	28	30	36	47	49	45	42	47	47	71
paid with house bonds	7	7	8	6	0	1	2	3	1	0	0
Paid with real estate and liquidity	21	14	10	4	1	1	2	2	1	1	1
Mortgage deed exchanged for housing bonds	18	19	20	22	27	22	22	23	28	31	0
Buyout of housing bond loans	11	14	15	16	13	16	20	21	17	15	5
Housing fund loan	.	.	.	.	.	.	.	.	.	.	18
Housing fund additional loan	.	.	.	.	.	.	.	.	.	.	2
Buyout of loans from State Construction fund	13	13	2	11	9	7	6	4	4	3	1
Other	5	5	5	4	3	3	3	3	3	2	1

Source: *Ársskýrsla Fasteignamats Ríkisins 2004 and 2001*

Primo 1990, the state housing institute was shut down and the social loan system was eliminated. A new institution replaced it; The housing financing fund (HFF). The financing institutions; the workers of the construction fund and the state's construction fund were merged with the newly established HFF. The fund was supposed to be the base of the housing loan system owned by the state, ment to provide general housing loans as well as loans to entrepreneurs investing or constructing rental housing. From 1995 and onwards the state and municipalities intervention into the housing market was diminished though loan provided by the HFF increased. From 2002, social housing was given opportunity to be bought by private owners. With newly privatized banks invading the housing financing market, the HFF changed its value to loan ratio to 90 % in 2004. The response to increase the number of social apartments on the market was to establish Reykjavíks social housing (félagsbústaðir hf.) with a rental house stock of 1,740 apartments (Sveinsson 2007).

Table 4 illustrates the way Icelandic families funded their housing investments in the period from 1995 until end of 2004. The year 2004 is divided into two periods for a reason (first months and last months). 1st July 2004 the Housing Financing fund changed its loan arrangements and started lending money-loans instead of bonds as earlier as the banks had become lenders on the housing market and were significantly impacting the housing market development. Furthermore before 1st July 2004 additional housing fund loans were reg-

istered as payout. As illustrated complex combinations of different funding sources became replaced with payout that for a moment contributed to simplifying the process of buying housing.

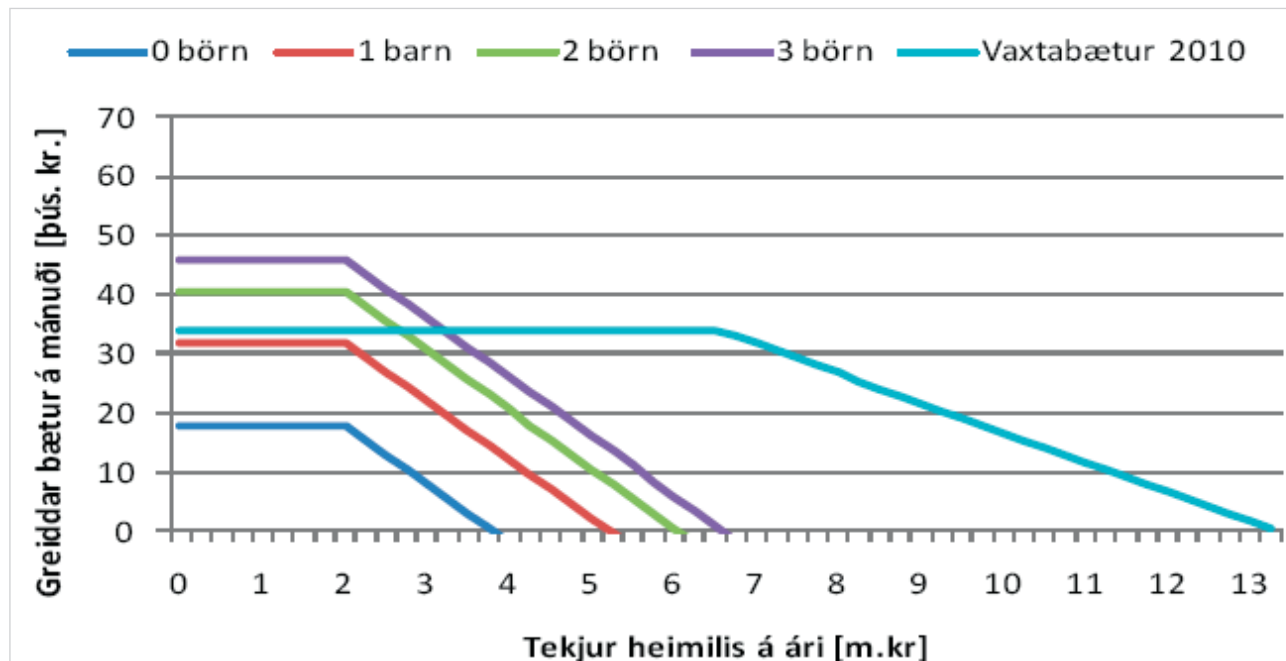
Social economy of housing

Most renters of housing in Iceland consist of young people and single households. Around ¾ of every four renters were under the age of 34 according to the Housing Financing Fund in 2009 (Ministry of Welfare 2011). Only around 7 % of people in registered coexistence were renters. Thus the conclusion can be drawn that few Icelanders choose rental housing as a long term housing solution.

In Iceland general public housing subsidies are transferred for the most part through interest relief (tax schemes) and housing compensation (paid by municipalities). As the number of children in household rises, the compensation grows, while the interest relief is not based on social characteristic of household. Recipients of housing compensation are predominantly from low income groups. In the figure below, the housing compensation is shown on the graph dependent on number of children in the home. The interest relief is shown pr. homeowner with a property worth 20 million ISK with 80 % loan to value ratio with 5 %.

Households loose the right to housing compensation paid by the municipality at their settlement registry is if the annual household income exceeds certain amount.

Figure 9. Paid housing compensation pr.type of family in a household vs. Annual household income 2010 (millions ISK).



Source: Ministry of Welfare 2011.

(1990-2010) – fluctuations in construction from the nineties

The population policy debate on the large urban centre limited to the regional capital has evolved around how to manage growth particularly related to housing and the extent to which the concentration of development in the city deprives other settlements from a ‘fair share’ of resources. In that respect the growth of Reykjavík has like in other remote regions been informed by notions of the ‘frontier’ (Carson 2011).

It also represents a societal and demographic development with increased hierarchization between urban settlements (Dybbroe et.al 2010) with one predominant largest city and only one another larger urban structure as the alternative, Akureyri in the North of Iceland. Urban space can thus be viewed as a ‘container’ for economic and social processes and as a result of social relation among people living in a certain area or region where culture and cultural influences play a crucial role (Knieling & Othengrafen 2009).

Though the city in its outlook and interior has changed significantly since origins of urbanization could be traced from Post WWII, it can be claimed that Iceland shares some of the characteristics of the Arctic neighbours in being a former colony in more than one sense and experiencing relatively recent urban development. Urbanization was a phenomenon of the lat-

ter part of the 20th century and accelerated even more into the 21st century.

The first decade of the 21st century was characterised by a construction boom. Reykjavík was teetering between turning into the suburbs and becoming a city. On one hand leading politicians in the City Council were proposing the construction of island communities of predominantly single-family homes in the west, and the building of a freeway through the middle of the city to connect them to the mainland. On the other hand, opposition politicians in the city council visioned a mixed use approach for residents and businesses alike. This was an idea that would transform Reykjavík from a town to a more sustainable city (Nikolov 2005). The fight over Reykjavík in the mid first decade of 21st century was one between nostalgia for a past who some claimed never had existed, and common sense regarding what Reykjavík could be (Nikolov 2005).

During the nineties, most of the urban population growth had been delimited to the adjacent municipalities to Reykjavík, but now the municipalities had grown together and had become part of the same urban structure, Reykjavík capital region. These were primarily Kópavogur, Hafnarfjörður, Garðabær, Mosfellsbær, and new suburbs of Reykjavík municipality.

Many have questioned the role the municipal planning played in the construction boom and how municipal plans for the greater capital region did not guide

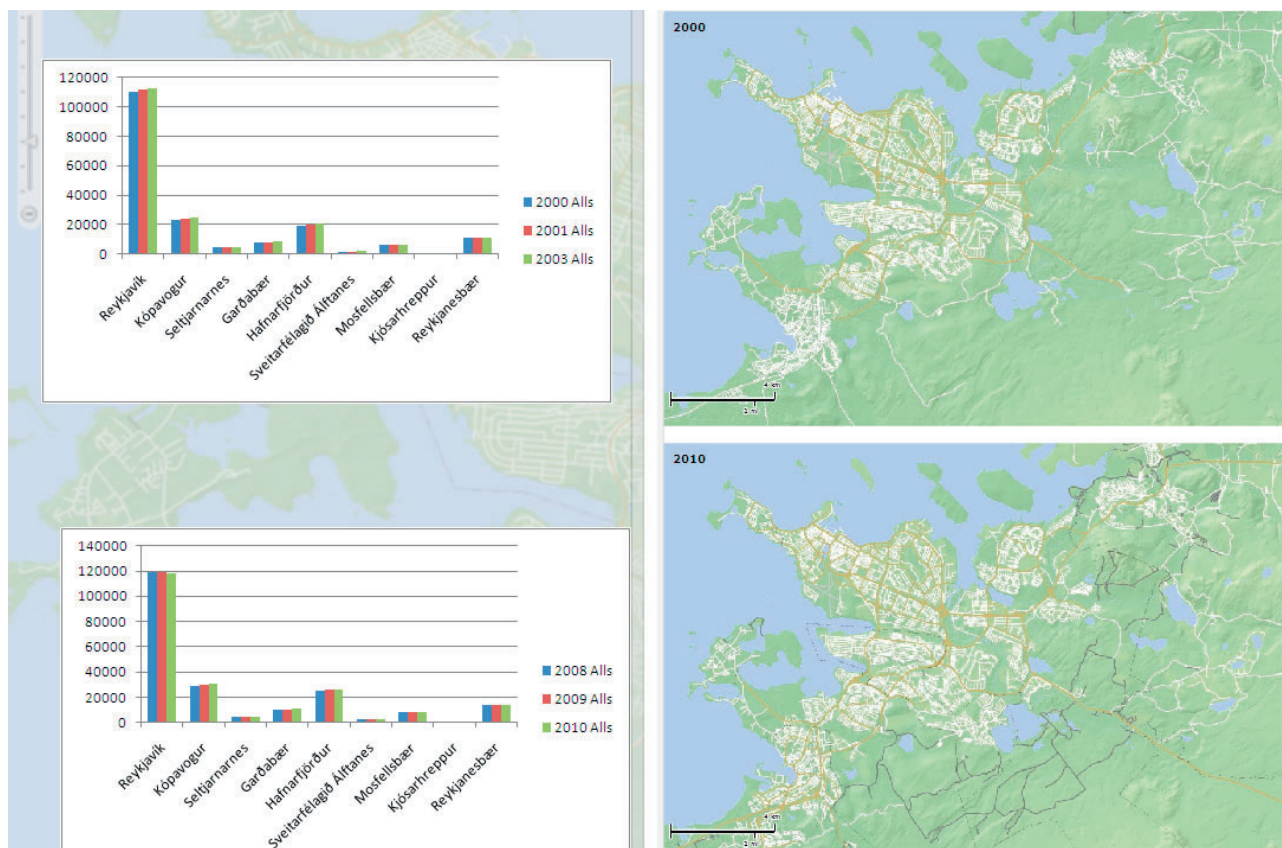


Figure 10. Population development in the Capital region and urban sprawl in planning, 2000 and 2010 (Source: Borgarvefsjá 2011).

and support neither a balance nor sustainable development of the region.

One of the major problems of urban sprawl in Reykjavík was that it was/is a car city for better or worse. Where nearly 50 % available land is used for roads, parking spaces and other traffic related structures (Nikolov 2005). According to a leading politician in the city council at the time, the problem Reykjavík faced with was that of family flight to neighbour municipalities. “In the suburbs you have more choice of sites for families and mostly families in single-family homes, while in Reykjavík there are mostly multiple-family homes. Most people want to live in single-family homes, and that is why there’s been this flight into the suburbs” (Nikolov 2005). According to this view Reykjavík should have to be even more of a car city than it already was, which stood in sharp contrast to former city engineer of Copenhagen, Jens Roerbech who addressed Reykjavík’s problem as follows. “I cannot remember having been in a city where 96 % of all trips take place by the private car” (Nikolov 2005). As a consequence the public transport has until recent years been limited.

Number of households increased in Iceland until after 2009 when numerous families started emigrating.

The average number of people in household was steady all the beginning of the 21st century, with 2.5-2.4 on average in each household (Hagstofa Íslands 2013).

According to a study group from University of Reykjavík (Theodórsdóttir, Jónsdóttir, Guðmundsson & Hreggviðsson 2012) the average annual change in population development by municipality after millennium to 2010 compared to the development from 1990-2000 shows a striking shift.

The shift can be identified with a broader range of municipalities ranging around 80 km radius around Reykjavík who took off in population growth in this period. The aim was to identify planning and development in the greater capital region of Iceland from a planning development approach. The study showed that one of the main reasons was that municipalities were competing for residents and construction development and the municipal plans generally overestimated population growth and future residential development. The report made from the research raised critical questions about what needs to be addressed or changed in the current planning system. It was furthermore the first research report ever on Reykjavík planning issues that conceptualized planning as a regional development process (Theodórsdóttir et al 2012).

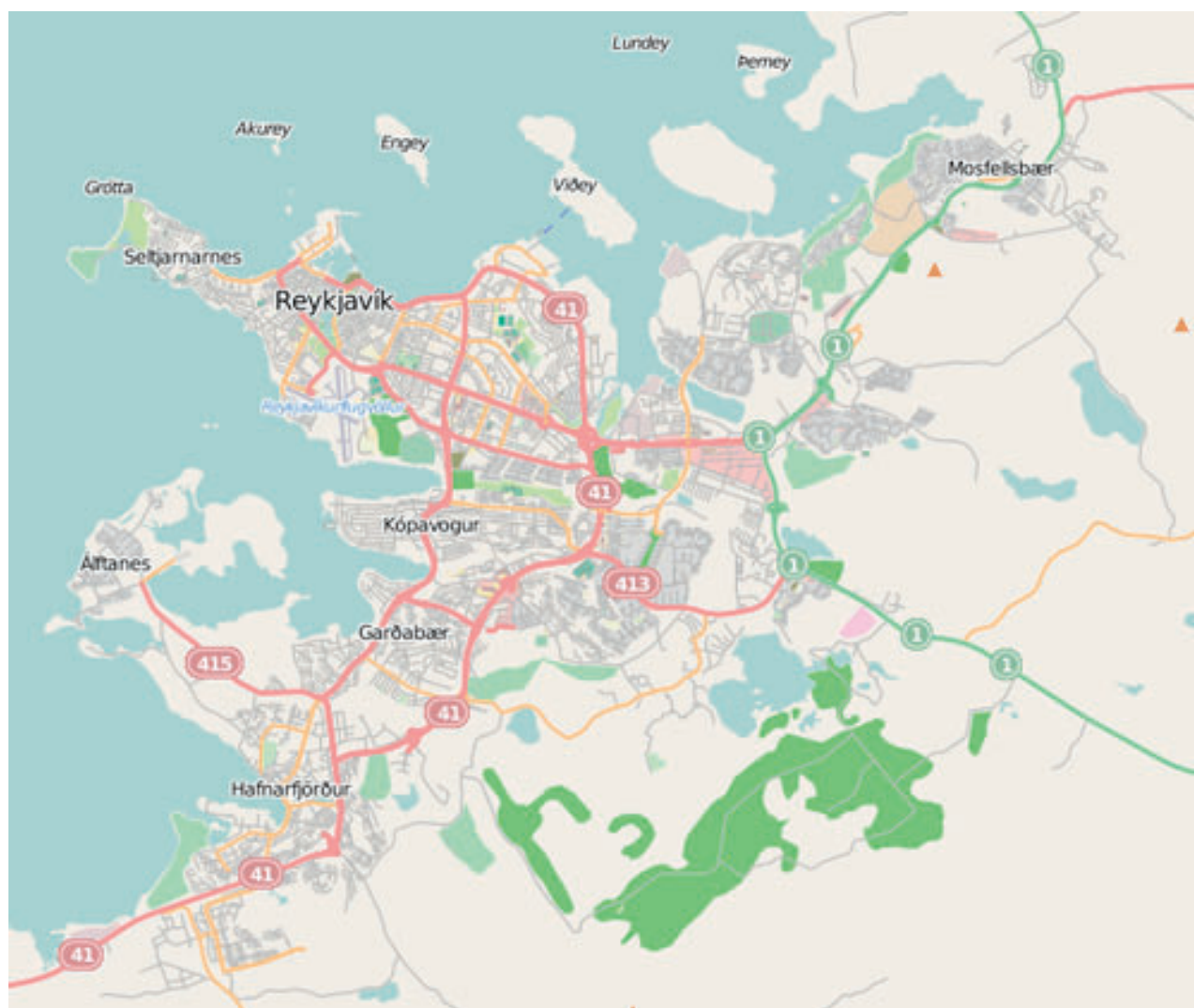


Figure 11. Reykjavík Capital Area 2011 (Open StreetMap)

Table 5. Housing development in Capital region 1994-2011, number housing units/apartmentsSource: *Þjóðskrá Íslands/Registers Iceland 2013*.

