

Megatrends in the Arctic

- New inspiration into current policy strategies

Report from Nordic Council of Ministers' seminar at
Nordregio 29th May 2012

Klaus Georg Hansen, Rasmus Ole Rasmussen, Lise Smed Olsen,
Johanna Roto, Christian Fredricsson

NORDREGIO WORKING PAPER 2012:8



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Stockholm 2012



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Nordic Centre for Spatial Development

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Photos: Klaus Georg Hansen and Haukur Claessen

Nordic co-operation

takes place among the countries of Denmark, Finland, Iceland, Norway and Sweden, as well as the home ruled countries of the Faroe Islands and Greenland and the autonomous territory of Åland.

The Nordic Council

is a forum for co-operation between the Nordic parliaments and governments. The Council consists of 87 parliamentarians from the Nordic countries. The Nordic Council takes policy initiatives and monitors Nordic co-operation. The Nordic Council was founded in 1952.

The Nordic Council of Ministers

is a forum of co-operation between the Nordic governments. The Nordic Council of Ministers implements Nordic co-operation. The prime ministers have the overall responsibility. Its activities are co-ordinated by the Nordic ministers for co-operation, the Nordic Committee for co-operation and portfolio ministers. The Nordic Council of Ministers was founded in 1971.

Nordregio – Nordic Centre for Spatial Development

works in the field of spatial development, which includes physical (spatial) planning and regional policies, in particular with a Nordic, European and Arctic comparative perspective. Nordregio is active in research and knowledge dissemination and provides policy-relevant data and analysis. Nordregio was established in 1997 by the Nordic Council of Ministers. The centre is owned by the Nordic countries and builds upon more than 40 years of Nordic cooperation in its field.

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1. Introduction

It has often been emphasized how global climate change has created great pressure on the nature and the people living in the Arctic. This creates concerns for the nature, the communities and the people living in the Arctic, but also new opportunities are arising.

The Nordic countries emphasize that the new possibilities in the Arctic must be explored with respect for the nature and the environment, while the Arctic peoples' welfare and development must be secured.

The development of modern welfare societies focusing on the people in the Arctic is therefore the overarching focus of the Nordic Cooperation Program for a Sustainable Development in the Arctic. The duration of the present cooperation program is from 2012 to 2014 and has a yearly budget of 9.5 mio DKK. In this program 3 mio DKK are earmarked each year for developing new, political initiatives on a Nordic level.

At the Ministerial meeting at the Arctic Council in Nuuk in May 2011 the book MEGATRENDS was presented as an input to the discussions concluding Denmark's chairmanship of the Arctic Council. It was, however, much more than just a Danish input as Nordic Council of Ministers was the major funder, and has followed the development of the book very closely.

The Megatrends described in this book are trends deemed so powerful that they have the potential to transform society across social categories and at all levels, from individuals and local level players to global structures, and eventually to change our ways of living and thinking!

Among the nine Megatrends three have been considered so important and requiring immediate attention that focusing on them through a seminar would be advantageous. These Megatrends include: Demographic challenges; Human capital plus Knowledge economy and Green growth.

Besides discussing the Megatrends and their potential policy implications, another objective with the seminar has been to discover relationships and possible synergies between the activities of the participating agencies in the areas defined by Megatrends.

The initiative for the seminar came from the Nordic Council of Ministers' Secretariat and the seminar was arranged by Nordregio and the Nordic Council of Ministers and held at Nordregio the 29th of May 2012 in Stockholm. In this report the presentations, discussions and conclusions from the seminar is presented. The results from the seminar will hopefully lead to developing exciting new projects and cooperation on a Nordic level.





2. Program for the seminar

Welcomes

- 10:00 Palle Christiansen, Nordic Cooperation Minister, Greenland
- 10:15 Ambassador Adreas von Uexkull, Sweden
- 10:20 Marianne Neraal, Nordic Council of Ministers

Megatrends in the Arctic

- 10:25 Introduction to Megatrends
Rasmus Ole Rasmussen, Nordregio
- 11:05 *Break*
- 11:20 Comments and questions.

Three trends in more detail

- 11:30 Presentation I: Demography and demographic challenges
Timothy Heleniak. University of Maryland, USA
- 11:50 Presentation II: Human Capacity
Palle Christiansen, Minister for Education and Research, Greenland
- 12:10 Presentation III: The Greening of the Arctic
John Bryden, NILF, Norway
- 12:30 General discussion
- 12:45 *Lunch break*

Three parallel discussion groups explore the issues

- 13:35 Group I: Demography. "Hörsalen" the auditorium
Facilitator: Rasmus Ole Rasmussen
- Group II: Human Capacity. "Grønland" the top of the building
Facilitator: Klaus Georg Hansen
- Group III: Greening. "Island" one floor down and across to the other side
Facilitator: Susan Brockett
- 15:15 *Break*
- 15:30 Presentations from the discussion groups
- 16:15 Closing remarks



3. The welcome presentations

Three welcome presentations opened the seminar.

First Palle Christiansen, minister for Nordic Cooperation in the government of Greenland, opened the seminar.

Right after Andreas von Uexkull, Ambassador and Senior Arctic Official (SAO), Sweden, gave a short introduction to the ideas and

perspectives of the Swedish chairmanship at Arctic Council.

Finally Marianne Neraal, contact person for the Nordic Council of Ministers' Arctic Co-operation Programme introduced to the structure of the Nordic Council of Ministers and to the topic of the seminar – Megatrends in the Arctic.

Palle Christiansen, Minister for Nordic Cooperation, Greenland

Dear Nordic colleagues.

I bid you welcome to this conference on Megatrends on behalf of the Nordic Council and our hosts Nordregio as well as on behalf of Greenland. It is an honor to be here, and I am looking forward to this seminar, which I hope will be a productive seminar as well as a groundbreaker.

Megatrends is a complex matter and today we will walk away from here with a mirror of the future, hopefully new ideas and richer in information on the Arctic Region. I would like to take a moment and thank the author of this book here today; Rasmus Ole Rasmussen.

What struck me when reading "Megatrends" was the sense of urgency for the Arctic people. An urgency, I personally have felt on behalf of my fellow Greenlanders for a long time now. We are being thrust into the modern world whether we like it or not, and at rapid speed. We are at the center of much research whether we are ready or not to receive that information. And we will continue this rapid progress within our society, not only in Greenland, but in the whole Arctic region whether we as policy makers think it is a good idea. The young people of Greenland have the world at their fingertips now with social media, internet and cultural sharing we cannot even imagine. So the way I see it progress is inevitable. That is what gives me the sense of urgency, a feeling I see reflected in the Megatrends-book.