Year	Iceland	Reykjavík	Seltjarnarnes	Kópavogur	Garðabær	Hafnarfjörður	Mosfellsbær	Álftanes	Reykjanes
1994	96.892	40.567	1.490	6.105	2.309	5.536	1.477	319	3.703
1995	98.241	41.080	1.504	6.457	2.386	5.671	1.534	346	3.751
1996	99.628	41.524	1.528	6.906	2.402	5.833	1.566	359	3.783
1997	100.896	42.109	1.551	7.359	2.409	5.882	1.624	380	3.783
1998	102.063	42.839	1.557	7.767	2.409	5.933	1.718	394	3.783
1999	103.289	43.365	1.563	8.052	2.426	6.103	1.776	406	3.815
2000	104.811	43.878	1.575	8.336	2.535	6.294	1.836	423	3.841
2001	106.706	44.365	1.585	8.770	2.661	6.583	1.911	503	3.886
2002	108.577	45.076	1.586	9.002	2.750	6.847	1.977	510	3.968
2003	111.157	46.131	1.588	9.249	2.804	7.128	2.083	599	4.065
2004	113.915	47.036	1.590	9.582	3.007	7.396	2.205	659	4.134
2005	116.859	47.721	1.588	9.946	3.107	7.739	2.356	695	4.278
2006	120.797	48.523	1.589	10.538	3.440	8.255	2.478	712	4.600
2007	125.683	49.190	1.588	11.104	3.633	8.644	2.627	750	6.323
2008	129.366	49.638	1.586	11.524	3.915	9.244	2.817	780	7.190
2009	130.065	49.721	1.615	11.563	3.981	9.342	2.899	785	7.253
2010	130.855	50.149	1.615	11.682	4.014	9.422	2.940	785	7.211
2011	131.249	50.155	1.617	11.865	4.035	9.474	2.948	785	7.217

Source: *Þjóðskrá Íslands/Registers Iceland 2013*.

A number of interrelated events in the housing policy of the capital resulted in this. During the post millennium years up to 2008 an optimistic expectation economy developed partly due to easy access to loans and financial capital. The former city authority of Reykjavík was responsible for generating money to the city by virtue of a municipal decision on land bids. New neighborhoods were eagerly planned contributing to further expansion of the urban area.

Furthermore when the municipalities allocated building permits, little monitoring was of how building entrepreneurs followed regulations on size and number of floors allowed in building regulations (Reykjavíkurborg 2006).

Over the period from late 2004 to 2008 land property prices skyrocketed (Morgunblaðið 2005). In the

optimistic era this led to regional competition of selling out of the land for planning. Competition among municipalities in the Capital area for attracting taxpayers of any sort. Following factors were influential in creating what proved to be an unsustainable urban housing situation in the capital region.

- Very optimistic planning strategy for urban extension
- More liberal legislation of control of construction survey
- Entrepreneurial race in construction of both office building and housing
- No public/central planning authority had the overview over construction sites anymore



Figure 12. Tower buildings were popular constructions in the period up to the financial collapse

Reykjavík has become a city of contrast after the financial collapse.

Whilst Höfðatorg that was supposed to have been a 14 floor building turned out to be a 16 floor tower because of lax building survey and Harpa the Concert Hall a glorious promise of a „finance viking“ now bankrupt was in stop but after a while became injected with public funding from state and municipality in order to avoid a nordic version of a ground zero- a private business university was building a large architectonic monument and its accommodation in one of the main recreational areas within Reykjavik by the coast line.

These are only very few examples that manifest the atmosphere in the years before the financial crash. Meanwhile the number of people insolvent and in deep trouble caused by the financial havoc, stood waiting for a weekly food-aid outside of a local donor organisation with a line getting longer week by week (Fréttablaðið 2011). In the aftermath, uncertainty and agony became more visible in that indebted families with household payment problems now rushed to the streets demonstrating on a regular basis.

The trade market for housing plummeted. As an example of the shifts involved in the housing situation in Iceland following the financial collapse, the annual report of The Financial Supervisory Authority – Iceland (FSEI) reported that bank loans with collaterals in residences were 303 billion ISK in mid 2010. Close to 110 billion of that amount has over 90 % LTV ratio and thereof around 85 billions ISK where the LTV ratio is 100 %.

This is approximately 17% of all bank loans in Iceland which increased from around 10 % in the wake of the financial collapse (FSEI 2010).



Figure 13. Höfðaborg was built in the new financial neighbourhood of Reykjavík. Ironically in a place where barracks had characterised the housing mass in the post war period. Höfðaborg houses statistics Iceland and the housing financing fund.

Figure 14. Sales contracts for housing trade 2000-2009.



Source: FMR various annual reports

Receipts and Expenditures of households

After the financial collapse in the autumn of 2008 there was a sudden shift in the social landscape considering housing. Access to loans had almost stopped; families in need of changing houses were trapped. People who wanted to sell could not because demand had plummeted. People who managed to sell and wanted to buy another apartment got caught up in restrictive and tedious credit eligibility assessments. Others were

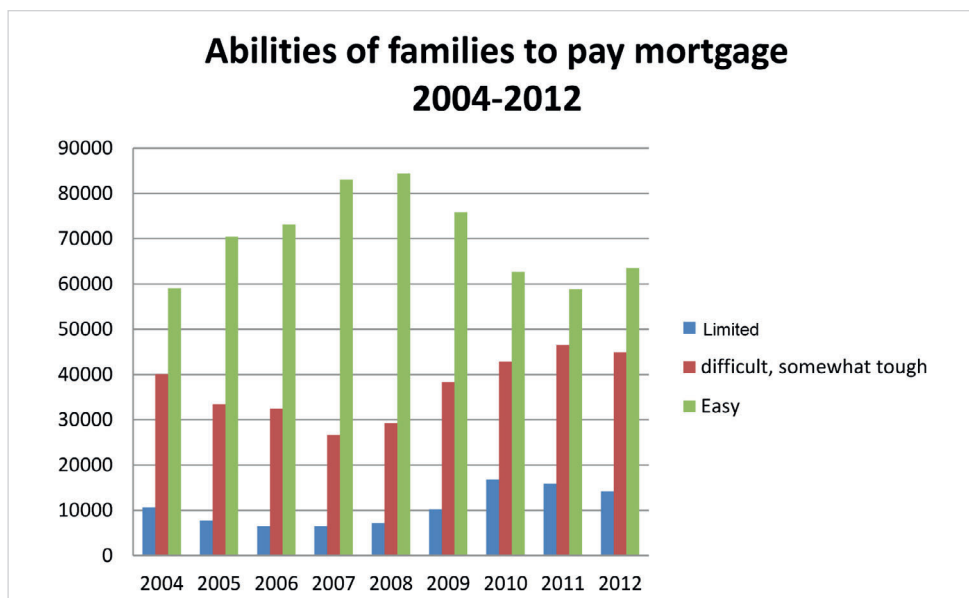


Figure 15. Estimated number of house-owner households in Iceland and their abilities to pay mortgage, 2004-2012 (Source: Icelandic Statistics 2013 – based on the life condition survey).

trapped in impossible debt and had to be written up with the debt ombudsman to get protection against foreclosures. In the face of this apparent bleak reality, Icelandic statistics (Hagstofa Íslands) implemented in 2010 new question ment to measure burden of housing cost for households, according to new regulations of Eurostat. In the new question all aspects of housing costs are mentioned. In the years 2010 and 2011 all participants in the survey were asked both questions, the old one with only limited aspects of housing costs and the new one, which counted all possible aspects of housing costs. When all costs are counted many more respondents feel they are burdened by the costs. In 2011 31.7 % of respondents ment the housing costs were a burden to their household.

According to a report published by the welfare ministry in 2011, that included findings of a consulting committé, around 3,800 couples were at the end of 2010 dealing with serious problems to pay mortgage.

Around half of those households, or around 1,670 families were in condition where their monthly income does not cover consumption needs. The payment problems due to mortgage was highest among the lowest income groups. Around 63 % of couples and cohabitants in trouble, were part of households with less than 3 million ISK in annual income (equivalent to 250 thousand ISK pr.month). 44 % of single parents or single led households were in trouble, predominantly households with less than 2 million ISK in annual income (167 thousand ISK pr.month) (Velferðarvaktin 2011).

3,650 households in 2011 were in situation where their disposable income did not cover daily cost of food, according to the committé. The committé therefore concluded that the governments intended actions would not help this marginalised group adequately to

improve their conditions.

Several actions were taken into improve the sudden bad conditions of Icelandic families and their mortgage problems in the years after collapse. One of them was to establish the authority of a debt ombudsman.

Throughout the election period the Icelandic government has, since early 2009, outlined several plans to rescue hard hit property owners. But the practice of the financial institutions has at times seemed to counteract what was intended, namely, to raise a security wall for indebted Icelandic families.

In 2013, it was though clear that the measures taken by the post-collapse government had far from achieved what was intended, to improve the majority of household and families debt problems after the sudden collapse in 2008. An interministerial report on the households conditions with the participation five ministries published in April 2013 uncovered that intentions had not been met. Iceland's statistics life condition survey in 2012 also revealed this. Around 3 families had lost their homes every day from late 2009 due to foreclosures. Around 48.5 % of Icelandic households had problems in making ends meet each month (Njálsson 2013).

The financial problem created is to an extent an intergenerational problem. During the house boom younger families often in struggle due to ubringing of young children and more economic uncertainty than older and established generation bought apartments at very high prices at a time when access to loans was at its best. In the aftermath the age group between 30 and 39 turned out to be most heavily impacted and in arrears with mortgage. It is also notable that Reykjavík is among the Nordic capitals with highest ratio of young people (Hansen, Rasmussen & Roto 2011).

Arrears of mortgage or rent 2004-2012 by age group (=n)

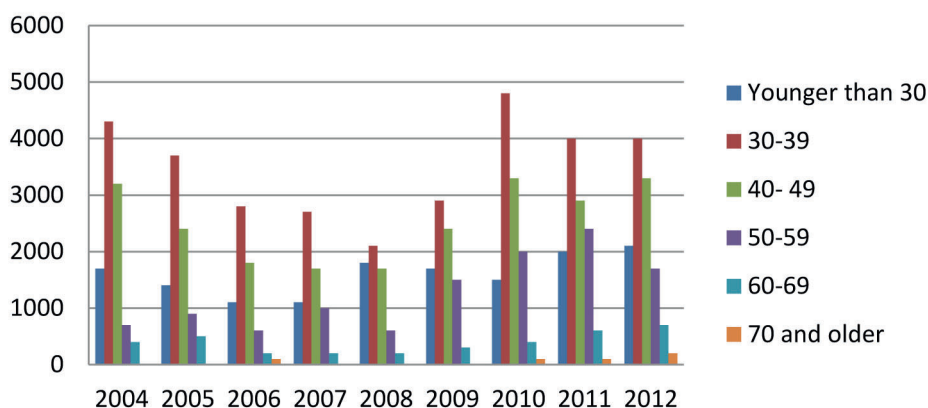


Figure 16. Arrears of mortgage or rent 2004-2012 by age group.

This reality has changed the social conditions for many. In fact as can be seen from the figure below, the mortgage problem was a general problem affecting the large middle class of Iceland especially the groups in reproductive age.

The contours of an ailing economy were manifested in that younger people stay longer at their parents home. The number of families reliant on rental housing has increased, dramatically. The banks who took over a number of apartments have rented the apartments out while the housing trade market was frozen. (Morgunblaðið 2011). Numbers of people not assessed eligible for buying flats have in the wake of the crisis become renters. Rental price has increased by 40-50 %.

Rising apartment price has resulted in that first apartment buyers are becoming older. People live for a longer period at their parents household than before registered. The rising prices prove difficult and unaffordable for young people. It is also harder to collect money for the downpayment for the first apartment. Collaterals are not offered anymore. Today around 4,700 people are around 30 years old, but first time buy-

ers of flats are becoming older, or around forty. These large cohorts influence the property market. People need to live somewhere. The nations age composition contributes to maintain the prices at its high. It takes time to buy your own flat. Low income families have no opportunities of buying own apartment (Ólafsson 2011). From 2009 to 2011 the increase in tenants receiving housing compensation support had increased by 60 % (Ólafsson 2011).

Shifts in socio-economic status after the boom Real estate price fluctuations

In the case of Iceland where the role of the entrepreneurs in the construction boom affected the housing landscape in the urban region of the Capital contributing to increased economic insolvency among the population, the financial collapse has not resulted in significantly falling prices. On the other hand the housing trade almost froze after the collapse (see figure below) but has slowly been recovering after 2012.

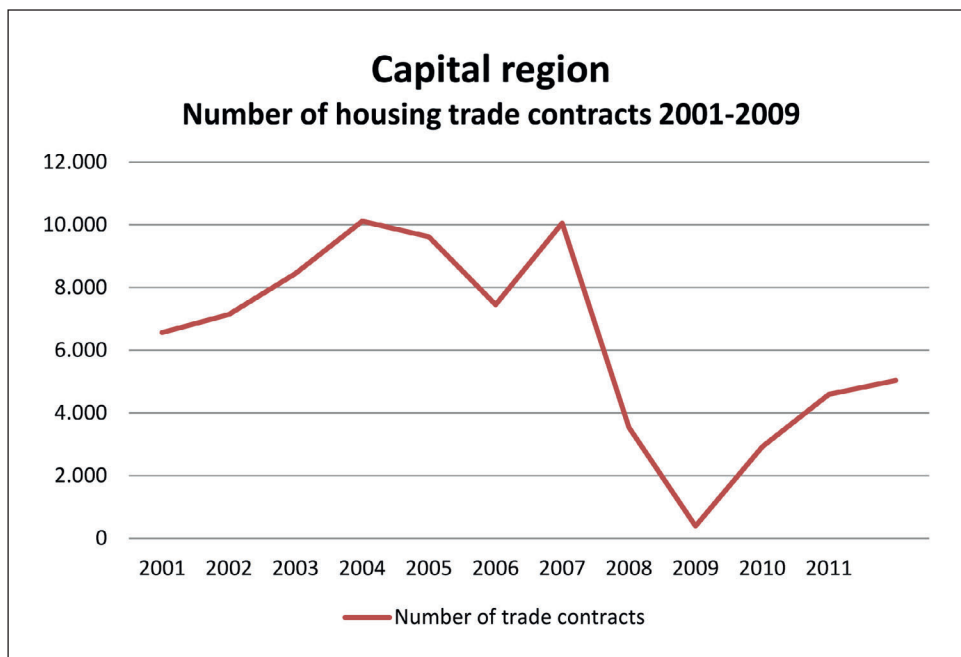


Figure 17. Number of Registered Housing Purchasing Contracts, Capital region 2001-2009.

Table 6. Number of housing trade contracts and turnover Reykjavík and Capital region 2001-2009.

Table 3 Number of housing trade contracts and turnover Reykjavík and Capital region 2001-2009*								
	Total		Condominium		Individual housing		Other	
Reykjavík	Turnover	Number	Turnover	Number	Turnover	Number	Turnover	Number
Capital region	Thousand. ISK		Thousand. ISK		Thousand. ISK		Thousand. ISK	
2001	57009894	4153	37295619	3413	10758283	517	78348	7
	91.195.625	6.563	55.412.020	4.956	22.534.787	1.198	556.916	31
2002	61825641	4514	43045983	3730	11145054	565	449973	15
	101.546.095	7.141	65.056.715	5.460	24.002.745	1.253	1.043.900	46
2003	80899262	5471	57553351	4508	14084166	676	222472	21
	126.831.834	8.449	82.944.969	6.449	30.229.921	1.448	954.352	81
2004	106430427	6257	74572338	5155	18072459	765	509867	24
	175.824.384	10.119	113.683.412	7.751	39.058.226	1.642	1.157.448	78
2005	133252181	5742	87059646	4640	21446861	645	1304415	36
	230.584.729	9.620	138.400.124	7.188	45.512.569	1.358	5.089.373	196
2006	117263469	4366	73934665	3536	19928909	494	201490	12
	203.504.721	7.455	118.385.485	5.452	45.457.355	1.111	3.153.932	125
2007	165573378	5604	110860480	4662	30296393	655	159969	10
	310.960.916	10.057	192.055.363	7.691	69.562.211	1.523	8.489.507	255
2008	57798334	1945	40323958	1631	8887331	187	286890	14
	113.059.512	3.532	70.820.752	2.690	24.357.320	519	1.862.639	81
2009	32436576	1052	19839276	853	5889163	134	477800	6
	71.604.475	2.082	37.885.525	1.494	18.424.877	406	1.720.769	38
Total 2009	99.141.152	3.678	45.636.061	1.983	31.131.324	1.056	5.986.748	311

Source: Þjóðskrá Íslands/Registers Iceland 2010 & Þjóðskrá Íslands 2013).

The problems of the housing financing fund

In 2011 the problems of the housing financing fund became evident. (Rannsóknarnefnd Alþingis 2013). The government set up a ransacking committee that delivered its alarming findings in summer of 2013. Following account is part of the committee's main findings and summary (Althingi 2013).

Around mid of last century the main objectives of the housing policy was to provide adequate amount of housing according to demand due to urbanization processes. The states funding for residential housing increased accordingly after the establishment of the Institute of Housing and became from then on the main trajectory of the housing policy. Financial institutions were in their embryonic phase inactive for example because of high rate of inflation, closed economy and the states manual interest policy. As times went by the rate of housing trade funding increased at the cost of construction. At the time of the establishment of the Housing Financing fund in 1990 the social aspect of the housing policy was placed in an additional loan system that provided up to 90 of value to ratio loans.

Much more people were eligible in this arrangement than in the earlier one, due to social conditions In 2004 the additional loan system was eliminated and 90 % of the value to ratio loans were provided to everybody who needed it. The role of the housing financing fund was not any longer social but the state guarantee was used to provide most possible people loans to buy housing at the lowest possible interest rate.

The state housing financing fund is supposed to, through lending, "to enable that the Icelandic population can live in security and equality in terms of housing". State financing is specially devoted to increase the populations possibilities of acquiring or renting housing at manageable price. According to the ransacking committee the housing policy has all along been unclear and at no time have the goal been clear in terms of how they were ment to achieve the objective. Neither has there been any analysis conducted on how to fulfill them through lending.

The activity of the housing financing fund extended beyond lending for housing and under the auspices of risk management it was driven as an investment bank, financed with the assurance of government guaranteed bonds. The fund invested in bonds and floating rate mortgages. The requirements on equity, flat money, net assets, education or experience of staff or other requirements generally set for other financial bodies, were not intact. The fund was neither a subject of same monitoring as other financial bodies.

The public administrative situation of the housing financing fund as an independent institute was poorly defined and inadequate if it was ment to be an influential tool in terms of housing policies. The definition of the fund as a social service institution is in its main principles wrong. Its activities are mostly characterized as financial institution in the housing mortgage market that also are in direct competition with privately driven companies.

The practices of the board were characterised by the before mentioned poorly defined role and too extended role of the fund, as well as inadequate knowledge among key staff of the activities of the fund as a functioning lending institution. Rulings for less important cases took majority of the time of the board and procedures were not defined until after 1998.

Numerous actions and decision concerning the practices of financing, the deals made and procedures were heavily criticized in the ransacking committee's report. Indices of corruption were innuended (Althingi 2013). It created a broad public discussion among the Icelanders in the summer of 2013.

One of the newly elected governments action after the collapse was to develop a housing policy with new aims of changing the ratio of the privately owned housing policy to one of a more mixed ownership in order to secure housing safety for all citizens (Velferðarráðuneyti 2011). In spite of a well intended action, the reality is that renting is a costly affair for most and not a preference among Icelandic families if they have the choice of choosing. Many families do not have that choice. One of the main problems related to renting is that flats are highly priced and there is more demand than supply (Morgunblaðið 2013) What counteracts a healthy rental market is that the rental market is dominated by private owners who rent out apartments for shorter time span creating insecurity and in the long run a more insecure housing option for the public (Neytendablaðið 2013).

Political Economy and its impacts on Social housing

As noted earlier social housing has never been the hallmark of Reykjavík but the shifts involved in housing is clearly an effect of political economy and shifting governments who set their different marks on the housing landscape in the Capital region from time to time.

The implementation committee of Reykjavík (framkvæmdanefnd Reykjavíkur) built 1251 apartments in the city in the years 1968-1980 in the wake of a deal made between the municipality, the state and the un-

ions. The neighbourhood Breiðholt was in development and 248 rental apartments were built for the Reykjavík municipality (Félagsmálaráðuneyti 1989). This marked a change in Reykjavík housing history. A lot of immigration to the urban had affected demand for housing but after this large scale upgrading the bad housing mass belonged to history (Sigurðsson 2002). The laws on the state house institute (húsnæðisstofnun ríkisins) were revised around 1980 and aims implemented including aspirations for one third of housing mass becoming social housing. The labourers construction fund got increased finances to increased lending capacity. The house bond system was established in late 1989 (Ólafsson 1995). Solving the housing crisis that had been created by the verðtryggingu fjárskuldbindinga/index security on loans initiated in 1980 came to an end (Sveinsson 2002). The main shortcoming in the build up of the social housing system can be traced to the plan that whole condominiums and neighbourhoods were designated to serve the role of social housing. The therefore got stigmatized as arenas with inhabitants unable to help themselves (Félagsþjónustan í Reykjavík 2003). As impact of new construction methods the entrepreneurs in Fellahverfi, Breiðholt could build much faster but in a monotonous style (Bergsson 2004). The public had negative perception on the social condominiums and the people living there had to put up with prejudism and stigmatism from society (Félagsþjónustan í Reykjavík 2003). In the school districts where social housing was predominant, like for example in Fellahverfi (Breiðholt), more students were dealing with apprentice problems and grades were lower than average. It was therefore harder for schools to keep up with average standards as an effect of the housing composition structure. Whether capabilities of students were being marginalised de facto or the socio-economic problems were created and constructed as an effect of structural housing policy implementation is though hard to say. However it can be concluded that this policy implementation concentrated minority groups and least affluent inhabitants of the city. This policy was changed after 2002 where the newly formed social housing company was ment to buy apartments spread around the city instead of earlier clustering strategy.

The organisation Félagsbústaðir (a shareholder company owned by majority of Reykjavík Municipality) was established in year 1997 by the Municipality of Reykjavík. The housing company was formed on basis of rental apartments administered by the municipality and took over/bought 827 apartments from the

municipality. The political aim being to improve equity in access to social housing (Morgunblaðið 1997). The company is owned by the municipality and the welfare division administers applications. In 2007 it operated 2,063 apartments in the capital region, whereof 1,767 were rental apartments and 296 service apartments (for disabled population) (Félagsbústaðir 2011).

Already in year 2002 the company was dealing with economical challenges brought on by debt because it had been allowed to buy 100 apartments as way of decreasing waiting lists of low income groups who were applicants for housing. In the years 1991 and 1992 around 590 people had been on waiting lists. In 2002 the socialminister and the municipality had plans of constructing around 600 new rental apartments based on soring need for housing for around 130 families where 100 lots had been devoted for the project (Morgunblaðið 2002). After the boom years the companies financial problems had increased, mainly due to a bullet loan taken in 2007 and 2008 amounting to equivalent of 1 billion ISK, that made the company insolvent in end of year 2010 (Morgunblaðið 2010). Félagsbústaðir were faced with selling around 60 apartments to meet their obligations (Eyjan 2010). They could not raise the rent because rent was as high or even higher than in the general rental market.

Two years earlier premises for rent had been significantly changed. In May/June 2008 the municipality support to renters of social rental housing was not anymore paid for each apartment. The renters however could apply for rental composition (húsaleigubætur) that would lower the montly cost for the renter. The social aspect of housing was thereby reduced as the social housing system rested now upon the same premises as the general rental housing market (which was mostly limited to student housing) (Haraldsdóttir 2008). The concentration of ethnic groups at the end of 2005 was greater in Reykjavík municipality than other neighbour municipalities of the Reykjavík capital area. The number of foreign citizens of the total number of inhabitants in Reykjavík was 4.7 % while the percentage in Kópavogur was 3.1 % and in Hafnarfjörður 2.8 %, Garðabær 2.6 %, Álftanes 1.9 % and Mosfellsbær 1.8 % (Sindradóttir 2007). The concentration in Reykjavík is also visible when focused on individual neighborhoods (see table above). In eight neighborhoods the ratio was higher in a neighborhood than in any neighborhood in the capital region (Hjallahverfi, 5.6 %, of 2,643 inhabitants 148 individuals). Analysed on a street level one particular neighborhood stands out. That is Fellahverfi.

Ethnic composition and housing

Table 7. Number and percentage of inhabitants with foreign citizenship by neighbourhoods 2007.

Range	Neighbourhood	Population	Nr. foreign citizens	% foreign citizens
1	Fellahverfi	4496	517	11,5
2	Kjalarnes	896	98	10,9
3	Centrum Reykjavík	7371	764	10,4
4	Old West Reykjavík	5082	447	8,8
5	Hlíðar/Holt/Norðurmýri	5466	420	7,7
6	Háaleiti	2868	185	6,5
7	Breiðholt Low	3806	224	5,9
8	Vesturbær	6968	398	5,7
9	Kópavogur Hjallar	2643	148	5,6
10	Hfj.Miðbær	3195	159	5,0
44	Ásland	2041	33	1,6
45	Grafarholt	4501	67	1,5

Source: Jórunn Íris Sindradóttir 2007.

Table 8. Street with highest proportion foreign citizens.

Street	Neighborhood	Population	Foreign citizens	% foreign citizens
Iðufell	Fellahverfi	130	41	31,5
Gyðufell	Fellahverfi	178	52	29,2
Torfufell	Fellahverfi	359	81	22,6
Nýlendugata	Old West R	140	31	22,1
Þórufell	Fellahverfi	176	37	21
Lokastígur	Centrum R	113	23	20,4
Seljavegur	Old West R	138	26	18,8
Laugavegur	Centrum R	620	116	18,7
Nýbýlavegur	Kópavogur Digranes	312	54	17,3
Barónstígur	Centrum R	230	39	17
Möðrufell	Fellahverfi	167	28	16,8
Rjúpufell	Fellahverfi	363	59	16,3

Source: Jórunn Íris Sindradóttir 2007.

Conclusion

The Icelandic housing system has since the establishment of the Icelandic Republic been characterised by shifts. The patterns of change include mainly the state intervention and its shifting housing policies from time

to time where the private ownership policy has been the hallmark with varying presence of social housing policies depending on what government is in charge. Patterns of development have included establishing and formalising a system taking care of lending for construction and housing that at first was only taken

care of by state institutions with varying roles and names but as times went by both pension funds and later banks became involved in funding housing and lending to private investors.

The new millennium in Iceland was marked by the privatisation of the banks (Althingi, 2010). As in other market economies a whole new array of financial instruments (product innovation) appeared on the scene with increasing frequency, notably those providing new methods of lending and borrowing and those facilitating the greater spread of risk with the phenomenal growth of derivatives (Dickens, 2011). At the same time the regulatory walls crumbled – even collapsed altogether in some cases. This was a consequence of major deregulation as had occurred in all the major developed economies since the 1980s allowing banks to become involved in a whole new variety of financial services.

In Iceland as a result of deregulation the newly privatised banks were, from June 2004, able to enter the mortgage market where the housing financing fund (HFF) and pension funds had previously on the basis of existing legislation been the sole lenders for housing purposes. Not only did this change bring about easier access to loans and financial capital for house building but also raised the proportion of loans available in several currencies. Banks and the housing financing fund took over some 3,500 pieces of real estate, if the 3 households a day calculation is true, as described earlier. At the same time the planning authorities have admitted that over 7,000 apartments have been built above and beyond current needs.

The link between territory, the economy and politics is more bluntly visual on the outskirts of the city where the development of whole neighbourhoods has been put on hold after being planned during the housing boom in the middle of the last decade. The insatiable enthusiasm for construction affected the political behaviour of the municipalities in the capital region significantly, politicians and people alike, and generated heated internal competition over land bids thus significantly affecting prices. In the intersection between rural and urban here there exists a litany of failed projects.

The result is that many neighbourhoods currently in the midst of construction or newly constructed are half empty and are likely to remain so. Some buildings have been left empty; others are simply not for sale. Some are partly finished with families living in one corner of the building while the time perspective in terms of completion remains 'open-ended'. As both 'down at heel' en-

trepreneurs and private families have trouble refinancing loans in order to finish building work, properties are repossessed by the banks who are then accused of holding them hostage (what Americans term shadow inventory ownership). The market value has thus not decreased significantly as initially expected and thus rental apartments remain very expensive.

Thus it is interesting to focus on how this altered situation has affected different social group's possibilities, including the gender perspective.

The shift in ownership structure has mainly been evident after the financial collapse in late 2008 when an increased number of insolvent and indebted families became reliant on the rental market. This has changed pressure on the rental housing. Furthermore there are several indication that the manoeuvre space of young people under 40 is limited in contemporary Icelandic society to raise funds to buy own apartment or establish themselves as homeowners/owners. The role of the state housing loan fund, that changed legislation after 2004 has been deeply contested, especially in the wake of the report published by the special ransacking committee appointed by parliament in 2010.

Many problematic perspectives are drawn in the horizon for the Icelandic population in how to achieve ownership in housing but also in terms of renting apartments

From a more optimistic direction the view of Amin and Thrift (2002) present an aspect of the urban as providing possibilities. The built environment on the political economy of the urban is not well recognised for the importance of seemingly random or insignificant acts, relations and presences. Cities can be reimaged through sensory metaphors as a way of picking up and including what is overlooked and left out of traditional analyses, maybe leading to more or less democratic cities (Amin and Thrift 2002). The term economy derives from *aioikos*, meaning housing and *nomos* which means laws, traditions and behavior. Ecology is on the other hand derived from the greek terms *oikos* and *logos* that means thought, sensibility and understanding. We can therefore say that we have created too much economy (housing) and too little understanding (ecology). For the future- creating an understanding of the needs and creating an adequate and functioning framework to realise the needs so that ordinary people can make ends meet and live in security in terms of housing is a first priority for Reykjavík and the Capital region, in order for the region to thrive.

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A macroeconomic Impact Assessment on entrepreneurship in The Greenlandic Housing Sector

Gorm Winther, Denmark.¹⁹

In order to assess the need for future housing in Greenland the question is, whether new construction sites will provide an ample underpinning for the development of innovative practices and entrepreneurship in the building and construction sector? In addition the maintenance of the existing housing stock can provide a basis for increased activities – I will not however include this sector in the analysis, because our case in question is related to a complete revolution of existing outside wall technology used in Greenland. Using bricks in construction has hitherto been out of the question, due to the cost of transportation from Denmark; hence side boards of wooden houses outside eternit slate cover of skeletons in wood and concrete have been dominating the building techniques.

In the years after 2000 an exodus from smaller towns and settlements were supposed to take place but-tressed by price reforms creating price hikes on utilities, logistics (air and ship transportation), retailing and telecommunications. Amidst these reforms, there is a lot of wishful thinking regarding future exploitation of non-living resources like oil, gas and minerals. These reveries were in place up there for more than 25 years without paying off in terms of value added to the GDP. Hence in terms of the economic foundation for an increased self-reliance and economic independence, we see the same meager results. One project after the next, either were abandoned or it never paid off to the Greenland society in terms of revenues from taxes. It is actually noteworthy to see that in the middle of these day-dreaming debates, Greenland has a sector that is often unnoticed.

Since, the fifties the Danish Colony has accomplished a tremendous built up of know how about Arctic housing and construction technologies often taken for granted. As argued by Nielsen the housing and construction sector is the fifth pillar of the Greenland Economy, where four other pillars of Living and non-living resources, tourism and non-tradable goods and

services nonetheless dominate the strategies of Industrial policies.²⁰ Moreover an overarching question is, if the four big so-called competition towns of Qaqortoq, Nuuk, Sisimiut and Ilulissat can absorb the demand for dwellings stemming from smaller towns and settlements, and whether smaller towns can absorb an influx from the settlements?

A model for the Housing sector

As a commencement for the use of applicable figures, Greenland statistics publish housing and population censuses.²¹ The data for the most recent year's housing censuses are constructed using data on the municipalities in Greenland. In doing so, the numbers of building units reported are understood as either a single unit (e.g. Detached houses) or a number of units within same size (e.g. Apartments in an apartment block), and these should be numbered in accordance with the rules for addresses in force in the Central Population Register. Building units are not only housing for tenancy or in a minority of cases home ownership;

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20 Olafur Nielsen: Den glemte femte søjle – boligforsyningen in Gorm Winther (ed) Samfundsøkonomen tema om Grønland, no. 8, 1998. pp. 56-61

21 Source: Table 4.1.: Befolkning og befolkningstilvækst 1. October 1901 – 1. January 2002 (bilagsmateriale). page 417, Statistisk årbog 2001-2002, Grønlands Statistik. The Publication: Boliger 2003 fra Grønlands Statistik: 1 'Tilgangen af boliger 1997-2002, bestanden af boliger pr. 1. januar samt det beregnede behov for boliger', table 1, page 4. Finally the publication: Befolkningsstatistik 2003:1 fra Grønlands Statistik: 'Grønlands Befolkning 1. januar 2003', side 11, and newer publications up to 2013 and 2010 in the series. Moreover, the data bank of Statistics Greenland.

it can also be business units. The data Greenland Statistics publish includes only homes for private use and not for commercial purposes. The figures computed are merely ordinary housing. Another factor that may contribute to underestimate the total new construction is that Ivittuut Municipality, the group outside the municipal division, stations and the airport settlement Kangerlussuaq are not included in the tables. If we take the figures below as a guide to the current and future demand for housing and building units for commercial use in all of Greenland, it is not excluded that a slight underestimation is at play.

The model in figure 3 is established by squaring the annual population so that we can add an additional variable in relation to an ordinary multiple OLS regression with housing as a variable dependent on the independent variable 'population'. The multiple regression with no. of homes, the population and squared population expressed by the multiple regression equation in figure 3 under the curve generate a parabolic fit as in figure 3 with a local maximum.

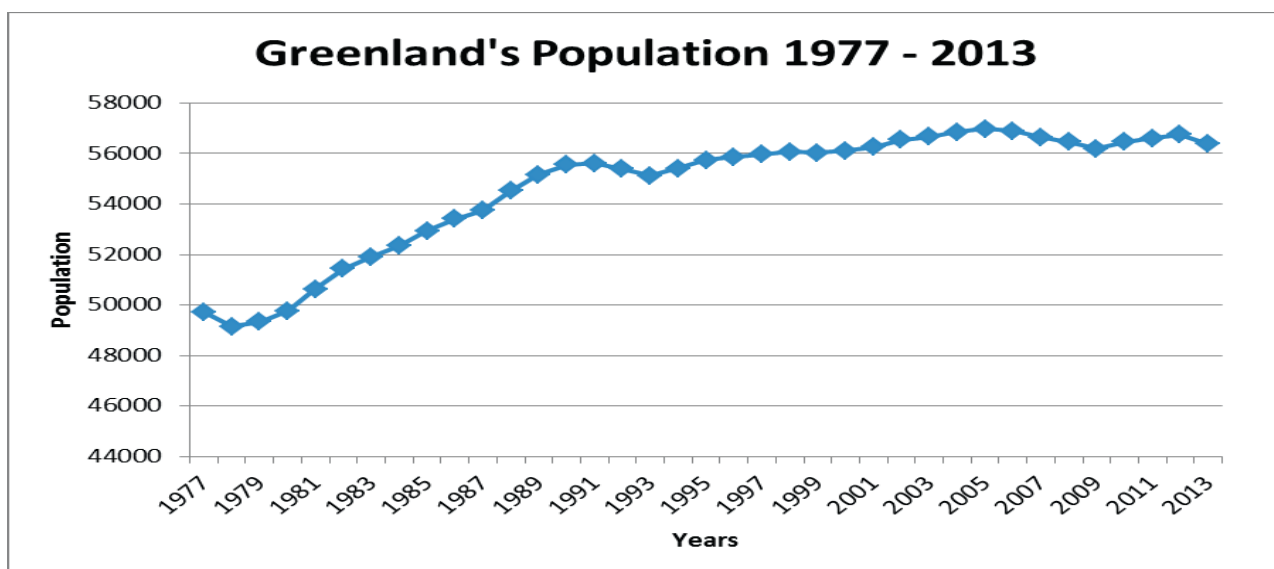
The trend is also seen in Figure 2, where the increasing trend from 1977 until the end of the eighties was stronger compared with the trend from 1977 to 1993 and subsequently in recent years moves heavily down. The apices in Figure 2, suggests an annual increase in housing supply by between 543 and 753 homes. The overall development in terms of annual average growth in housing is negative between one and 2%. At the same time the growth rate for the population was one percent.