We in the Arctic regions have to educate our people, we have to merge the traditional and the modern ways of thinking and we have to do it while the whole world is looking our way. We are at the very hotspot of research these days. And thank goodness for that, that gives us, the people of the Arctic, a chance to be a part of research we could only hope to do ourselves in the future.

I believe that some of our greatest partners have always been, and will always be the Nordic countries. We have bonds that go deep, and many of the countries represented here today know of our history, maybe they even share it in various ways.

We know in Greenland that we cannot afford to fall behind neither with our human or economic resources. We must progress and to avoid being run over by bigger nations waiting at our door-step, we have to do it fast!

My hope for today is that we together will be bold. That we will engage ourselves in the speeches and discussions so that we will dare to step outside of the lines that we usually draw for ourselves on seminars like these. I would wish for every participant here today to think outside of the box, to gain new exciting perspectives and I hope you will not hold back when we reach the discussion forums.

I was told my staff and I would be the only representatives from the Arctic present here today. And that is often the case on conferences about the

Arctic. Maybe because our lands are so vast and our population would seem small compared to some of our Nordic brethren countries.

But we are fighting as I will tell you later today, a genuine battle to get our population the best education as fast as possible, because we are well aware of the demands for human resources and knowledge economy in our rapidly changing world.

As an Arctic people and a small nation, we in Greenland aspire to make our voice count and that is maybe our greatest challenge amidst all of this exciting research that we are presented with.

From NordForsk to research on our grounds, from collaboration to participation in exclusive partner-

ships: We want in! And we wish to join forces, especially with our Nordic friends, because we need all the reliable, honest partners we can get to ensure that our home will continue to be our home and that our population will stay healthy and prosperous.

Because of this, I'm excited that we are gathered here today, and I do hope that we will find exciting new ways for us all to develop together and to progress ourselves. These demands do not solely apply to Greenland or the Arctic regions. They apply to all of humankind.

Megatrends the book is a great first place to start.

Andreas von Uexkull, Ambassador, Senior Arctic Official, Sweden



At a Deputy Minister meeting in May the Swedish Arctic Council Chairmanship 2011-2013 was discussed. The Swedish strategy for the Arctic region was reviewed – what has been fulfilled, what are we working on, and what is still remaining of tasks.

The 8th Arctic Council chairmanship is important for Sweden. Sweden is aiming at Arctic Council being able to sign a political statement on oil spill at the next Arctic Council ministerial meeting in Kiruna in spring 2013. The goal is the signing of a legally binding agreement on the prevention of oil spill in the Arctic, including state vessels. The agreement should also strengthen openness and transparency. This will be the second binding agreement for the Arctic Council. Negotiations are right now working in the right direction.

Another theme is Corporate Social Responsibility (CSR) and sustainable development. Here the work has had a slow start. The purpose is to state that companies operating in the Arctic should apply to OECD CSR guidelines. Sweden plan to host have business summit in the beginning of next year.

Sweden has also focus on Arctic Indigenous peoples, especially the Sami Council. Here food and water security are important issues. The Arctic resilience report has now been presented by researcher Johan Rockström.

Negotiations regarding reduction of black carbon have not started yet. At the moment Arctic Council is looking for leader of the secretariat in Norway. A communication plan needs to be better developed.

Marianne Neraal, Adviser, Nordic Council of Ministers

1



The focus of this presentation is about the role of the Nordic Council of Ministers as well as the role and content of the Arctic Cooperation Programme.

And last but not least I will focus on the background for today's conference.

2

Nordic Council of Ministers

- Official governmental cooperation between the Nordic countries
- The Prime Ministers have the overall responsibility for the cooperation
- The Prime Ministers have delegated the responsibility for the practical coordination to the Nordic cooperation ministers
- Secretariat in Copenhagen with approx. 100 employees

The Nordic Council of Ministers is the official governmental cooperation between the Nordic countries.

The Prime Ministers have the overall responsibility for the cooperation, but have delegated the responsibility for the practical coordination to the Nordic cooperation ministers.

To support the work a secretariat with approximately 100 employees in Copenhagen has been established.

3

11 Nordic Councils of Ministers

- Business, energy, and regional cooperation (MR-NER)
- Environment (MR-M)
- Education and research (MR-U)
- Health and social affairs (MR-S)
- Labour (MR-A)
- Primary sectors (MR-FJLS)
- Finance (MR-FINANS)
- Culture (MR-K)
- Gender equality (MR-JÄM)
- Legislation (MR-LOV)
- Cooperation Ministers (MR-SAM)

The organisation consists of a total of 11 Councils of Ministers, each of them responsible for different policy areas as listed on the slide.

Within each of the Councils a number of areas of co-operation have been delegated. One of them is the Arctic.

4

Arctic – hot topic in the Nordic countries



- All Nordic countries are Arctic states
- Members of the Arctic Council
- NMC is an observer to the Arctic Council
- Support Arctic Council activities, Nordic dimension

A common characteristic of the Nordic Countries is the fact that all are Arctic states and therefore also members of the Arctic Council.

In addition Nordic Council of Ministers has been appointed observer to the Arctic Council.

In this connection one of the objectives of the Nordic observer status is to ensure the Nordic dimension to be promoted in Arctic Council

5

The Nordic Council of Ministers' Arctic Co-operation Programme 2012-2014



- Nordic cooperation since 1996
- "People first" - promoting sustainable development
- 9,5 MDKK per year. Including project applications (6,5MDKK) and political initiatives (3MDKK)
- Not a Nordic strategy but based on national and Nordic sectoral strategies

Insert header (e.g. organisation's name) or Footer via: 'show' / Header and footer / insert text / OK

5

The joint Nordic interests have been promoted since 1996 by means of the Arctic Co-operation programme.

Since it was inaugurated in 1996 the programme has evolved with different aspects of Sustainable Development in focus.

In the new programme period 2012-2014 "People first" has been chosen as the keyword for projects which are eligible for support from the 9,5 mio DKK set aside for project support, of which 6,5 mio DKK are for general projects, and 3 mio DKK for projects related to political initiatives.

6

Arctic Co-operation Programme 2012-2014



Climate



Education and competence enhancement



Environment and nature



Population



Sustainable industry development

Insert header (e.g. organisation's name) or Footer via: 'show' / Header and footer / insert text / OK

6

Five themes are embedded under the programme umbrella of "Peoples first". These themes include:

- Climate
- Education and competence enhancement
- Environment and nature
- Population, and
- Sustainable industry development

7

5

Megatrends in the Arctic



- Report on 9 powerful trends that are expected to shape the society at all levels
- Delivered at the Ministers meeting of Arctic Council in May, 2011, Nuuk
- Follow up on issues such as green economy, demographic challenges and human capacity
- Goal to develop new Nordic initiatives, projects

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7

Several of these themes have been included in the MEGATRENDS report which is the starting point of today's conference.

The report identifies nine powerful trends that are expected to shape the Arctic societies at all levels.

The report was supported by Nordic Council of Ministers and delivered at the Ministers meeting of Arctic Council in May, 2011 in Nuuk.

8



Three of the Megatrends have been chosen as starting point for today's conference: Green Economy, Demographic Challenges and Human Capacity.

The goal is to identify possible new Nordic initiatives and projects as well as describe policy areas where strengthening of common Nordic initiatives are considered important.

4. The expert presentations

In this report, the expert presentations are reproduced as they were given at the seminar either

as a PowerPoint presentation or as a manuscript. No other comments are added to the presentations.

Rasmus Ole Rasmussen: Megatrends in Arctic Development

1



MEGATRENDS IN ARCTIC DEVELOPMENT

Workshop
Stockholm
May 2012



2



Introduction

3

Introduction



- What are Megatrends?
- How do we determine what are Megatrends?
- Which roles does Megatrends play in relation to future development in the Arctic?
- And how can Megatrends – and the method applied in determining them – be of use in other settings?



4

Why Megatrends?

- The current pace of global change has already had a decisive impact on the Arctic.
- Some of these developments should be characterized as **megatrends** because they **overarch and impact on everything else**.
- They are trends deemed so powerful that they **have the potential to transform society** across social categories and at all levels, from individuals and local-level players to global structures, and eventually to change our ways of living and thinking.



5

Why Megatrends

- To understand the current and likely future situation in the Arctic it is important to **acknowledge the pre-conditions**, challenges and tendencies at work here.
- It is obvious that **social changes interacts with the environment**, and that environmental changes may be impacting future social changes.
- It is, however, also important to keep in mind that many – if not most – of the social changes are happening with increased pace and **independent of what happens in the environment**, and may become decisive in shaping the future for the inhabitants in the Arctic



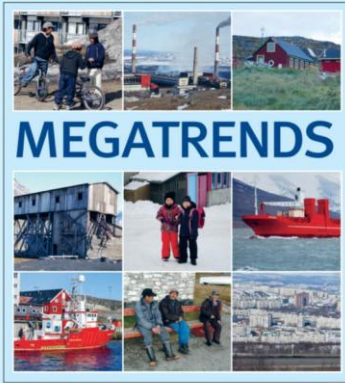
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How Megatrends?

- A starting point is usually a **mind-mapping** procedure providing a start-up overview of some more general trends.
- A second step is a **structural analysis** focusing on long term empirical trends serving as basis for identifying the internal and external elements/factors determining mechanisms of change and adaptation.
- A third step is a qualitative analysis of **expert's statements** on drivers and hypothesis regarding future development within specific fields.
- The mind-mapping serves again at a fourth step when multiple threats are to be rationalized into key points and trends.
- And finally a fifth step **generalizing** the trends into megatrends.

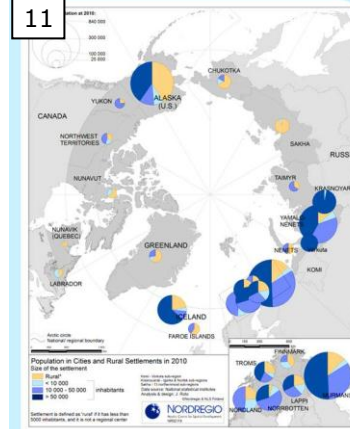


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Size of settlements

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8



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Increased Urbanization – a trend also dominating the Arctic

- Urbanization is a process where **villages and small towns and their traditional economies and social relations** are replaced by **larger settlements with new sorts of economies and social organizations**.
- As a consequence the population are concentrated in fewer and larger settlements, representing larger economic varieties, and new social relations and cultural activities.
- It relates to a complex set of processes not only impacting where people are living and what they live off, but also who they are, how they live their lives, what they consider being "good lives", how the distribution of power, democratic processes, social relations, and the political organization interact and takes place.

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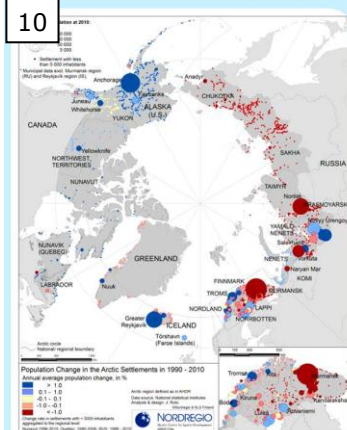


Demographic challenges – the old are staying while the young (and women) are leaving

- A drastic **decline in birth rates** results in a decline in number of children, eventually leading to a reduced work force.
- In combination with a **prolonged living age** results in an increase in the dependency ratio.
- In addition an increased **out-migration** of young persons with qualifications contributes to a further distortion of the demographic structure.
- More women than men are leaving the Arctic, which contributes to an increased complexity in the development process.

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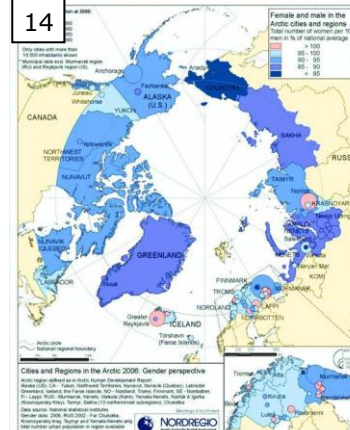
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Changes in settlement structure 1990-2010

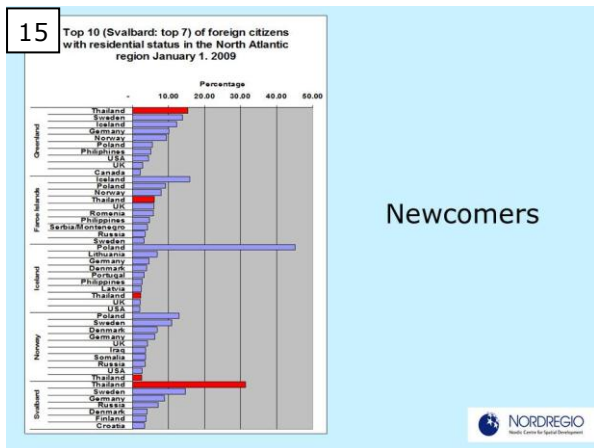
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Gender structure

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Newcomers



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Changes in the Arctic Economy

- The Arctic continues to be a region with **economic contrasts**.
- Many economies being dependent on **transfers and royalties** from extraction of renewable and non renewable resources.
- The international economy promotes modern large scale and capital intensive production. And the combination of global competition and over-exploitation of some resources has caused crisis in several Arctic countries.
- Many of the **"traditional" economic activities** are **declining**, just as international organizations such as Greenpeace causes further vulnerability to the challenged economies.
- New resource exploitation tend to become **"Company Towns"** with risks of being exposed to **"Boom and Bust"** cycles.