According to statistics Greenland there were 56,370 inhabitants of Greenland in 2013. Observing the development trends of the variance the population and the construction of new homes, it is obvious that while the

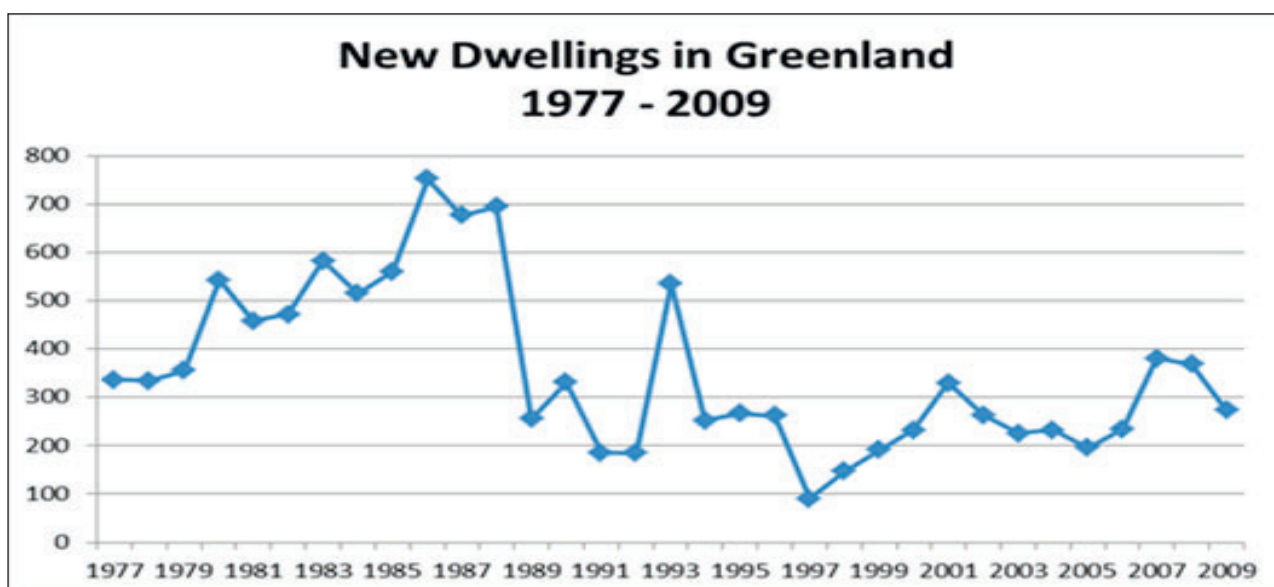
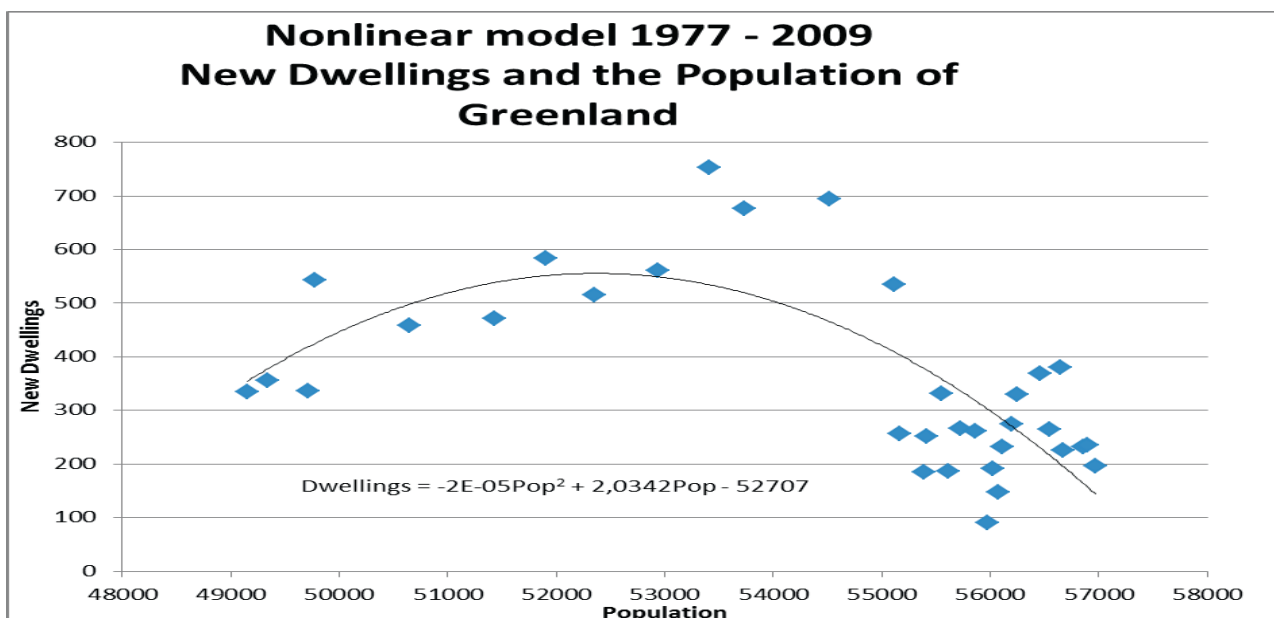
population is increasing (the most recent year almost stagnating), the construction of homes moves the opposite way. In essence this means, that if residential construction is not concentrated in the so-called 'competition towns' of Qaqortoq, Nuuk, Sisimiut and Ilulissat, at the same time as the rest population of dwellers has increased demand for housing by moving to these towns, the supply does not follow demand. It could increase the density of residents per housing unit, or it leads to an exacerbation of the housing shortages in these towns, where the housing queues can lead to waiting periods of 10-12 years in Nuuk alone.

The trend in the nineties and the years after up to 2009 owe its explanations to several incidents. After Greenland's debt crisis in 1988, it was necessary to dampen and introduce a 'stop policy'. Furthermore, there were years, where planning failed, leading to postponed investments moved ahead to the following years. In the ten years after the millennium, neo-liberalist policies and private ownership of homes may not have been the success as anticipated. At least the figures do not appear to show any sweeping upturns of private building activities substituting Government initiative and enhancing the growth rate.

If the tendency in the figures 1-3 continues, there are reasons to be worried. This is explained by the need for new and larger residential units. First, the existing stock of housing should either be condemned or demolished in order to build new homes. Second, the density per room is still higher in Greenland than in Denmark and third, there is a continued need for a larger output of housing than seen in the nineties and the years after the millennium. There is no doubt, that housing needs the same expansion rate as in the eighties, if the prevailing situation characterized by 'housing shortage'



should not be made permanent?



If you compare the no. of persons, that on average live in a residential unit in Greenland and Denmark, it is from table 1 apparent that the figure is higher for Greenland towns and even higher in settlements. The

figures around the millennium were 2.50 persons, while in Denmark it was 2.45 persons. The average annual decrease from 1981 to 2000 was 0.6 % (rounded) roughly the same as from 1996 to 2000 for the towns of Greenland. There is no reason to conjecture, whether these figures has changed in the opposite direction.

Table 1: Persons per Home in Greenland and Denmark.

Greenland	Denmark		
	Towns	Settlements	Total
1996	2.57	3.02	2.21
1997	2.58	2.95	2.20
1998	2.52	2.89	2.20
1999	2.50	2.84	2.19
2000	2.50	2.80	2.19
2001	2.50	2.70	-

Source: *Statistiske årbøger, Grønlands Statistik 1999, 2000 og 2001 (bilagsmateriale, til kapitel 13). Danmarks Statistik: 'Nyt fra Danmarks Statistik: Boligtællingen 1. januar 2000, nr. 259, 26/6 2000.*

Statistics Greenland calculates the need for housing on the basis of the composition of the population and the political goals for the supply of homes. The potential demand for housing specifies how much housing that is required for providing a home for a couple or a single over a certain age (From the 20th year and from the 25th year). According to a calculation in 2002 on potential demand for housing for residents from 20 years of age and beyond (table 2), the potential need for homes was 21,941 in the towns. This means that 83.8 % of the need was covered of the actual supply of housing. Similar figures for the settlements were 3,813 homes, where supply covered 94.8 % of demand.²²

If we assume, that the potential need comprises actual demand, we can with table 2 compute

disequilibrium at the Greenland 'housing market'. From Table 2 we see that for the whole country there is an excess demand for homes for all citizens above 20 years of age of some 3,554 homes and for citizens above 25 years of age 2.603 homes. When the coverage ratios are so high in the settlements it is shown that the future need for housing probably has to be met in the towns, where new residential construction takes place. In recent years, there is an exodus out of the settlements of especially women.²³

The figures are of an older type from around the millennium, but there is no reason to expect drastic changes since then due to the continued low activity in the construction and housing sector.

²² For 20 year old citizens and above Student's accommodations' were a part of the calculation, which is not the case for the 25 year old and above citizens. Rooms in elder care units are a part of both calculations. On housing needs and lack of housing see statistic Greenland's yearbooks 2001-02 and later if published.

²³ Lawrence C. Hamilton, Rasmus Ole Rasmussen, Nicholas E. Flanders and Carole L. Seyfrit: Outmigration and Gender Balance of Greenland, *Arctic Anthropology* Vol. 33, No. 1 (1996), pp. 89-97

Table 2: Calculations of the Needs for Housing per 1/1 2002.

	Demand for Homes (Qd)	Ratio of Coverage	Supply of Homes (Qs)	Surplus Demand (Qd) - (Qs)
Byer total:				
20 år+	21,941	83.8	18,387	3.554*
25 år+	20,988	87.6	18,385	2.603
Heraf:				
Ilulissat				
20 år+	2,015	78.2	1,576	439
25 år+	1,932	81.6	1,577	355
Sisimiut				
20 år+	2,348	84.1	1,975	373
25 år+	2,273	86.8	1,973	300
Nuuk				
20 år+	6,998	81.0	5,668	1.330
25 år+	6,654	85.2	5,669	985
Qaqortoq				
20 år+	1,480	92.0	1,362	118
25 år+	1,377	98.8	1,360	17
Bygder:				
20 år+	3,813	94.8	3,615	198
25 år+	3,688	98.1	3,618	70

* Inaccuracies due to rounding.

Source: Grønlands Statistik, årbog 2001-2002, table 13.4, page 487.

One can in this context imagine two possible scenarios: the first one, where the pace of improvement is geographically spread across all cities, and secondly, one that follows the recommendations of the Uniform price Committee of 1998 proposal and the proposals contained in the Home Rule structural policy action plan of 2000.

The last mentioned sources comprise a concentration of the population in the four towns Ilulissat, Sisimiut and Nuuk and Qaqortoq – If you choose to follow recommendations of this sort and implement them fully, it is clear that Table 2 is not an accurate picture of future housing demand. You must then over time move the settlement population in to the four cities (about 9,800 people) and a considerable number of people from other cities into the four ‘growth centers’. As of 1/1 there were in Ilulissat 4,285 inhabitants, in Sisimiut 5,222, in Nuuk 13,889 and Qaqortoq 3,086 - a total of 26,482. The remaining residents of the rest of Greenland incl. residents outside the municipal subdivision and residents of the settlements will then be a total of 30,050 inhabitants. Of course, it is not the case that housing is to be provided for all these people, since, as shown above we only counted a potential

housing needs from either the 20th or the 25th year of life. Regarding the first category (20th year of life) there were per 1/1 2002 19,006 people aged under 20 and thus 37,536 from 20 years and up to 70 +. This figure is for the whole country, which roughly can be divided into single and cohabiting dwellings after the 20th year of life. With respect to a greater ‘Exodus to growth towns’, we can obviously not know, whether age distribution, sex and marital status are nationally representative of the 30,050 inhabitants that in the very long run, is supposed to be living in the four towns. Hence, we cannot with the present sources as our point of departure make an accurate estimate of this, because the collected basic data are at Statistics Greenland. However, if we make the assumption that there is representativeness and that the Uniform Price Committees suggestions are utilized in full, we can also get an impression of what size it is, we approximately work with regarding the situation at a future housing market concentrated in the four towns.

A conservative estimate suggests that there will be a total need of time until a perspective plan of 20 or 25 years is executed constructing 15,000 homes. Cumulatively this implies an annual built up of 750 homes and

over 25 years 600 homes over the period *ceteris paribus*, i.e. if buildings are condemned or changed a new home will have an intake of inhabitants of the same magnitude. In this scenario, we must also remember that the total need for building units for both commercial and domestic purposes would be even higher than the approx. 15,000 units over the period, so the 600 annual units underestimate the total increase in demand for newly 'construction units'. In addition, the coverage percentages in the four 'growth towns' are not 100 (Table 2). In Ilulissat it was for 2002 from 20 years + and 25 +: 78.2 % and 81.6 %, in Sisimiut it was 84.1 % and 86.8 %. In Nuuk it was 81 % and 85.2 %, and in Qaqortoq it was 92 % and 95.8 %. If a balance between supply and demand on the 4 local housing markets exists, this would imply that 2,260 dwellings were to be built (20 years +) or 1,657 dwellings (25 + years). How the percentage of cover develops in the future leaves only room for conjectures. Housing shortages in the four towns are not included in the low-set estimate of 15,000 dwellings over time.

Moreover, this estimate says nothing about how many more homes that would be built to achieve the same residential density as in Denmark, and how much is to be built more as a result of tenants from the settlements demanding the same residential density in urban areas as in outskirts areas. This is another indication, that the estimate is low.

With respect to the first scenario based on unchanged expansion pattern of the cities, we can use the figures for Table 2 to say something about housing needs. We can choose a conservative estimate of 10 years (25 years and older) for an expansion rate that create equilibrium in the housing market, given that demand is constant. The projection of the population by 2013, points as indicated above in this direction. By this, the rate of expansion should then be around 260 residential units annually. This is of course then not enough. The need for renovations and condemnations of the existing housing stock is not included in this assessment. It can be hard to tell exactly how much this will increase the pace of improvement. We could assume that 100 annually should be appraised as suitable for demolition, and that the construction of substitute housing for the dwellers hitherto living there will take place. Furthermore, the housing and other building units that are not counted as new construction (outside the municipal boundary, Kangerlussuaq and commercial buildings), and a decrease in the density per dwelling, could be included. A 'guesstimate' in 2002 suggests the total is 400 annually in several years in connection with a geographically dispersed development in 2002, and it suggests, it could be regarded as a

realistic figure with an active involvement from self-Government. However, moving back to figure 2 above suggests something else. Even such a goal should be considered excessively ambitious *ceteris paribus*, and the private sector housing may have expanded for the 'super rich' and to a certain extent the 'medium rich' in Nuuk, but it did not substituted Government or co-operative housing up to 400 each year. Only in 2008 the output of new homes came close with 369 housing units. For the period of 2002 to 2009 where data are available 272 units on average were built per year.

The alternative, founded on the Home Rule structural policy recommendations of 2000 and on the attempts to reform the Uniform price system that ideally should lead to the resulting geographic concentration of population in the four 'growth towns', suggests a conservative estimate here is an expansion rate of 6-700 homes annually for the next 25 years. On the back ground of data from a period of the last 20 years this does not seem realistic at all unless the fiscal policy and the housing policy are changed with Government interventions and partnerships between Government and Private investors. Taking into account that most building materials are imported so far away as Denmark albeit Canadian Harbor facilities are closer, and albeit the future logistics in the Arctic are changing, nothing is really done to get cheaper building material and components? Considering, that the propensity to invest in innovations in an Arctic construction sector and to create technical change in terms of building materials manufactured in Greenland, a 'big leap forward' is far from present? This could include a strategy of gradualism to innovations and in the creation of a self-supporting economy, where value added in Greenland is taxed here and revenues stay here. This, instead of talking of supercilious mineral resources and oil and gas resources projects that as elsewhere in reality means, that revenues are not taxed away, but exported due to transfer pricing in transnational companies. Looking at the Hay Days of central planning from Copenhagen and the G60 period, world records in terms of economic growth especially in construction were set. In the eighties, where the old planning techniques were still used, 500 to 600 residential units were not that uncommon – it is in other words possible due to physical and economic planning, Government initiative and regulations and both public housing and private housing.