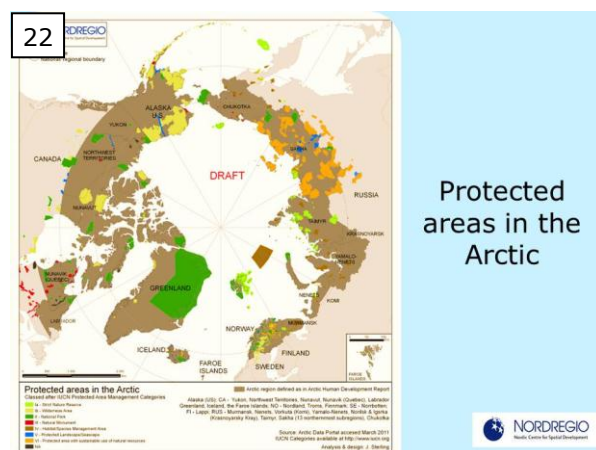
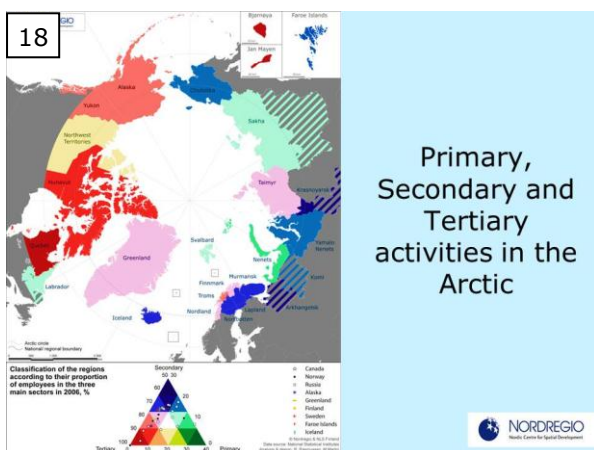
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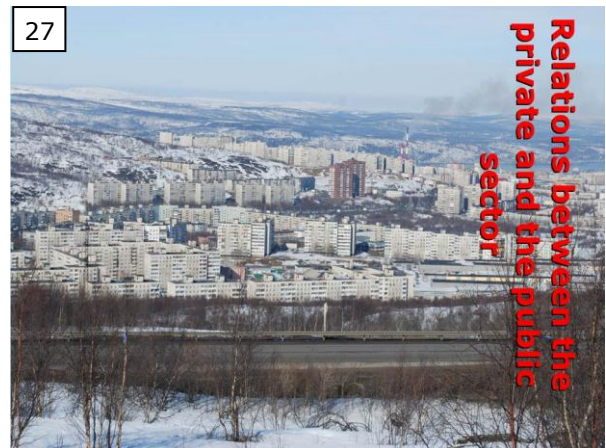
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Ongoing pollution, resource deprivation and changes in climate has substantial impact on the living conditions

- Changes in Climate – **increasing temperatures, melting of ice, raising of sea level** – will be impacting the livelihood in the Arctic. In addition human activities both outside and inside the Arctic are influencing the options for interaction with the environment in the future.
- Not the least the **biological diversity** becomes affected, for instance through **invasive species** due to increased activities in the Arctic.
- The management of the biological resources becomes still more complex, requiring the involvement and cooperation by individuals and organizations at different levels.

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The relations between the private and the public sectors are changing rapidly

- The development in the Arctic have always been influenced by the Public Sector and its involvement in economy, infrastructure, and social relations.
- Increasingly, however, the responsibility for planning and management is diverted towards regional planning and the private sector.
- It does not take away the need of public interference, however, because the levels of costs are high, and living conditions much more costly than outside the Arctic.
- An increasing privatization at the same time results in the building up of local wealth which is important in the creation of new industries and jobs.

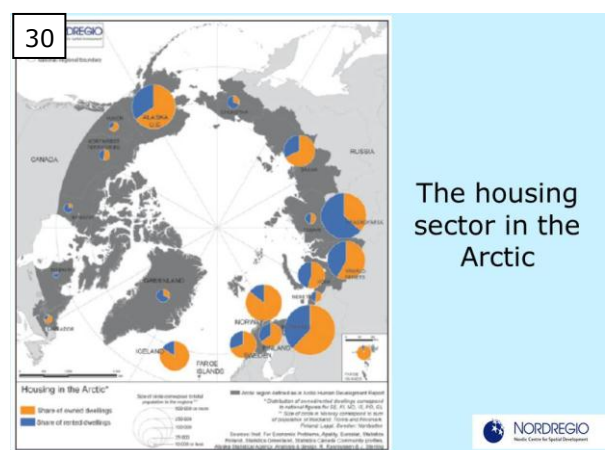
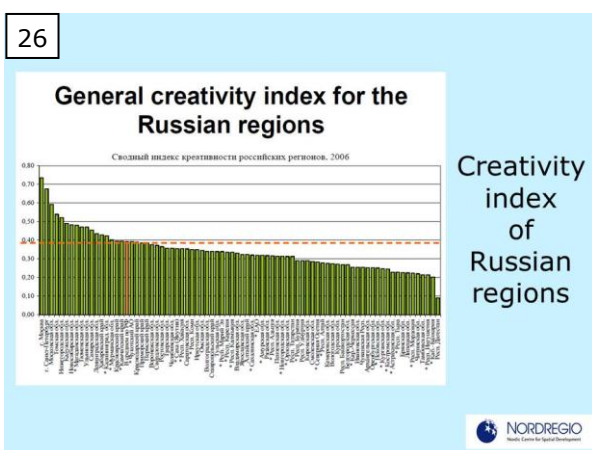
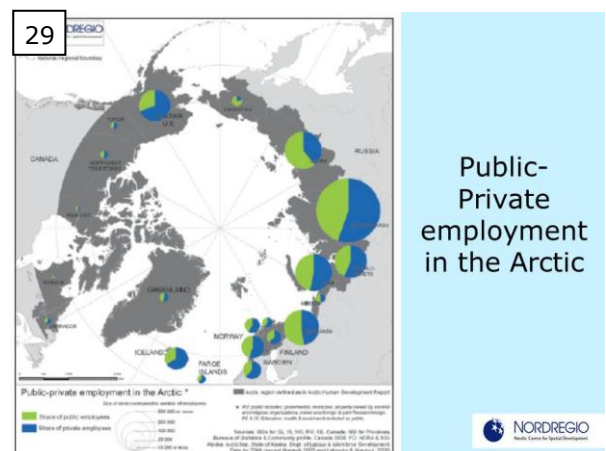
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There is an urgent need for further investments in the Human Resources!