The Self-government Rule can make a significant contribution to the development as a buyer. This instrument does not have to be the same as providing a general framework to support the development. In reality, this is a selective instrument, where home rule

may affect demand through procurements of specific goods and services with the aim of stimulating decisions from a private provider. Central decision-makers can thus set a trend in motion that strengthens a business at the same time that itself have some goals implemented in accordance with a plan (cheaper goods and services, better quality, etc.). Thus, one can impose specific requirements on products that can help to reduce the price and increase the pace of Arctic innovations in housing and construction and to increase the quality and the competitiveness. In this context, advance of development contracts with private suppliers on the introduction of best practices of new building techniques e.g. construction of houses, insulation, low energy housing, infrastructure and use of new materials in accordance with the change of environment moving climate and vegetation belts further north, that spurs growth and development.

A Greenland entrepreneur is so seldom he should be stuffed

In 2002-03, I piloted a study for the Home Rule Government on a Greenland invented building technique based on concrete stone blocks. Fundamentally our problem in relation to a self-support strategy is:²⁴

How big should the housing market be, given a homogeneous or heterogenous commodity production, for the establishment of an economically justifiable result using different types of outer walls? The gist of the matter here is: How many stones that maximum has to be produced, to create a competitive unit price, when compared to imported burnt clay bricks, imported wood sheets and outside eternit cladding panels mounted at wooden skeletons. When there is estimated a price on data of quantities necessary to build 4 similar buildings the four technologies may also be included in the socio-economic assessments, based on comparisons of siku-block concrete houses and traditional houses.

A Greenland entrepreneur Jakob Knudsen of Narsaq has developed this technique of concrete brick stones (siku-block stones) that should not be confused with traditional clay burned bricks. In order to manufacture such a brick, one need a block stone machine of the same sort as machines used to manufacture pavement

coating, patio bricks, tiles, foundation blocks, curb stones and broken stones. Knudsen had over the years faced problems with this building technique like all other innovators. Problem solving of using the right type of cement and avoiding cracks of walls through the use of dilatation joints finally made the technique applicable. The sealant is flexible rubber strips, mounted as a floating mass later to stiffen allowing all four types of walls to expand and contract to a larger degree. In general this is not as often emphasized in the debate in Greenland. The problem in the debate is only ascribable to siku-block according to the opponents. Yet, it has been used by the 'carpenter lobby' (mainly Danes) as an argument against the siku technique per se (!). However, it can be ascribed to traditional clay burned bricks too. According to the Danish Technological Institute

'A worrying large proportion of Technological Institute surveys in Denmark in relation to traditional construction conclude that there are cracks in the outer walls of buildings, which occur, because the wall does not have sufficient opportunity to work (dilatation cracks). These problems can be relatively easily avoided by ensuring the necessary flexibility in the wall through expansion intersections and binder less corners. Expansion joints are not pretty and during project planning it is therefore attempted to minimize the number of flexible linkages. Yet, in some cases they are forgotten completely, but this is not appropriate as the risk of damage and cost is high (GW, translation).'

Knudsens' houses were established in the Town of Narsaq and the airport settlement of Narssarsuaq. In Narsaq a collegium for students were built and an elderly care center culminating with Knudsen's own 250 square meter low energy and insulated villa.

There's already deposited a portion of public funds into the development of siku-block in the manufacturing stage, whereas there have not been very much of this kind in the building and construction sector. There is nothing new in some private providers' reluctance to innovations, because this may involve moving away from grandfathering, 'nice practices', good discounts and good earnings on previously delivered goods and services nicely relieved from competition. In Denmark the phenomenon of the craft employer pig ('mestergris-en') is an often met example, which is a de facto Cartel. The employers in contractor firms, carpenter firms, in plumbing and gasfitter firms, electricians firms and brick layers firms do not compete. To use Adam Smith's

24 Gorm Winther: Sikubloksten eller andre bygningsteknikker - en komparativ økonomisk analyse? Greenland Home Rule Government, 2004.



Jakob Knudsen and his self-made home in Narsaq, 2003, Photo Gorm Winther.



famous wording they conspire against the public by negotiating the lowest price, when bidding on a franchise. Setting up a hierarchy of bids and using 'markup pricing' they so to speak execute the different outsourced contracts from the local and the central government. It is easy to contemplate how difficult it is for a newcomer to the 'local market' to get entry, especially when he does not adhere to established practices.

Performance contracts mentioned above can have both an element of 'whip' and 'carrot' in themselves - the former is to be made direct claims ('there will be built only in siku-block'), offering Government support in the phase of getting used to the new building technique ('You will get a short-term contract for the development of houses with this product, which takes

into account the uncertainties by remunerating you for your innovative effort'). 'Technological rents' is in this way under political control as is the choice of building techniques. Take a story like the one of asbestos cement sheets produced in Aalborg until recently. By forbidding this production due to health problems and deaths of asbestos employees, the company was forced to develop sheets based on other materials. In the end this became a path breaking innovation and an export good. Failure to apply such a principle and instead say that the builders freely can decide, which materials they want to use, creates an imminent danger of siku-block never being applied in the construction stage.

There are obvious signs of Danish colonialism and euro-centrism at play here! Only Danish carpenters

and other building norms are considered good. It is Danish building regulations that prescribe how to build, although all building materials have to be transported by ship by 'Royal Arctic Line' the long way from Aalborg to different places in Greenland. Canadian standards for instance cannot substitute Danish practices, because Canadian Pre-fab. Housing is set up by other building norms than Danish norms. It cannot be a rational calculation to exclude innovative practices in Greenland based on accessible resources here²⁵. Rent-seeking from Danish employers is a damaging practice to a Greenland entrepreneur like Jakob Knudsen and to the Greenland economy in general. That is probably, why there are so few entrepreneurs in Greenland. Part of the innovation processes as already pointed out by the Austrian J.A. Schumpeter in his theory of Economic Development and his work in 'Capitalism, socialism and Democracy' is to climb the social ladder of existing networks and get the acceptance of ones invention from dubious nepotistic 'old boys networks'. 'Bosses' competing for the 'chunks of Government cakes' through the Greenland Employers Association articulate interests and demands from the Danish employers in the Greenland construction and housing sector. Inuit employers have now set up their own association suggesting the schism between neo-colonial building practices and local attempts to break the Danish cartels power. The weakness of local initiative is probably as explanatory to the demise of the siku-block as bogus neo-classical arguments of less economic rationality behind this new technique?

Siku-block linkages

Taking the 400 homes as our point of departure instead of a much higher and probably too ambitious output of 600-700 homes in relation to the 'exodus' out of the settlements and smaller towns may raise the question of under-utilized production capacity in the manufacturing of siku-block? The solution here is to create

a differentiated output instead of a homogenous output of only siku-blocks. The block machine can, as mentioned above achieve this through different forms of casting.

Assuming an identical technology for the programs of new housing and reestablishment of condemned housing and looking at our data and the model above even a figure like 400 dwellings can as mentioned create problems, if the calculation is based on a homogenous output. The production of siku-block stones for 400 units require a produced quantity of 6 million stones if all housing were built like in this representation showing the 'Sisimiut House'. With an approximation of 10.000 stones per flat (including material waste) 400 units means 4 million stones if all 400 dwellings were built like the 'Sisimiut houses'.

The production process in the future is calculated on a technology that is automated (block stone machine).



Such a machine is already available today in Nuuk, but in these calculations we assume that the machine is bought used from an export company North of Aalborg in the vicinity of the Greenland Harbor in Eastern Aalborg.

²⁵ Although clay can be found and seemed found around the millennium outside Nuuk according to Nuna Minerals A/S nothing has happened. Greenland is stuck with Danish neo-colonialism putting an obstacle on innovative practices that could increase employment and value added and diminish imports? Ole Christiansen: 'Indledende undersøgelse af lerforekomster ved Akia' uadarbejdet for Nuup Kommunea af Nuna Minerals A/S, 2003 side 15.

Table 3: Input of siku-block stones in the 'Sisimiut house'.

	Sisimiut House units
Site area	160 m ²
Number of Floors	2
Exterior Wall Area	230 m ²
Number of Stones in Double Wall	29,000
Number of flats	3
Number of Stones per Flat	10,000

Egil Borchersen, Center for Arctic Technology, Sisimiut, Aources, drawings and project descriptions from 'Sanati A/S' in Sisimiut and from 'Pitu Aps' in Nuuk

The quintessence of the problem here is whether the demand for new construction and demolition of condemned housing with the purpose of building new homes suffice for the production of siku-block stones? Even if all houses were to be built in siku-blocks, which does appear impossible, when we take the expansion rate of new homes in the nineties and the years we have data for after the millennium into account. In the simple Neo-classical case of single production my calculations call attention to the fact, that it will take at least 600 new dwellings and 6 million stones at a price of 4 DKK per stone to realize a profit after taxes to be distributed for provisions, principal and interests and profits to shareholders.²⁶

However, the narrow assumption of single production (siku-block stones) was actually the way the production started manually in Narsaq back in the nineties. These pioneering efforts from Jakob Knudsen probably did not yielded the expected results. If we however assume automation and joint production, i.e. the siku-block company produces a heterogeneous output even the simple case with two commodities seems much more promising. In an operating financial calculation based on the production of 2 million siku-block stones and some 438.000 foundation blocks also necessary in house building (Funda-blocks, see the picture of products), we have an annual output for construction of walls only for 200 housing units of the 'Sisimiut house' proto-type. It does not take much imagination to see a joint production of all the technical options the machine gives for supplying basic construction material for building sites. And in order to secure, that a selective policy is carried through, the Self-government

in Greenland could use development contracts, incentive contracts and regulation of public tender to secure that 200 or less homes are built depending on how differentiated the joint production will be? The Government stock-holding company INI Inc. and/or the self-government housing and construction department in Nuuk can in this way set up requirements to the private building sector, ensuring that plans for housing are met. Part of the development contracts are to inaugurate requirements to the materials used and what standard the materials should have.

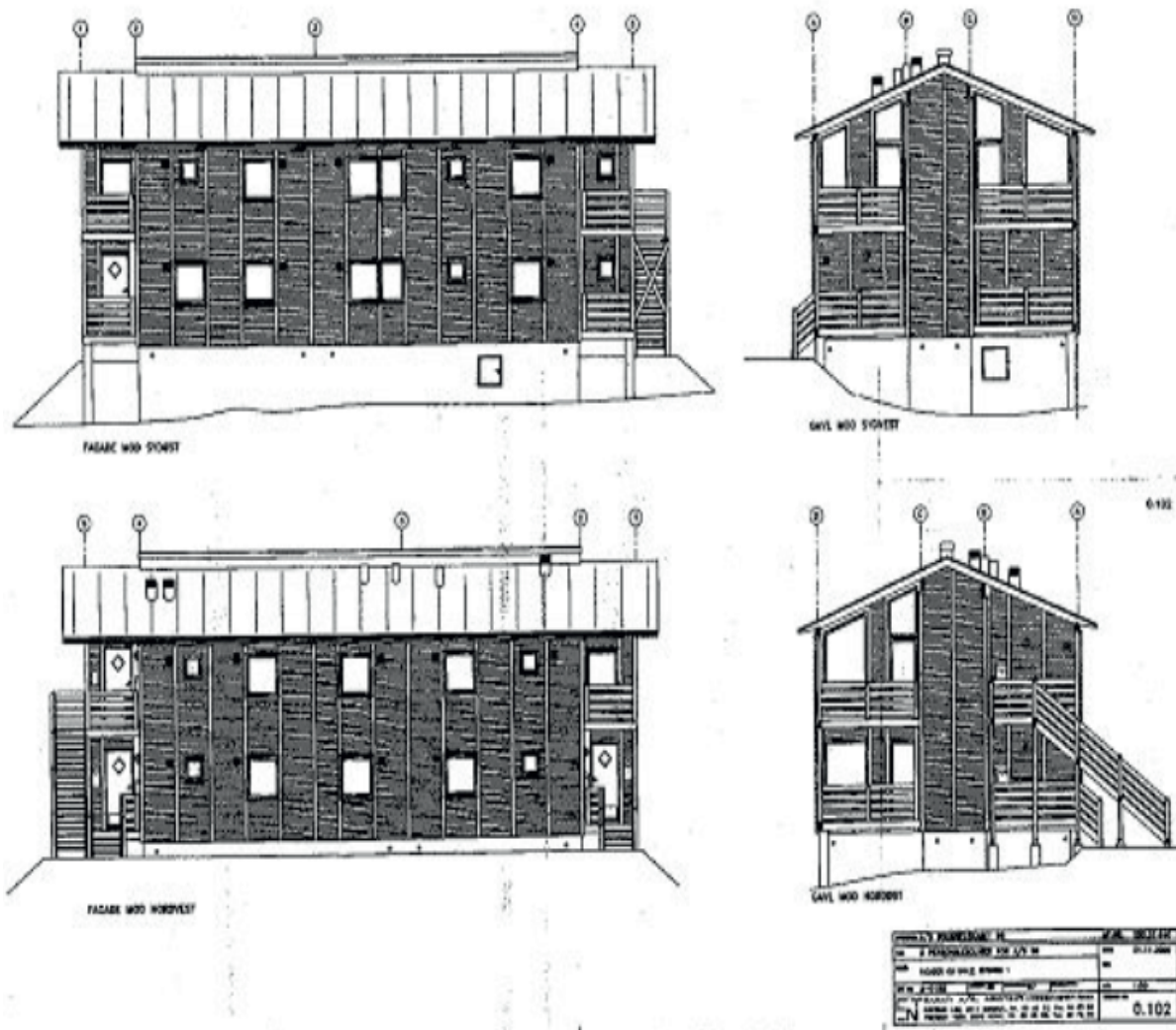
Our comparative approach can now be taken further on the same assumptions as we have just discussed in relation to the siku-block house still using the 'Sisimiut house' as our prototype. In the comparative analysis we compare the 'Sisimiut house' illustrated by the drawing above. The house was initially planned to be built with outer walls in - eternit cladding. Here, we will compare the siku-block case with the 3 other wall techniques. The only thing that differs is the walls. The rest of the buildings require the same materials, and hence they are cost neutral for our calculations. This means that the comparisons only compare Siku-blocks outer wall building techniques:

- Imported burnt clay bricks as walls
- Imported traditional wood materials as walls
- Imported Slates (eternit cladding) mounted at wooden skeletons

When talking about construction and building the manufacturing of Siku-block stones in the future are constrained by three impediments

- The future housing market. Already by now there are a lot of speculative practices in the build sector.
- The import prices and monopolistic practices.
- The Labor Market and the qualification structure.

²⁶ The calculations in this article can be find in a comprehensive report, I wrote in 2004 to Home Rule Government: Gorm Winther: Sikubloksten eller andre bygningsteknikker - en komparativ økonomisk analyse?, Greenland Home Rule Government and agio Greenland, 2004. It can be ordered by me at the e-mail gormwth@gmail.com.



We have by now discussed the lack of demand to create a realistic rate of expansion in the annual growth of homes. Only Joint production and a differentiated output can solve this problem.

In terms of imports most building materials in Greenland are pure import. Everything is transported from Aalborg to Greenland by the use of container logistics. Henceforth, pricing is determined outside of Greenland that has to act as a price-taker. This has less effect on the comparative analysis of cost-effectiveness, as it affects the comparative economic analysis. The data used are a price book for building and construction activities in Greenland, and it divides according to the following principle:

- Gross material cost, which includes net incl. freight, plus an 8 % commission to the company's general administrative expenses and allowances for breakage, spillage, and driving to the construction and building site.

- Freight.

- Customer prices of supplied work containing salary and other income like interests, depreciation and net-profits.

- Equipment Rentals understood as renting of construction cranes, machinery, etc. incl. drivers and the cost of operating funds, and again at 8% in 'overheads'.

In the public debate in Greenland on Siku-block houses, it has been emphasized that Siku-block housing is more costly than other building techniques. In table 4 below it is obvious that this is not the case. We should bear one thing in mind when we look at these figures. Also siku-block necessitates imported cement, but the prices used in table 4 do not take into account economies of scale and eventual discounts for procurements on larger batches of cement.

Macroeconomics

The socio-economic comparisons of the four building technologies are shown in the table 5. The table shows that siku-block stone technology is the one that creates the highest value added the largest GDP impact (direct and indirect effects) and the largest employment (direct and indirect effects)! On the other hand it does not look so good with the import figure that is slightly higher than for traditional technologies.

However that is partly due to the lack of a reliable estimate on eventual discounts on imported cement. The expensive cement raises the question whether it would not be advantageous to import cement from a port other than Aalborg and cheaper than from this port? This could of course be equally justified considering construction materials other than cement in relation to imports? If one can import cheaper construction materials from Canada, there is a problem regarding dimensions of specialized building components, where Canadian material not in all cases can be readily used in relation to the Danish building types and the technical hindrance for free trade, that the Danish building regulations applied in Greenland, constitutes. For some generally useful materials - in this context cement - one could consider, whether there is cheaper cement than the Danish one?

It should be noted that the value added, GDP and employment figures for sikublok technology in table 5 in turn is calculated under the assumption, that they can be laid at the same pace as clay burned stones. If sikublock bricklaying is a slower work process as claimed

by critics, these figures would be even higher because labor costs will surely rise. Yet, value added and the GDP figures for Siku-block stones are a conservative estimate! Nonetheless, climate changes may alter this, because the slower processes are related to cold temperatures.

Conclusions

The Jakob Knudsen incidence should not be taken as 'advanced story telling'. It may seem that just using one case as our point of departure for a discussion of the inclusion and exclusion in processes of innovative network of industrialists and entrepreneurs in the Schumpeterian sense in Greenland is doomed to be referred to the dung hills of unscientific postulates?

Several things could and should be remarked here. First sampling in a Greenland context very often may create so small samples that statistical discernibility cannot be reached. Danish employers are not exactly innovative because they just continue to run in the track, they learned to drive in, when they took their exams ending apprenticeships and higher technical educations entitling them to run a company. There are not many entrepreneurs stemming from that category of employer craftsmen. They constitute an old boys network jealously guarding once received benefits, obtaining antitrust and cartel-like positions keeping the indigenous population outside and suppressing attempts at innovations.

Table 4: Costs on construction of the 'Sisimiut house' using different building techniques.

Type	Outer walls	Deck constructions	Dividing walls	Total	Per. m2 deck floor
Three-skeleton w/eternit	355,970	316,043	204,638	876,651	2,739.53
Siku-block stone	384,322	248,364	266,701	899,387	2,810.58
Three-skeleton w/boards	387,493	316,043	204,640	908,176	2,838.05
Clay burned bricks	505,288	248,364	339,928	1,093,580	3,417.44

Table 5: Macroeconomic Calculations for the four Building techniques.

1 Block:	Skeleton w/eternit	Siku-block Bricks	Wooden Walls	Burned Clay Bricks
Production Value	876,651	1,070,187	908,176	1,093,580
Value Added	294,160	356,308	313,915	329,600****
GDP Change*	464,773	562,967	495,986	520,767
Employment effect**	2.20	2.74	2.27	2.73
Import effect***	582,491	659,769	594,261	763,980

* Income multiplier is estimated to 1.58 (op. cit.) Winther: Sikubloksten eller andre bygningsteknikker - en komparativ økonomisk analyse? Greenland Home Rule Government and 'agio greenland', 2004. Nonetheless, it could be smaller depending on whether the tax function contains an national income independent variable in relation to the gross national income.

** Greenlands Statistics employment multipliers in the input-output table (1990) for the direct and indirect employment in the industry sector and the housing and construction sector. For other building techniques than siku-block stones, there is no employment effect in the manufacturing sector (pure imports). The measure is man years per invested million DDK. Statistisk årbog different years.

*** Calculated with the operating annual budget and using the V&S price data, where most building materials are imported. The production of siku-block comprises a substantial and expensive imports of cement, color and additives, if no discounts are included. An overall restructuring of the import of all these building materials for all building types from Canadian ports would probably alter the relative numbers drastically, and henceforward the siku-block effect on imports is vastly exaggerated in table 5?

**** The relatively higher value of imported clay bricks is due to high freight costs associated with the import from Aalborg. This involves a lot more handling and cargo volume. It should be noted that the added value is an approximation based on the same margin estimate for all four building types (15 %). Employment on board and in ports are therefore underestimated because the wage bill is probably higher.

The lobbyist of this network, trampling the paths thin in self-government administration corridors to visit friendly Danish officials and Danish minded epigone economists probably inclined to help them constitute an outer part of the network. This influences in turn, would-be Inuit entrepreneurs who resign and decay into apathy and alienated positions as spectators rather than participants. In this way any innovative process in the neo-colonial society congeals. This also keeps the sample of entrepreneurs down to a minimum. Moreover, you do not need to live more than a couple of years in the Greenland Society to know what is going on around you in such small 'local islands' isolated from each other. Simple observations are often enough to know that the Greenland employers association is weak compared to the Danish twin association and to know that the Inuit and even the Danish entrepreneur in Greenland are rarely seen specie.

So that is part of the explanation to the discrepancy between or data and 'the old boys' network's reluctance to accept the Siku-block Stone. All housing today requires all other occupations than being a brick layer, because everything is built in wood.

In summary, I concluded on the comparative micro analyzes that there are not in our numbers evidence

to suggest that siku-block technology is so much more expensive as previously thought. Block technology is what the exterior walls, floor slabs and walls are concerned almost as costly as traditional construction. What the macroeconomic figures are concerned, siku-block could generate more economic growth and employment than traditional construction; on the other hand imports are higher, if no discounts are included and no alternative imports are allowed. This could probably be brought down with discounts. Against this background, it cannot be excluded that there is a foundation to decide to build in siku-block in the future. The macroeconomic figures are the most important, because it creates jobs, growth and development.

When we on the other hand know today know that Jakob Knudsen in the end gave up, we can only ask what is of most importance the economic powers exercised through rent seeking, lobbying, networking and market imperfections (e.g. cartels of carpenter companies) or the wage-earners interest in a job and a decent living and society's interest in development? Not even one house today in Greenland is newly built in siku-block – it is in the housing and construction sector 'business as usual'.

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The aluminium smelter project in Greenland – New aspects of an industrialisation process?²⁷

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Introduction

Greenland is today in a situation where important decisions have to be made. The demography is changing, the economy is challenged, and the settlement structure is exposed to both internal and external processes of change. Furthermore the option to become less dependent on transfers from Denmark has become an important issue in the political discourse.

The overarching question in this connection is first of all what should be done in order to meet the upcoming challenges over the coming years and as a part of this question it is important to look into what impact may be generated first and foremost in relation to the settlement and housing structure.

Besides showing differences of livelihoods, social orders and social conditions, the major changes throughout the history of Greenland materializes across the different eras of occupational structures and resource exploitation to a large extend through changes in settlements structures and housing conditions.

An overview of the historical background showing the different eras of occupational structures is important to have in order to understand the present and especially the future dilemmas. Regarding the present situation, it goes not the least for the marked changes caused by a shift from dependency on living renewable resources to an expected increased dependency on mineral and energy resources as well as on related large-scale industries.

One of the potential options in this connection has been a proposal for an aluminium smelter project by Alcoa that in turn has raised the question of the expansion of hydropower plants. Furthermore, it has resulted in a discussion on the very special situation when it comes to the two set of environmental legislation and further on to a discussion of the strategic environ-

mental assessment related to the aluminium project. It inevitably leads to a discussion on the planning of housing and infrastructure related to the aluminium smelter project in Maniitsoq, which is a former centre for fisheries. It has now been selected as the future centre for Alcoa's planned aluminium production in Greenland.

An important issue in relation to the on-going processes of change is the question of legitimacy and democratic potentials, where Greenland clearly is a brand new player on the playground of global economy. In the general context, it is clear that in relation to many of the challenges Greenland is facing the fear of not being prepared to bite on spoons with the large international industrial players. That should on the other hand not lead to a political isolation because - as it will be argued - the best possible political perspective for Greenland as a developing as nation is further international involvement and better preparations.

Background

Greenland gained Home Rule in 1979. It was an agreement between Denmark and Greenland to establish a Greenlandic parliament and gradually transfer areas of responsibility to the new Greenlandic administration. Greenland remained an integrated part of the Kingdom of Denmark, which is constituted by the country of Denmark and the self-governing areas of the Faroe Islands and Greenland.

By 2009, a new agreement gave Greenland Self-Government. The 2009 agreement expands significantly the possibilities for Greenland to take over new areas of responsibility but still within the realm of the Kingdom of Denmark. With the 2009 agreement, it is in the

²⁷ A draft version of this article has been reviewed for the Remote Regions Session on 10 February 2012 at the 2012 WRSA meetings 8-11 February 2012 in Koloa, Kauai Hawaii, USA.

hands of Greenland to decide if and when Greenland wishes full independency from Denmark. An important difference between the 1979 and the 2009 agreements is the economy. With the first agreement in 1979, an annual block grant compensated Greenland for areas of responsibility transferred to Greenland, and the sum was negotiated each year. From 2009 the block grant became a fixed amount of money, which is about 3.5 billion DKK (about 620 million USD) annually. The 1979 agreement stated the subsurface as commonly owned amongst Denmark and Greenland. In the 2009 agreement it is recognised as Greenlandic property.

Because of the new conditions, the economic rationality in Greenland has changed significantly. The new structure has animated Greenland to act much more proactively for attract the international mining and oil companies to Greenland. The explicit reason for that is, the Greenlandic strong political desire to expand its Self-Government and eventually gain full independence. At the same time there is a broad understanding among the political parties that the actual political independence from Denmark primarily is a question of financial independence – together with a growing recognition of the importance of independency when it comes to the question of being able to provide the necessary number of people with the educational skills needed in the society.

The Greenlandic economy is today highly dependent on two sources of income. For the first, it is the fishing sector and for the second, it is the annual block transfer from the Danish Government. For decades, Greenland's own economy has been based on exports by the fishing industry. The efficiency and the catches have been expanding almost from every year to the next, but the world market prices have in the same period declined even more. It is specially the case for shrimp fishing where aquaculture production of large warm water shrimp has impacted the price setting of cold water shrimp, and when the export of shrimp is about 90 % of the export from Greenland it has had a significantly negative impact on the Greenland economy (Rasmussen 2007, Garcia et al. 2006).

The development in the fishing industry with the resource exploited to its maximum as well as the bleak prognosis on future revenues from fishing clearly in-

dicates that the fishing industry never will be able to generate enough wealth to give Greenland a financial independency (Rasmussen 2007, Larsen 2010). The mining industry still does not generate much to the Greenland economy. During the last couple of years, the exploratory drilling for oil has yet not shown any oil resources of commercial interest and because of the lack of success in the exploratory offshore drillings in the west of Greenland, there were no new drillings in 2012 and in 2013.

Because of the broad political aspiration for more political independency from Denmark and as economic independency is an essential precondition to political independency the politicians are searching for alternative ways to generate revenues for the country. That must be seen in combination with the necessary response to the prospect of Greenland that is not being able to generate enough wealth from the traditional sources such as fishing let alone tourism and not even from mining and – on the short lane – even oil. Therefore, in order to keep the existing wealth in Greenland and in order to gain economic independence from Denmark, the country is forced to try to find new ways of revenues for the national economy within the next few years.

In this context, a new perspective revealed itself in 2006 in the shape of the international aluminium producing company Alcoa. The politicians took the opportunity and it did not take much time for the politicians to look for inspiration in Greenland's neighbour to the east, Iceland. Iceland has more than forty years of experience with large-scale industrial projects. Forty years of the phase shift between Iceland and Greenland in relation to large-scale industrial projects provides both challenges and advantages for Greenland when looking for inspiration in Iceland.

Eras of occupational structure

In order to fully understand the epochal changes the enquiry by Alcoa in 2006 created, it has been necessary for Greenland to sketch out an overview of the eras of occupational structure in Greenland. For Greenland, the eras of industrialisation can be divided into four eras.

Table 1: The four eras of occupational structure in Greenland.

Time period	Era	Primary external contact	Primary resource exploitation
From earliest cultures till second part of the 17 th century	Nomadic hunting and fishing	Almost none Peripherally the Norse	Seal, fish
From second part of the 17 th century till around 1950	Early industrialisation	Denmark-Norway as colonisers	Seal, whales, fish, prawns plus minerals
From around 1950 till around 1979	National industrialisation	Denmark as developer	Fish, prawns plus minerals
From around 1979 still in force	Global industrialisation	The global market as business partners	Minerals, gas and energy resources plus fish, prawns

The earliest era of occupational structure in Greenland was the Inuit era, covering the period from the first cultures to settle in Greenland for about 4,500 years ago up till the first contact with the European whalers in the second part of the 17th century. This era was characterised by nomadic hunting, fishing and gathering in cultures primarily using wood, skin, stone and bone to provide the artefacts they used.

A short intermezzo happened during the Norse settlements in Greenland from 982 to around year 1500. This era did not leave much effect on the earliest era of occupational structure, as these two cultures only were peripherally in contact with each other during the last century of the Norse settlement era.

It was not until the second part of the 17th century the first Europeans again began to travel on regular basis in the waters surrounding Greenland. During this period the European whalers had sporadic contact with the Inuit. Later, by starting his mission in 'Old Greenland' in 1721, Hans Egede opened for an intensification of the era of early industrialisation in Greenland. Denmark and Norway set up the mission and trade colonies along the south-western part of the coast of Greenland. The Inuit were in closer contact with the Europeans, the missionaries converted them into Christianity and they were engaged in trading with the trading company, den Kongelige Grønlandske Handel (KGH) – the Royal Greenland Trading Company.

During this era, the economy was based on hunting and whaling and later on small-scale fishing. Some small-scale mining took place (i.e. cryolite and coal), and in 1921 the first fish processing plant opened in Sisimiut. During the 1920s, most of the abundant fish resources following the substantial temperature increase in the Greenlandic waters were however captured by foreign boats. It was therefore not until after the Second World War, that Greenland experienced a major new development in the industrialisation process.

Around 1950, several fundamental changes hit Greenland. The era of the national industrialisation had begun. One of the visible factors was the modernisation of the societal infrastructure and the physical living conditions. The economy developed into a service economy, with the Nordic welfare state as its model. To a large extent, the economy was based on transfer of a block grant from Denmark. Slowly the export of fish and shrimp developed and contributed to the national economy.

On the political scene, a movement for more direct involvement in the political decisions affecting Greenland grew from the beginning of the 1960s. It resulted in the introduction of Home Rule by 1st May 1979, which can be seen as the first step into the fourth era, the era of global industrialisation.

In the beginning, the era of global industrialisation in Greenland developed separately from the Home Rule administration, as it primarily developed within the frame of the extraction industry, i.e. mining and exploration for oil and gas, which had its own administration. It will be explained further in a following chapter

As part of the economic crises, Greenland was for the first time in the end of 1980s exposed to the conditions on the global finance market (Westerlund 1988). In August 1988, the Prime Minister of Denmark set up a permanent Advisory Commission on the Greenlandic Economy ("Det rådgivende udvalg vedrørende Grønlands økonomi"). It was active from 1988 to 2009. In 2009, the Danish commission was replaced with the permanent Greenlandic commission "Grønlands Økonomiske Råd", which was set up by the Greenland government (Naalakkersuisut), (Grønlands Økonomiske Råd 2012), but it is still an advisory board based on Danish expertise.

In spite of Greenland experiencing its first contact with the global finance market in 1988, it did not fun-

damentally change the legislative logic in most parts of the Home Rule administration. One of the reasons for that might be the fact that it was Denmark that took the initiative to set up the first commission on the Greenlandic economy and not the Greenland Home Rule. It is thus just another example of the Danish lead development of Greenland which characterised the era of national industrialisation.

Thus, the era of global industrialisation did not evolved dramatically as an integrated part of the Greenlandic political and administrative realm, until 25 years after the introduction of Home Rule. The change is symbolised by the inquiry in the beginning of 2006 by the aluminium company Alcoa.

Settlement structure and housing conditions

Besides showing differences in livelihoods, the division of the history of Greenland materializes into four phase of industrialisation to a large extent through the changes in settlements and housing.

For centuries, the normal dwelling in Greenland was a skin tent during summer and a peat house during winter. The peat houses were in principle “use-and-

throwaway houses”, as they would normally only be used for one winter due to the nomadic lifestyle of the Inuit.

This pattern changed quite quickly after the first permanent colonial settlement in the 18th century, which identifies the intensification of the era of early industrialisation in Greenland. Drawings from the mid-19th century indicate that the traditional one-winter-only peat houses had been turned into more permanent dwellings, always in close proximity to the colonies of the missionaries and the trading company.

From this housing point of view, it is of interest to see on Illustration 1 from around 1850 that several of the peat houses were constructed with a permanent roof with attic. Besides that almost all the peat houses were equipped with a chimney and – logically – also a stove. These peat houses were therefore permanent dwellings.

Throughout the 19th century and during the first half of the 20th century, the traditional peat houses were gradually transformed into small wooden houses. A standard house for the Inuit family at the beginning of the 20th century was a single-roomed, single-storey house with a layer of wooden boards, which acted as walls and with an inclined roof, which created room for storage. For insulation, these houses had a thick



Illustration 1: This is a drawing made by the little-known Greenlandic artist Henriette Bolette Jørgensen (1825-1909). The drawing shows the colony of Holsteinsborg (today Sisimiut). The drawing is undated. The three-storey building in the middle of the picture is from 1846. The drawing is probably from around 1850 and definitely earlier than the more well-known drawings by Andreas Kornerup, who travelled in Greenland in 1876-1879. (The drawing belongs to Sisimiut Museum).

outer wall made in the traditional way with layers of peat and flat stones.

Until the start of the era of national industrialisation which is identified by the intensive modernisation period in the 1950s, the Inuit housing was almost exclusively a 'do-it-yourself' initiative, but this was soon to change dramatically. The age of modernisation emerged after 1950 with the Danish Government's formation of the public authority Grønlands Tekniske Organisation (GTO) – Greenland's Technical Organisation. At that time, Greenland was still almost 100 % administrated from Copenhagen. The GTO was in charge of the orchestration of the transformations of the Greenlandic infrastructure from an archaic, colonial museum into a modern and streamlined society. Very important here was, the decision to create up-to-date housing. This was to be developed in two parts.

For the approximately 75 smaller settlements, the GTO constructed a set of standard houses with proper insulations, wooden floors and windows (Rosendahl 1988). This was a huge step forward. The people, whom these houses were meant for, were however unable to provide any financing on their own. Therefore, loans, which did not need to be repaid for thirty years were introduced. Although the system had seemed to work well for decades, it was ultimately concluded that those who were unable to pay the loan at establishment, were unlikely to be able to pay it thirty years later. Subsequently most of these loans were simply written off.

For most of the 19 towns, the strategy was somewhat different. A town was defined as the major inhabited area in each municipality. All other inhabited places within the municipalities were defined as settlements. The number of municipalities has changed a little over the years. In the towns blocks of flats with running water and modern toilet facilities were built during the 1950s and the 1960s.

Through this, the majority of the inhabitants in the towns became tenants, in the state-owned modern housing developments. Rents were kept artificially low, as a majority of tenants would simply not be able to pay

a market based rent.

The introduction of Home Rule in 1979 did not immediately change the housing market. The responsibility for the housing was transferred to the Greenlandic Home Rule administration in January 1987. It was at that time clear that there was a lack of maintenance of the public housing stock. The Home Rule did not have the long-term economic capacity to maintain the public housing stock.

A strategy to encourage the tenants in the public housing stock to become owners of their dwelling was initiated. The goal was a higher degree of privately owned houses and flats in the towns of Greenland.