- The development of the "Knowledge Economy" requires a stronger focus on the human resources, including knowledge, skills, talent and education.
- Especially in relation to education the transforming of the economy from a low productive and low large scale production to a more labor force intensive and knowledge based production.
- Access to good education enables young people to stay due to their choices of places to stay and jobs to get.
- In that connection the creation of jobs for an increasing group of women with good educational qualifications one of the most important drivers in the development process.

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Renewable Energy and Green Economy are providing an important input into the development in the Arctic

- In the Arctic a large supply of renewable energy sources are at hand, and in the future these resources are becoming the energy background for future development.
- The increased focus on "Green Economy" provides the Arctic with a number of possibilities:
 - New perspectives in relation to upcoming climate changes,
 - The need for new ways of exploiting the renewable resources,
 - And thereby options for new economic activities and jobs.
- The massive flow of consumer goods to the Arctic opens up the question of finding ways of recycle and converting for instance **packing materials, household waste etc. into local energy through industrial symbioses and district heating energy supply.**

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Increased accessibility creates opportunities and risks

- A reduction in the ice cover provides **new transport opportunities and access** to so far un-accessible resources..
- This, however, generated increased risks as more intensive transport generates additional pollution, spread of **invasive species**, and increased risk for accidents.
- And new activities does **not necessarily result in new opportunities for the Arctic communities.**
- Increased transport also opens up for further tourism in large scale which is not necessarily a boon for many small settlements.

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Transport routes in and out of the Arctic

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Generation of energy by source

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Ressource Access

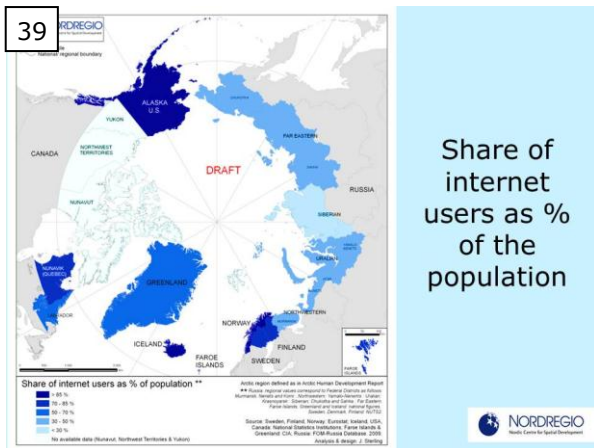
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Tele-communication by GSM

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The Arctic as a player in the Global game

- The Arctic is no longer an isolated and inaccessible part of the globe. The Arctic is a member of the Global Society – and presently also an important part of the global discourse!
- The increased level of interest also causes potential conflicts, and therefore the need of means and measures in handling these conflicts.
- The involvement of the Arctic communities in this development is decisive for a continued peaceful development of the Arctic.

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Timothy Heleniak: Demographic challenges in the Arctic

1

Demographic Challenges in the Arctic

Megatrends in the Arctic
Nordregio, Stockholm, Sweden

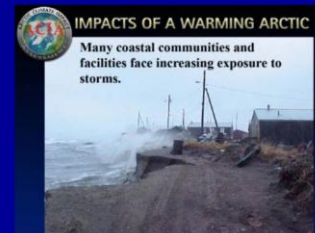
May 29, 2012

Timothy Heleniak
Department of Geography
University of Maryland
heleniak@umd.edu

4

Drivers of population change in the Arctic

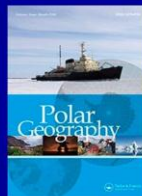
- Global population growth
- Climate change
- Economic growth
- Role of the State



2

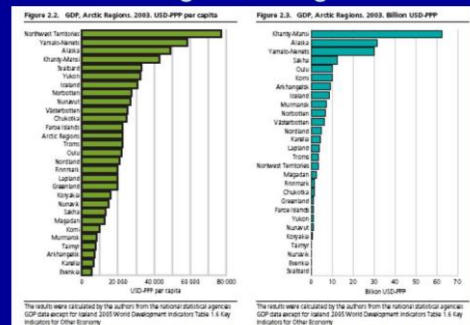
Briefly about myself

- U.S. Census Bureau
- World Bank
 - Northern Migration Project in Russia
- University of Maryland (USA)
 - “Moved by the State: Perspectives on Relocation and Resettlement in the Circumpolar North (MOVE)”, U.S. National Science Foundation
- Arctic Human Development Report
- Editor, *Polar Geography*



5

Vast income differences among Arctic regions



Wealth in Arctic regions depends on resource endowment

3

Contents

- Drivers of population change in the Arctic
- Population change in the Arctic
- Migration in the Arctic
- Composition of the Arctic population
- Urbanization in the Arctic
- The future of the Arctic population
- Conclusions

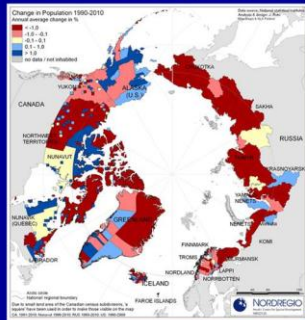
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Research Framework

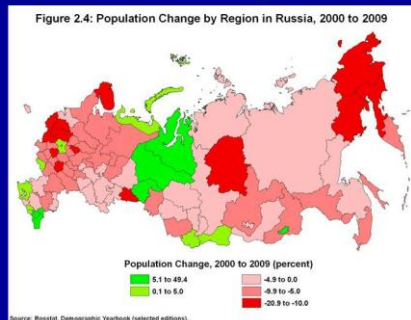
- “State-induced” – both “moved” and “lured” by the state -population movements across the circumpolar North;
- ethnographic, ground-up perspective to address issues of community sustainability, social fabric and senses of belonging;
- MOVE treats Russian/Soviet and Western modes of relocation, as well as indigenous and settler histories of migration, within a single framework.