In 1991 the first legislation was introduced (Landstingsforordning 1991). Since then, several legislative initiatives have been taken (Landstingsforordning 1998, 2002, 2005, 2007a, 2007b and 2008).

The legislation has primarily focus on the possibility of having cooperative housing and the possibility of going from renting to owning private dwelling. Some very attractive mortgage options were introduced. Best known is the 10-40-50 mortgage option – an option that was later changed into 20-40-40. One of the slogans introduced by the authorities has been "from tenant to owner" (Sermersooq [2013], Fleischer-Lyberth 2008).

The numbers; 10 (later 20) indicate that the owner must provide 10 % (later 20 %) financing of the construction costs. The municipality and the Home Rule (later Self-Government) jointly provide 50 % (later 40 %) financing free of reimbursement and interest for typically 30 years. The remaining 40 % has to be a normal mortgage loan from a bank, a building society or a mortgage credit institution. These very attractive possibilities have resulted in a growing number of privately owned houses in the larger towns.

During the same decades, Greenland has experienced a steady growing urbanisation (Rasmussen and Hansen 2013). So the era of international industrialisation has on the housing market been characterized by growing private ownership of dwellings and a marked increase of the urbanisation process.

Housing in Nuuk.

During the first years of Home Rule and through the 1980s, a small group gained a huge wealth. The group consisted of Danish private business directors and members of some of the Greenlandic upper class clan families. Some of this wealth was put into large, private houses of some 200 square metres, which constitutes a luxury house in Greenland.

In all of Greenland's towns, specific areas are dominated by a few such houses in the smaller towns, and in number up to fifty plus in the town of Nuuk. Ever since the 1950s, there has been and indeed there remains a small and stable market for these luxury houses. Supply and demand for them has more or less been in balance since the early 2000s.

People living in these houses include successful entrepreneurs, trawler owners, directors in the public owned organisations, top civil servants, and politicians. Thus, their wealth comes from very different sources, and this group of citizens with high incomes does not share much except their taste for more luxurious surroundings in their everyday lives.

At the end of the 1980s, a new economic reality began to emerge. Previously the Danish state and the Home Rule owned almost 90 % of all houses on the transferable housing market aimed at the middle-income groups. As already described, the system has however proved to be simply too expensive to maintain and had to be changed.

The new system had focus on the housing co-operative and on privately owned houses. Here, the middle-income group could become house owners – with a little help from Home Rule and the municipality. Of paramount importance here to the former public owners was, the fact that building maintenance was no longer the responsibility of the public administration. The Home Rule and the municipality supported the establishment of cooperative ownership with up to 50 % of the costs financed through special loans.

At the beginning of the new millennium, a new and financially stronger middle-income group began to dominate the housing market primarily in the four largest

towns (Qaqortoq, Nuuk, Sisimiut and Ilulissat), and most visibly in the capital, Nuuk. In Nuuk for the first time a whole area, Qinnqorput, was established with only privately owned houses and flats operating more or less on market terms.

The process of developing a growing housing market operating more or less on market terms, which could be expected to be replicated in the three other new 'administrative' towns (Qaqortoq, Sisimiut and Ilulissat), one in each of the municipalities created by the municipal reform in 2009.

The world economic crises in 2008 did not affect Greenland much, as Greenland is partly immune to fluctuations in the global economy as consequence of the stable yearly block grant from Denmark. Especially in Nuuk, the house prices have been relatively stable since 2000. Compared to the rest of Greenland, Nuuk has developed a house price bubble. At this point of time, it is impossible to say whether or not the house price bubble in Greenland will burst.

Since the late 1980, a large group of high middle class families have moved from tenant to owner. During these years there has been a stable growth in percentage of house owners in the group of high middle class families. The tenant/owner ratio is about to stabilise now. The houses sold to this segment of buyers, have for years typically been in the area between 2.6 and 3.2 million DKK.

A new group of potential new house owners is the lower middleclass. This group will be able to buy houses in the price between 1.8 and 2.6 million DKK. Not many houses have been sold to that price, but as a number of the privately owned houses are getting 25-30 years old. The expected lower prizes of these houses might begin to appeal to families in the lower middleclass.

The description here does not reflect any expected impact on the housing market, especially in Nuuk when the first large-scale global economy rooted projects are being realized. It will almost certainly create a new kind of impact on the housing market in Nuuk and in other places in Greenland that are directly in contact with these new projects.

The aluminium project

As previously described, the inquiry by Alcoa in 2006 can be seen as the ultimate introduction of the era of global industrialisation to the Greenlandic society. It is therefore worthwhile to have a closer look at the process which the inquiry by Alcoa in 2006 started and thus the creation of the aluminium project that is still going on.

The aluminium project that currently is being developed in Greenland has – as already mentioned – its genesis in the beginning of 2006, at which time Alcoa, a USA based Aluminium Company, contacted the Greenlandic authorities. Alcoa wished to initiate pre-

liminary surveys with the objectives of assessing the potentials for establishing an aluminium smelter at the coast somewhere in the central parts of West Greenland, in the area between Sisimiut to the North and Nuuk to the South.

As the aluminium project is potentially the most extensive industrial project ever to have been undertaken in Greenland, it will obviously potentially have a huge impact on the Greenland society. The proposed aluminium project is also the first real major international industrial project in Greenland. Almost all mining activity has so far been isolated projects and often far away from the inhabited places in Greenland. The only exception from that might be the coal mine in

Table 2: Milestones for the project on the first aluminium smelter in Greenland.

Spring 2006	First enquiry by Alcoa
July 2006	Joint Action Plan (JAP) between Greenland and Alcoa
April 2007	First open political decision in the Parliament regarding the project (Go on)
May 2007	Memorandum of Understanding (MoU) between Greenland and Alcoa
May 2008	Open political decision in the Parliament on placement (Maniitsoq chosen)
2014 (exp.)	Open political decision in the Parliament on ownership (partner/concession)
2014 (exp.)	Final political decision in the Parliament on the project (start/not start)
2020 (exp.)	Earliest possible commencement of production (if project is approved)

Qullissat until the town was closed down by the authorities in 1972 (Rasmussen 2004; Rasmussen 2009; Haagen 1977).

The most significant project milestones in the ongoing aluminium project are listed in Table 2.

The Greenlandic parliament, Inatsisartut, is expected in 2014 to make decisions on whether or not to give the final approval for the aluminium project to be realised. In the initial stages of the project, it was planned that the final decisions would be made as early as in 2008, but the scheduling of the final decision has been postponed several times.

The MoU does not have an expire-date for the fulfilment of each of the phases described in the MoU. During the summer of 2013, the Government of Greenland and Alcoa had still not reached a final agreement. One of the main disagreements at this stage is probably the model for the financing of the housing and the infrastructure in Maniitsoq – see Box 2.

Development of hydropower

When Alcoa in 2006 contacted the Greenland authorities, Greenland was not prepared for such an industrial megaproject outside of the realm of the mining and petroleum industry. The Danish and Greenlandic mining and petroleum sector in Greenland had since the early days of the Home Rule been working with large mining companies, but the same development had not been seen in the business and industry sector. The important division between these two sectors will be discussed in the next chapter.

If the aluminium project is realised it will be the largest industrial project in Greenland so far. Taking that into consideration, it makes sense that the ongoing aluminium project has caused many new actions to be taken by the authorities.

The development of the hydropower sector in Green-

land can serve as an illustration for the development of the business and industry sector in Greenland since the beginning of the 1950s.

In spite of the rapidly growing fishing industry in the first part of the 20th century, it was not until after the Second World War the Danish authorities launched a massive modernization process for the Greenlandic society. Thus the first public power station was not started in Nuuk until October 1949.

Within an almost entirely technical-economical driven development frame with rolling five years of planning, GTO decided in the early stages of the modernization process to create a one-string energy solution, which was based on oil. The provision of energy for heating and electricity was thus based on oil based facilities. This 100 % oil based energy production was maintained for 40 years.

The political responsibility for developing the infrastructure was transferred to Greenland in 1979. But it was in the beginning still the same employees in GTO who were responsible for decisions and actions. It took some years to restructure the organization to the changed political reality.

The first preliminary field studies for Greenland's first hydropower station started in 1981, 40 km south of Nuuk. This first major hydropower station began to supply Nuuk with energy in 1993. During the following 20 years, Greenland has gradually increased its production of energy from hydropower plants.

Since 2012 when the Ilulissat hydropower station started, has 70 % of the energy production for the households in Greenland been produced by the hydropower. The potential for even a higher percentage of energy production that comes from the hydropower is documented. It is only waiting for a political decision to start new projects. The Aasiaat/Qasigiannnguit hydropower plant is expected to be the next non-industrial hydropower plant that is to be built.

Table 3: Public hydropower stations in Greenland. The estimated “Cumulated share” is the hydropower; generated energy share of the total consumption of energy in Greenland by domestic housing and smaller industries. The Aasiaat/Qasigiannnguit hydropower station is not yet politically decided upon. The preparatory work has been going on since app. 2010. * = estimated. The utilisation rate is calculated on the basis of: $(X \text{ GWh} \times 100) / (Y \text{ MW} \times 8,760 \text{ hours}) = Z \%$.

Town	MW	GWh	Utilisation rate	Start year	Cumulated share
Nuuk	45.0 MW	192 GWh	48.7 %	1993	39 %
Tasiilaq	1.2 MW	6 GWh	57.1 %	2005	41 %
Qaqortoq/Narsaq	7.2 MW	27 GWh	42.8 %	2007	46 %
Sisimiut	15.0 MW	52 GWh	39.6 %	2010	57 %
Ilulissat	22.5 MW	65 GWh	33.0 %	2013	70 %
Aasiaat/Qasigiannnguit	13.0 MW	*45 GWh	39.5 %	20??	*88 %
Total	103.9 MW	387 GWh			

The plans in Greenland on shifting from 100 % dependency on oil as fuel to as much hydropower as possible was until the aluminium project was born in 2006 by the inquiry from Alcoa solely focused on production of electricity for domestic housing and smaller industries. The production of hydropower electricity for huge energy intensive industries has not been part of the previous plans to be realised for constructing the existing hydropower plants. When planning the hydropower plant for Nuuk in the 1980s, it was considered that the hydropower plant also might be able to produce energy for an energy intensive industry. A Zinc processing plant was part of the discussions, but the project in Nuuk has never had the capacity to produce energy for both the households in Nuuk and an energy intensive industry.

The proposed aluminium smelter will be placed 20 km north of the town of Maniitsoq. It will be a middle size smelter with a capacity of producing around 400,000 tons of aluminium per year when the smelter is at full production capacity. The aluminium project operates with two industrial hydropower stations. They are to be placed in the inland north east and south east of Maniitsoq close to the inland ice cap. The projected total capacity for the two industrial hydropower stations is 700 MW or 3,000 GWh (utilisation rate of 48.9 %). As it can be seen from Table 3, it is almost ten times more than the total capacity of all the five existing hydropower stations in Greenland for households and small industries.

The proportions that are described here is also an illustration of why places like Greenland and Iceland are of interest on a global market to these giant international companies with energy intensive productions. Almost everywhere in the world, these companies must compete with the surrounding societies on the

consumption of the energy potentials. But in isolated places with huge unutilized energy-potentials with a small population, these companies are not exposed to the same type of competition on the consumption of the energy.

Two separate sets of legislation on the environment

The 1979 regulation about the Home Rule in Greenland operated with three categories of legislation. First, there was the legislation covering the Kingdom of Denmark (Denmark, the Faroe Islands and Greenland) and with the Danish Parliament, Folketinget, as the sole legislative body where Greenland and the Faroe Islands each are represented by two out of the 179 members. The legislation within this category is called “rigsanliggender” – “matters for Danish parliament alone”. It included the currency, the monarchy, the foreign policy, the armed forces and other areas.

Secondly, there was the legislation covering areas for which the legislative powers could be transferred to the Greenland Home Parliament, Landstinget. The legislation within this category is called “hjemmestyreanliggender” – “matters for Greenlandic parliament alone”. It included areas like environmental protection, education, social care, health etc.

Finally, there was a very specific area of legislation where the legislative body was the Danish Parliament but with a Danish Greenlandic commission (“Udvalget vedrørende mineralske råstoffer i Grønland”) where both parties had the right of veto. The legislation within this category is called “fællesanliggender” – “matters for Danish parliament but both parties have the right of veto”. It covered the activities in relation to petroleum and minerals including environmental protection

related to these activities. The commission was in the beginning placed in Denmark but was moved to the Bureau of Minerals and Petroleum (BMP) in Greenland in 1998.

The historical reason for the third category (“fællesanliggender”) was a Danish unwillingness to let Greenland get full authority over the petroleum and mineral resources in the Greenland subsoil.

Because of this division, two sets of separate legislation on environmental protection had to be implemented, one within the second category (“hjemmestyreanliggender”) and one within the third category (“fællesanliggender”). During the 1980s, the 1990s and the 2000s, the commission and its administration were very active attracting foreign oil drilling and mineral mining companies to start operating in Greenland. They therefore had to develop their own legislation on environmental protection in relation to the oil drilling and mineral mining activities.

Within the second category, the Home Rule implemented legislation on environmental protection for all other activities in the society including industry and business. However, this Home Rule implemented legislation was not prepared for any major foreign industrial activity in Greenland.

When Alcoa in 2006 announced its interest in establishing an aluminium smelter in Greenland the authorities realised it had to be defined as an industry within the second category and not as a mining activity within the third category.

At that point, it became clear that Greenland in its legislation in the second category was not prepared for that kind of international mega industrial activity. It applied not only to the legislation regarding the environmental issues; almost none of the Greenland Home Rule sections were prepared for such major foreign industrial activities in its legislation.

In consequence of the Greenlandic interest in the realisation of the aluminium project since 2006, huge efforts have been made in the Greenlandic administration to modernize and globalise the second category of legislation and bring it up to date and make it capable of managing major foreign industrial activities. This is a still on-going process.

The legislative unpreparedness from the Greenlandic side towards the introduction of a major foreign industrial activity has permeated the way Greenland has handled the aluminium project since its very beginning in 2006. It has been reflected in a number of ways in the different parts of the administration of the

Government of Greenland. In several cases, the necessary procedures have been invented on the run. On the one hand, it illustrates the flexibility and innovativeness in a relatively small administration which the administration of the Government of Greenland in fact is with about 600 civil servants all together in the central administration. On the other hand, a severe consequence has been that the huge international industrial company, Alcoa, in many cases has had an easy play. There were in the beginning of the process examples of Alcoa directly pointing at which kind of requests they have been met with in other parts of the world. Just to help the administration of the Government of Greenland handling Alcoa's own inquiries.

At a specific public meeting in Nuuk, Alcoa directly asked for the NGOs to play a more active role. Naturally, Alcoa did not request the NGOs to be more active solely to be a well behaving company. It has from the beginning been in the interest of Alcoa to be prepared for as many as possible of the different kinds of public obstacles the project might run into during the improvement process.

It has been characteristic for the whole process that Greenland almost all the time has been tacking behind as the process has progressed – for good and for bad. The implementation of the strategic environmental assessment (SEA) illustrates well both the flexibility in the administration and the fact that the administration has tacked behind.

Strategic Environmental Assessment

Alcoa's first contact came in the early spring of 2006. Alcoa made its first preliminary fieldwork in summer 2006. At that initial state, only a few people in the entire administration was involved in maturing the contact into a more formal project. Not until the last part of 2006, more departments became involved.

In December 2006 the Ministry of Environment and Planning was assigned to present a preliminary white paper on the possible environmental and societal consequences of an aluminium smelter in central West Greenland. The white paper was presented for the Parliament in April 2007. One of the main recommendations in the white paper was to conduct a full-scale of strategic environmental assessment (SEA). The Parliament adopted the white paper, and a SEA process got started right away.

Table 4: *The SEA process from 2007 to 2010.*

May 2007	SEA start
August 2007	Prior public consultations
December 2007	Draft SEA in public hearing
March 2008	Presentation of first version of the SEA
2008-2009	Further research, data collection analysis
January 2010	Final public meetings
June 2010	Final version of the SEA

When the SEA process is presented, as it is in Table 4, it looks like it has been planned like that from the very beginning, but that was not the case. On the contrary! The timetable was expanded several times during these three years. At first, the deadline for the final SEA was in spring 2008. As the project matured, not only the SEA had to apply for more time and resources.

Already when the white paper with the recommendation of the SEA was presented, it was clear that Greenland had no formal regulation regarding a SEA process for industrial projects. In spite of that, the Parliament sanctioned the SEA process to start. At first, the SEA budget was around one million DKK. Several times more resources were allocated and in the end, the SEA had had a total budget of 15 million DKK. This is only to illustrate the dynamics in the SEA process and to show how unprepared the administrative and the political system was for such a task.

The final SEA came up with a series of areas, which potentially will be impact if an aluminium smelter is established. As shown in Table 5, the SEA focused on the environment in a broad sense.

The final SEA also recommends a serious screening and monitoring programs for the following ten years to be initiated, even before the aluminium smelter would be up and running. The recommended screening and monitoring programs were focused on wild life and game, on public health, and on regional development. None of these programs recommended by SEA seem to have been realised. It might lead to a conclusion that the SEA had no effect, but that would be too simplified to conclude.

Anne Merrild Hansen points out in her PhD thesis that one of the most important results of the SEA seems to be the illustration of the need to include strategic decision making tools “at both the project, programme and plan levels of decision-making in Greenland to promote sustainable development” (Hansen 2010,83). Again, it is visible that Greenland is learning its first lessons in the field of being integrated in the global economy.