7 Population change in the Arctic



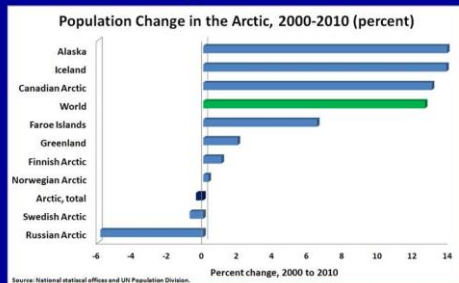
Large differences among Arctic regions and settlements in terms of population change

8 Population change in Russia



Siberia and the North continue to decline, albeit more slowly than in the 1990s

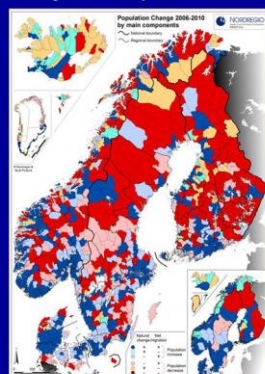
9 Population change in the Arctic, 2000-2010



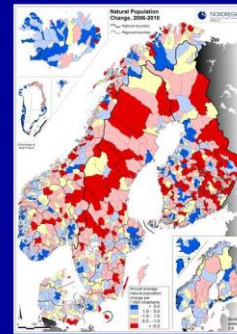
- Population change in the Arctic stabilizes with large regional differences

10 Population change by component

- How regions grow or decline is important because of how it affects population structure

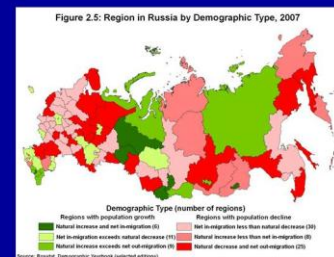


11 Natural population change (births minus deaths)

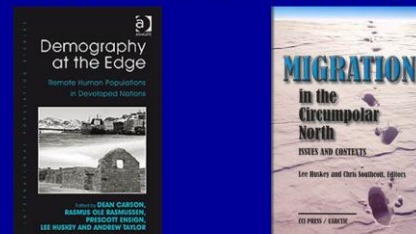


12 Demographic issues in Russia

- Russia has numerous demographic problems – low fertility, high mortality, aging, high immigration
- Population is expected to continue to decline, especially its northern periphery



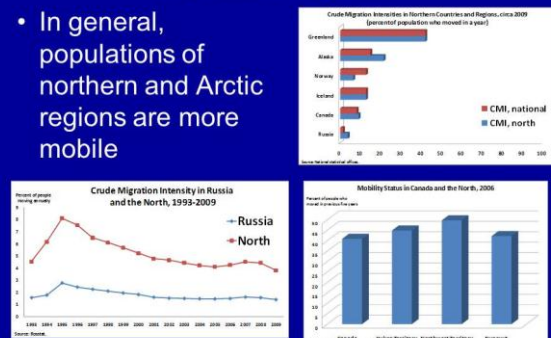
13 Literature on circumpolar migration



Polar Geography
Special Issue: Migration in Northern Russia and Alaska (2009)

14 Population mobility in selected northern regions

- In general, populations of northern and Arctic regions are more mobile



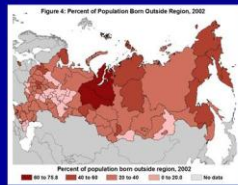
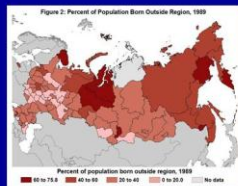
15

Non-movers

- Migration is the exception
- Some people are reluctant to leave.
- Heleniak, T. "The role of attachment to place in migration decisions of the population of the Russian North", Polar Geography, March-June 2009.



Applying for the Migration Assistance Program in Vorkuta, Komi Republic.



19

Foreign labor in the Russian North

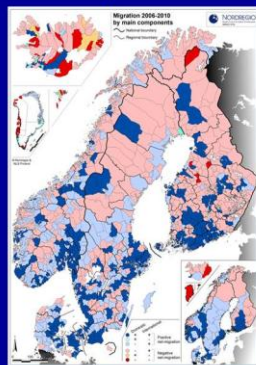


- Large shares of foreign labor in North, largest is Chukotka, 36 percent

16

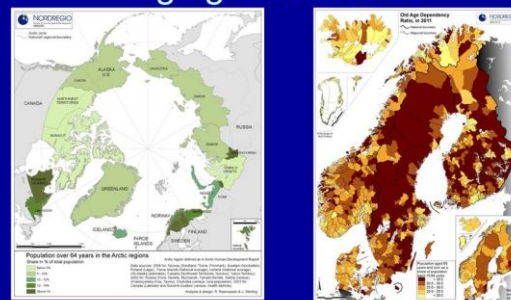
Migration by main component

- Large regions in the north are losing people to rest of country and gaining from abroad
- Similar across Arctic – Thais in Alaska, Philipinos in Yukon, Poles in Iceland, etc.



20

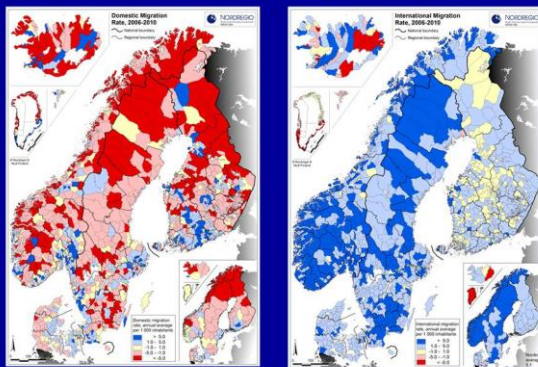
Aging in the Arctic



- Arctic regions are in "old" countries
- Populations of Arctic are aging

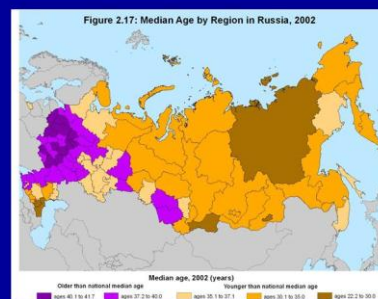
17

Domestic and international migration



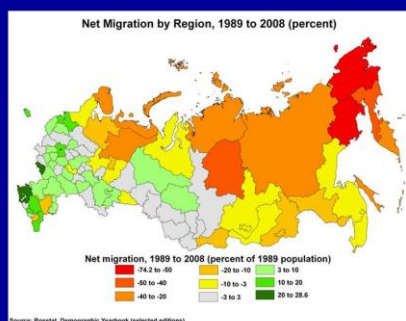
21

Median age by region in Russia



Russia has old core and young periphery, though that is aging as well

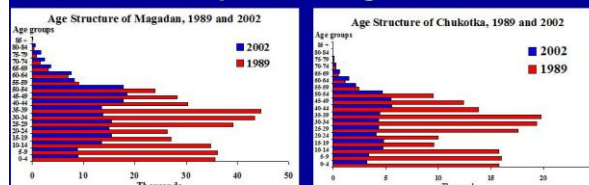
18



Net migration
All northern regions – 17 percent
Magadan – 57 percent, Chukotka – 74 percent

22

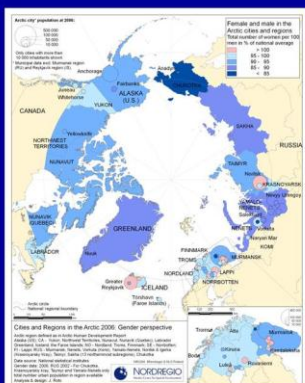
Age structure changes from regions of rapid out-migration



- 1989 age structures reflect recent in-migration
- In 2002, large declines in young working ages and under ten
- In Magadan, increases in elderly population

23 Male-Female Sex Ratios in the Circumpolar North

Most regions of the Circumpolar North have relatively more men than women....except for some of the larger, more diversified cities



27 Urbanization in the Arctic

- Densely settled and well connected – Fennoscandia and Iceland (Kola Peninsula)
- Sparsely settled, distant, unconnected – Russian north, Alaska, Canada, Greenland



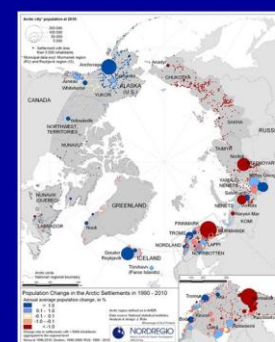
24 Sex Ratio by Region in Russia, 1989



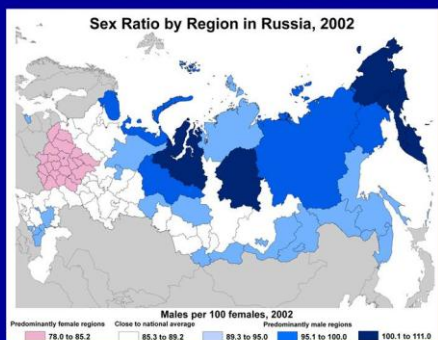
In 1989, predominantly male periphery and female core. Patterns attributable to past migration and occupational demands of northern industry.

28 Urbanization in the Arctic

- Differences in growth rates among Arctic cities
- Increased migration up the urban hierarchy
- Future of the Arctic will be in cities

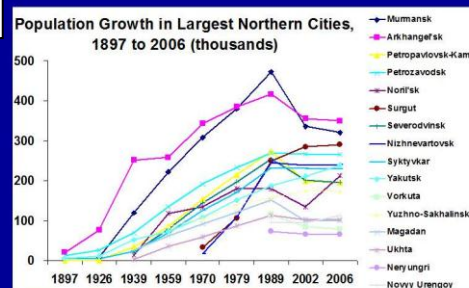


25 Sex Ratio by Region in Russia, 2002



By 2002, northern periphery had declines in among males but remained more male than rest of Russia

29 Population Growth in Largest Northern Cities, 1897 to 2006 (thousands)



- Three types of northern cities
 - Older, long part of Russian economy, European North
 - Those developed during rapid urbanization and industrialization of 1920 to 1960 starting with first Five-Year Plan
 - Oil and gas towns in West Siberia developed after 1970

26 Sex Ratio by Region in Russia, 2010



In 2010, male population continued declining in North, but not because of out-migration but excess male mortality.

30 Changing settlement structure across the Russian North

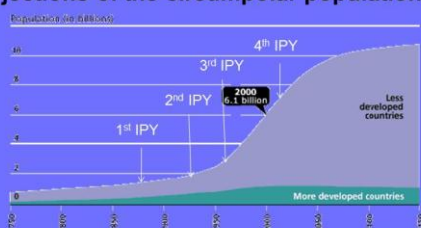
- Number of settlements in the North has declined by 10 percent from 1989 to 2002
- In the North, 12 percent of villages were ghost towns (8 percent across Russia)
- Magadan city declined from 160,000 to 95,000 but increased from 40 to 65 percent of region



Timothy Heleniak, "Changing Settlement Patterns across the Russian North at the Turn of the Millennium", *Russia's Northern Regions on the Edge: Communities, industries and populations from Murmansk to Magadan*

- Evidence of movement up urban hierarchy into larger settlements

31 Projections of the circumpolar population



- Global population growth will have impact on Arctic
- Usual cohort-component methods of population don't work well in Arctic because of volatility of migration
- Climate change and migration, both positive and negative

33 Conclusions

- *Megatrends* correctly pointed to many of the main issues in the Arctic
- Increased population growth and activity in the Arctic must be done in sustainable manner
- Social sustainable manner
- Increased diversity

32 Future of Arctic Population

- Based on current trends, population of the Arctic will be larger, older, and increasingly urban
- With improved transport and communications, it will be increasingly connected with rest of world and mobile



34

Thank you

Timothy Heleniak
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University of Maryland
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Palle Christiansen: Human Capacity

If you don't know what the term human capital refers to, you might ask what currency it is? If you asked me that question, I would answer that it is the main currency in the world, only you can't exchange it, you cannot trade it, but it is still the most valuable of currencies.

Education pays off in the long run, that is non-negotiable, unless you come from a dictatorship where the public are being kept in ignorance, which is an excellent way to ensure that the public will not be critical to the current conditions under which they live.

Fortunately, we see that most places in the world have chosen the civilized approach to Education and one can see that there seems to be a kind of arms-race in education. Knowledge is power and knowledge is the ability to retain and develop a welfare state as we know it today.

Studies have clearly shown that investments in human capital or mental infrastructure, rather than traditionally known infrastructure such as airports, harbours, etc., yields so much more for our societies. Education does pay off.

When I read the book *Megatrends*, and especially the chapters on demographics, human capital and green growth, my immediate thought was that perhaps there is nothing really new here. As I read on, I realized how obviously wrong I was! What is new is this: Now it has been documented that we across the Arctic and the Nordic countries have more in common than we think, and that the trends we experience are very similar indeed.