Housing and infrastructure

Another example of an ad hoc process Greenland has experienced during the first years of being seriously exposed to the global economy is in the field of spatial planning and specifically when it comes to the planning of housing and infrastructure in Maniitsoq as part of the aluminium project process.

Early in the negotiations between Greenland and Alcoa, the question of the financing of the infrastructural development of the town of Maniitsoq came up. These negotiations were placed in the hands of the 100 % Greenlandic Home Rule owned company Greenland Development (GD). GD was created in 2006 with the only purpose to handle the contact between Alcoa and Greenland. During the aluminium project process, the construction of GD was changed several times and in 2011, GD was terminated as a company.

With the aluminium smelter established, Maniitsoq is estimated to grow with at least 1,000 new inhabitants. Housing for these newcomers has to be provided. Individual and private building and financing would not be an option in Maniitsoq in the way it had partly been in East Iceland in relation to the opening of the aluminium smelter at Reydarfjordur.

In 2008 a commission was established with the task to analyse the scale and the planning of the infrastructural development in Maniitsoq. In the commission, there were representatives from the Home Rule administration and from the municipality, Qeqqata Kommunia (covering the former Sisimiut Kommune and Maniitsoq Kommune).

When the Maniitsoq housing and infrastructure commission was set up it became clear that during the early negotiations the Greenland negotiating partner, Greenland Development had accepted the financing of the infrastructural development of the town of Maniitsoq would be undertaken by the Greenland Home Rule.

In its mandate, the commission was among other elements asked to analyse the total economic consequences of the infrastructural development of the town

Table 5: The SEA's list of areas potentially affected by an aluminium smelter (Hansen 2010, 25).

<i>Parameter</i>	<i>Potential significant environmental impacts of aluminium smelter in Greenland</i>
Nature	- Disturbance of breeding areas for several bird species - Disturbance of reindeer paths and breeding areas - Disturbance of areas of muskoxen - Destruction of rare plants - Disturbance of areas of common seal - Disturbance of trout species
Environment	- Change in water environment and suspended materials in fjords. - Change of river structures and sedimentation. - Reduction of the water resource for drinking water - Wastewater - SO₂ emissions to air - Fluoride emissions to air - CO₂ emissions to air - Other particle emissions to air - PFC gasses to air - PAH emissions to air - Nitrogen oxide emissions to air - Carbon monoxide emissions to air - Cyanide emissions to air - Noise
Culture	- Changes in landscape - Destruction of cultural heritage - Attrition of cultural trails
Regional Development	- Increased migration - Changes in mobility of labour - Changes in settlement patterns - Changes in economical balance - Changes in social networks - Change in cultural coherence

of Maniitsoq. At no point, a possibility of financing by Alcoa of the infrastructural development of the town of Maniitsoq is mentioned.

Among the work in the commission there were calculations showing that the expected public investments cost for the infrastructural development of the town of Maniitsoq would be around two billion DKK during 3-5 years of construction prior to the opening of the aluminium smelter. At the same time, the estimated tax revenues from wages related to the aluminium smelter during the period of construction would be about 0.5 billion DKK.

This disproportion in the public expense and income created a concern on the Greenlandic side, but Alcoa referred only to the agreement that it already had made with Greenland Development. The commission did not reach a final conclusion on how to solve this disproportion in the public expense and income in relation to the infrastructural development of the town of Maniitsoq.

The General Manager (CEO) in Grønlandsbanken Martin Kviesgaard discussed the question of financing of infrastructural development of the town of Maniitsoq at a conference arranged by Grønlands Økonomske Råd in January 2013. Here, Martin Kviesgaard

Housing and infrastructure in Maniitsoq

Early in the process of aluminium project, the work was done of creating a vision about the new housing and infrastructure, which will be needed in the town of Maniitsoq in the operational phase if the aluminium smelter project is realised. The operational phase is expected to be at least 50 years and may even continue up to 100 years.

During the operational phase, about 650 permanent jobs are expected at the aluminium smelter and at the hydropower stations. Besides that, another 500 or 600 jobs are expected to be created in direct or indirect relation to the aluminium smelter. It gives all together around 1,200 new jobs (Aluminium 2010; Departementet 2010,6). The needs and challenges during the construction phase are not discussed here.

In January 2008, two architects Niels Bennetzen and Anders Lonka delivered a report to Greenland Development of the infrastructure and housing consequences if the aluminium smelter is realised (Bennetzen and Lonka 2008). In its approach to housing the report has a traditional smelter and local community integration scenario – a scenario for building a new town for the new permanent citizens. The visionary parts of the report are found in the vision of a sustainable new town in harmony with the landscape and the climate and being considered as a pioneering example on sustainable spatial planning in Greenland and in the Arctic (Bennetzen and Lonka 2008,51).

It is estimated that 40 % of the newcomers will be single persons and 60 % will be families. In 2008, an average family is set to 1.72 economically active persons (Bennetzen and Lonka 2008,31) whereas it in 2010 is set to 1,5 (Departementet 2010,15).

In both reports, the estimate is that the need for new houses in Maniitsoq with the aluminium smelter in operation is around 450-470 houses. Greenland Development has in 2010 estimated the total cost for needed infrastructure and housing will be about 2.3 billion. DDK (Aluminium 2010). Besides the houses, that

will include kindergartens for 100 kids, a school for 200 kids, a swimming pool, a cultural centre with a cinema, a football field etc. The possibility of Alcoa financing the general infrastructure and the housing directly related to the aluminium production is not discussed in any of the reports looking at the need for housing and infrastructure in Maniitsoq.

Neither the vision from 2008 (for good reasons) nor the report from 2010 include the results from the mobility study (Rasmussen 2010) which points at interest among people to have distance work and to commute between a home town or settlement and Maniitsoq. 30 % of the respondents in the mobility of the study replied that they would be interested in the town they live in now and could commute to and from Maniitsoq if they had a job at the aluminium smelter. The possibility of migrant workers is not discussed in any of the reports looking at the need for housing and infrastructure in Maniitsoq.

In the report (redegørelse) to the Greenland Parliament, Inatsisartut, in autumn 2010 it is mentioned that in the beginning of the operational phase of the aluminium smelter it is estimated that 50 % of the employed will be workers from outside of Greenland. The implications of this for the planning of housing and infrastructure are not discussed in any of the reports looking at the need for housing and infrastructure in Maniitsoq.

Today Maniitsoq has a relative big numerical imbalance between the sexes with more male than female inhabitants. The challenge with an even larger numerical imbalance than today between men and women when the aluminium smelter is in operation is not discussed in any of the reports looking at the need for housing and infrastructure in Maniitsoq.

As these examples indicate, the visions for the housing and infrastructure strategy for the new town in Maniitsoq are not much more than qualified and wishful visions for a possible growth of Maniitsoq if the aluminium smelter will be realized at some point in the future.

made it clear that it is not realistic to expect public financing of infrastructural development projects in direct relation to large-scale industrial projects such as Alcoa's aluminium smelter in Maniitsoq (Kviesgaard 2013).

The shift from early in the project when Greenland Development promised Alcoa a 100 % public financing of the infrastructural development in the town of Maniitsoq in direct relation to the aluminium smelter, to the General Manager (CEO) in Grønlandsbanken in 2013 pointing at the impossibility for the Government in Greenland to engage in such a huge infrastructural investment, is just one more example of the fact that Greenland even some years into the project process was not fully prepared to deal with an international company as Alcoa and its large-scale industrial project.

An equivalent example is that at one point when the

question came up of supplying the town of Maniitsoq with electricity from the industrial hydropower plants which will be produced electricity for the aluminium production, many in the administration were surprised to learn that Alcoa could not see any natural logic in providing electricity for the town. The amount in question is less than 1 % of the production of the electricity, but for Alcoa it counted as 1 % lesser production of aluminium, and Alcoa demanded full compensation for that loss in the production.

'Normally' – that means under the logic of the pre-global industrialisation era (the national industrialisation era) – it would be considered as a natural gesture to ensure environmental friendly electricity for the town, as almost all activities in Greenland during the era of national industrialisation would have the society of Greenland as its realm of reference.

This is not necessarily the case when projects are developed during the era of the global industrialisation. Again, Greenland was not properly prepared for that type of challenges when it crystallised in the dialogue with Alcoa.

Chaos or just a dynamic process?

The SEA process and the housing and infrastructure process are only two examples of many, which basically illustrate the same; legislation and administrative processes were not prepared for such an international industrial project such as the aluminium project. The mandates were developed as the project progressed and the uncertainty about the division of resort responsibility was obvious just to mention a few aspects. It applied to the Home Rule (later the Self-Government) owned external administrative body, Greenland Development. It applied to the internal body in the ministerial administration, Den Administrative Koordineringsgruppe (AKG) – the Administrative Coordination Group. It applied to the administrative cooperation between the Home Rule (later the Self-Government) and Qeqqata Kommunia (the municipality where the aluminium smelter will be placed), and it applied to other initiatives.

Here, the SEA can serve as an illustration of the consequences of a missing general plan. The mandate for the SEA was changed at least three times. Another kind of adaption to the developing aluminium project was the several related fact finding projects, which were launched alongside with the SEA.

One of these related projects was the conducting of a life cycle analysis (LCA) (Schmidt and Thrane 2009). The conclusions from the LCA fuelled the discussions between Greenland and Denmark on the question of CO₂ emissions from the aluminium smelter. These discussions revealed that there in some aspects still exists a strong dependency between Denmark and Greenland. In the case of CO₂ emission, the official Danish level of emission, which Denmark has to report to the UN, includes the emissions in Greenland, so Denmark has a very strong opinion on whether or not Greenland should increase its CO₂ emission with about 100 %. In the Danish CO₂ budget, Greenland only counts for about 1 %, but with an ambitious CO₂ reduction plan even 1 % counts for Denmark.

Greenland has – with reference to the LCA – argued from a global point of view that an aluminium smelter in Greenland based on hydropower, globally seen, is a much better investment than an aluminium smelter in for example China which has its production based on energy from a coal plant. Denmark finds this point

of view irrelevant. There is still no final agreement between Greenland and Denmark on the CO₂ emission form a potential aluminium smelter in Greenland.

Another project related to the SEA is the mobility study (Rasmussen 2010). This study was not planned from the beginning of the process but it became obvious that Greenland had an acute need for more specific knowledge about the past, present and possible future mobility trends in Greenland plus in and out of Greenland.

The mobility study revealed new aspects of the mobility of people in Greenland and of Greenlanders in Denmark, which has influenced the discussions on who to expect to be interested and actually be willing to move to Maniitsoq to work in the aluminium smelter.

The two SEA related studies discussed above point at ad hoc decisions, which have dominated the process in the aluminium smelter project. There were no general plans to relay on from the beginning of the process. Greenland had to invent the rules of the process alongside with the progress of the project itself.

Lack of legitimacy and of democratic processes?

The two SEA related projects mentioned above – the LCA and the mobility study – can also throw light on another aspect of the aluminium project; the democratic public involvement in the conducted studies and surveys and the political decisions and thus the legitimacy of the project.

As indicated in Table 2 four important political decisions in the Parliament are involved in the aluminium project. In April 2007, the first political decision was to approve a Memorandum of Understanding with Alcoa. The second political decision was in April 2008 when it was decided the aluminium smelter will be placed in Maniitsoq. The last two political decisions in the Parliament about the aluminium smelter will take place at the earliest in spring 2014. It is expected that the Parliament in 2014 will make three important decisions. The first decision will be about the economic constructions around the aluminium smelter and the two hydropower plants. The second decision will be whether Greenland will be partner in the smelter and the hydropower plants or Alcoa will be the sole owner. The last decision will be on the question of giving the final approval to the start of the construction of the aluminium smelter.

Prior to the first decision in April 2007, there were no public discussions at all. It was different prior to the second decision in May 2008. Several stakeholders took part in the public discussions. In spring 2012, the pro-

ject was again debated in the public media but it led not to any final political decision, though the final political decision actually at that time was expected to take place in 2012. There is obviously reluctance amongst many of the politicians to proceed to the final decisions. It is difficult to point at one specific and common reason for this reluctance.

In a study on the decision-making process in spring 2008 it is concluded, that the timing of the public debate did not correspond with the actual time of the real political decision in the Government but was only focused on the timing of formal political decision in the Parliament. That created a democratic deficit compared to how the process could have been with a public debate prior to the real political decision in the Government (Hansen 2009).

Following the ongoing public debate in the early spring 2012, it was a similar situation to the public debate in spring 2008. In the public debates, there is still no focus on and no awareness of when the political decisions really are being taken in the Government in relation to when the public debates are going on. In the public there is no awareness of the fact that the de facto political decisions often are taken prior to the public debates on a specific subject.

Here the conclusion must be that the still relatively fragile culture of public debating in Greenland will need to be strengthened if a real democratic process is intended in relation to crucial political discussions and decisions like the aluminium smelter project. Again, it can be pointed at the fact that it is the first time the country is trying to discuss the societal consequences of such a huge international industrial project.

At no time in the public discussion, any of the stakeholders have shown any capability in a constructive and engaging way to make references to situations elsewhere in similar societies with a limited population in huge sparsely populated areas and a harsh climate.

One example of such a reference could be to the northern parts of Australia. The most striking difference between Northern Australia and Greenland is the average temperatures with Australia being tropical and Greenland being arctic. Lessons learned from aluminium projects in northern Australia might possibly be helpful in the Greenlandic case. In a recent article Andrew Taylor et al. are pointing at the fact that almost none of the local population has maintained a permanent job in the aluminium industry (Taylor et al. 2011,17).

The most frequent reference in the public debate is made to the history of the aluminium industry in Iceland. Comparisons are made between the present day situation in Iceland and the expected coming situation

in Greenland. In that discussion it is often neglected that the present day situation in Iceland is based on more than forty years of interaction with international mega industrial projects.

As a final illustration of the segregation between “hjemmestyreanliggende” og “fællesanliggende” can be mentioned that during the late 1990 the Bureau of Minerals and Petroleum (BMP) completed a number of investigations and reports on the impact on the society of large-scale industrial activity in Greenland (Jensen 1998, Udvalget 1997). But all that did never include any kind of a broader public hearing or other kinds of public involvement. The activities within the framework of BMP did at that time never involve the public. In that sense, BMP acted more like an independent and not integrated part of the Greenlandic society, which it actually also was.

When analysed, the public debate in Greenland in some aspects can still be characterised as immature, at least concerning the frequency of mutual discussions based on agreeable facts. The discussions are typically based on a narrow position pro or against the establishment of the aluminium smelter.

Some of the reason for this discussion atmosphere must be subscribed to the fact it is the first time such a huge and complex project has been discussed during a number of years. In that respect, it is directly concerning that in the latest survey about the general knowledge about a view on the aluminium project shows that in the fall 2011 only 37 % considered that they were well informed about the aluminium project through the media. That is 1 % less than compared to the first time the same question was asked in the same type of survey in 2007 (HS Analyse 2011). Surely, the press has an important role to play in the democratic process but in relation to Greenland a question that might have to be asked is whether the Greenland press has the means to carry out investigative journalism.

Future perspectives

In this paper it has been argued that a number of indicators point at that Greenland was not fully prepared for its first experience with a foreign mega industrial project when it began in 2006. The studies primarily pointing at that relevant legislation and administrative procedures were missing and that the public hearing processes can be improved from a democratic point of view.

Pointing at these missing elements does not lead to a conclusion that Greenland should not enter more intensively into the global industrial market. It is generally conceived as not being a realistic political option in

Greenland today.

On the other hand, it must be pointed out that still much can be done in order to be better prepared for the societal effects of the more intensive involvement in the global industrial market in order for Greenland to be better suited for survival as a unique Arctic sparsely populated society.

If Greenland is to develop as a modern society there is basically no alternative to entering the global economy in one way or another. It is the unpreparedness in itself politically, administratively and publically that attracts most concern from a social science point of view.

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Urbanization and the role of housing in the present development process in the Arctic

Klaus Georg Hansen, Søren Bitsch and Lyudmila Zalkind (Editors)

This report has in its offset a focus on understanding changes in housing structures and how these structures are reflecting many of the changes which have characterized the Arctic during several decades.

The report provides an overview of internal as well as external processes of change: Internally by analysing issues such as market characteristics, community development and the role of the public and the private sector, and externally with globalization processes impacting life due to changes in a broad spectrum of economic, political and social structures.

The photo on the front page is from Nuuk, the capital of Greenland. A photo like this illustrates many layers of the history of housing in the Arctic. It tells about the small individual houses dating back to pre-WWII. Another layer is the large concrete apartment blocks from 1950s and 1960s illustrating the first waves of modernisation and urbanisation that swept over the Arctic ensuring two functions: The new accommodation was centrally heated and healthier than the individually headed sod houses. At the same time the new apartment blocks were intended to generate a “sense” of the upcoming modern lifestyle.

The following decades – 1970s and 1980s – continued with mass produced dwellings to serve the inflow of new urban dwellers but they were larger and based on a diverse selection of building materials intended to fit more organic into the environment. Then 1990s and 2000s contributed on one hand with a new modern “black cubes” look for the growing middle class and on the other hand with terraced housing for the those with a modest income and with larger single houses for the wealthy part of the population.

The front page photo shows the diachronic history of housing as well as the synchronic and current diversity among the citizens now becoming widespread in larger Arctic settlements. The photo shows how in the case of Nuuk the previous segregation between different population segments now in some parts of the town has changed into a more integrated reflecting the footprint of a welfare society. In other parts of Nuuk and in other Arctic settlements another reality could easily be revealed.

As reflected in this report a discussion of what can be considered to be a safe and sustainable development of human settlements in the Arctic has been a key point in the project. The project has aimed at identifying common concerns and differences in what could be key directions of the sustainable social and economic development of an Arctic urban lifestyle.

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