What does the educational trend then mean to Greenland as a whole and to my responsibilities in particular? The simple answer in its short version is: It means everything!

The more elaborate answer is, that we have to educate our people at all levels and for several reasons too. First to fight poverty, and secondly in order to maintain our welfare and repatriate additional responsibilities, in the case of Greenland: from the Danish state.

Thirdly, education is important if a country wish to maintain and attract an educated population and to make sure students who go abroad to study also returns home.

Everyone here, I am sure, is familiar with the term “brain-drain”, and that might be the biggest threat we face in the modern world. Everything else can be outsourced, and cheaper too, so we have to make sure that education and knowledge are the cornerstones that will uphold our current state of welfare.

Last but not least, it is also important to educate people, so you can adapt to the opportunities offered by globalization. Large-scale industries are on their way to Greenland, and it must be a requirement that we as Greenlanders ourselves fill as many jobs as possible in these industries and this requires the right education.

Education is a must and there is no easy way out for us. It has in Greenland meant that the new government has set up a Tax and Welfare Commission, which gave many and very clear recommendations. Especially in the Education field.

Therefore, the Greenland government presented a new Education strategy that ultimately will culminate in a new and ambitious Education Strategy for Greenland.

Now, I use the word ambitious and it may seem out of place if you are not familiar with our starting point. Our goal in the Education Strategy is that 70 % of annually graduating students in the year 2025 will have a vocational education. It may not sound like much, but today this no. is below 50 %, while in the other Nordic countries it is 80-85 %.

Our strategy is aimed at all areas of Education. From preschool to the University level: We are aiming for that all public school students must be able to speak Greenlandic, Danish and English fluently when they leave school.

We also must ensure that we get many more students through our already hard-pressed education system, simultaneously we're increasing the requirement for quality in all of our educational programs.

In other words we are investing in Greenland on the educational front – and that's not bad for an education minister.

For all of our Educational institutions it is true that they must compare themselves against other countries. The requirement has to be that all the education-programs we have in Greenland – which is not of purely cultural and ideological descent – is up to par on an international level.

We have to look to the world; Both to seek inspiration, but also to find partners, so we can share knowledge, students and teachers. Greenland's focus is primarily directed toward the Nordic countries and only secondly to the rest of the world.

As Minister of Nordic Cooperation I have been lucky that I have represented the Nordic countries on a trip to the EXPO in Shanghai, where I visited several educational institutions. The Chinese are very eager to make exchange agreements and if someone invests in human capital it is China! Previously China primarily made a living out of producing things that we had invented in the West, but their innovation is developing and evolving rapidly.

China and the BRIC countries, has seen and understood that the combination of education, research, innovation and motivation, will enable development of a country in fast forward-mode. Compared to the North, they still fall behind a little in terms of quality, but it is only a matter of time before they will master this fully.

Students and people in our educational system are not our only resource. We have to take into account all the people who are not currently going into the education system or whom have only some, or very little fundamental education. This segment represent an enormous potential to be activated. It is critical that we get them to participate actively in the labor market or to re-enter the education system. We MUST have a balance between welfare-benefits and the benefits of actually having an education.

It should NEVER be an option to be unemployed, sitting on the couch all day and watch TV, rather than striving for excellence in education, or to be employed, even at minimum wage in that country.

Even when we are graduates, our education never ends. We must constantly evolve and perfect our skills in our field of choice.

If we look to the south, other Overseas countries have learned this and for example. Aruba has an Institute for Lifelong Learning. We should all have an institute like that!

The identification of Megatrends and the various countries' educational levels and demographic developments, is a very important first step. Our next step is action.

So how do we face this challenge? How do we ensure that we can follow this development and how do we take the next step from having identified the challenges and understood the prevailing Megatrends and to have an actual plan that works?

We have to dare. Dare to realize that what we are accustomed to do, is no longer enough. We must dare to make policy decisions that might not be popular, but necessary.

This requires an enlightened basis as we now find in research as presented in the book Megatrends. The next step is decision and policy-makers who will think ahead for years to come and decide beyond the status quo. This requires, in some cases that there are scientists and public officials who dare to tell decision makers what great – and exciting – challenges we face.

Some of the decisions to be taken, we have already taken in the Nordic Council. In many initiatives of the Nordic Council we allocate resources to projects that will bear us in the right direction.

The Nordic Cooperation is in itself a great player in the global market since Nordic countries together are strong.

We have proved our strength together in many contexts, and we must continue to do so.

The Nordic countries should also in other for a stand together and show that we understand the challenges we all face. An example of where we might improve is the recent exclusion of Greenland by Sweden in important Nordic projects and research-fora, because we are not an independent country. This is unacceptable for many reasons. An Arctic Council without Greenland is not an Arctic Council, but a closed club. That we have met bureaucratic resistance at the level of our Nordic brothers is embarrassing – especially in light of the fact that Sweden a few years ago wanted a reduction in funding for the Arctic initiatives, while the whole world focused their attention on all the resources in the Arctic.

This is probably a politically incorrect example, but this is an example of what is trending in the wrong direction on a policy-maker level. If we steer wrong here, we will steer everyone in our system in the wrong direction.

In many countries, investment in human resource goes hand in hand with investments in natural resources like oil, gas and minerals. This commodity economy is seen in for example Russia and may very soon be seen in Greenland. My hope is that until then we will look to Singapore, that has succeeded in creating a wealthy community without natural resources, and where they invest heavily in the only inexhaustible resource they have: Human Capital.

They have proven that investment in human capital pays off.

If they can, we both can and must!

Thanks for the word.

John Bryden: Greening; Renewable Energy

1

Nordic Seminar Megatrends in the Arctic 29 May 2012

Greening: Renewable Energy
John M Bryden
Emeritus Professor, University of Aberdeen
OECD Consultant, Renewable Energy, Innovation
Systems and Rural Policy

2

Outline

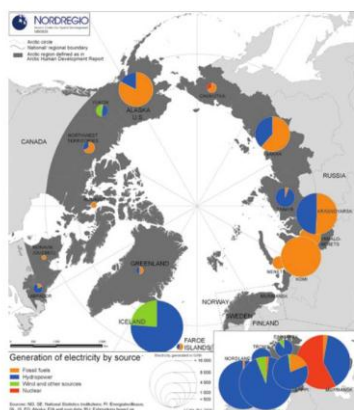
- Greening
- Energy sources in the Arctic
- Global situation, climate change
 - Consequences for the Arctic region
- Current situation on energy and renewables
 - Decentralised solutions needed
- Energy needs, smart systems
 - A good example
- Geothermal potential
 - Shallow, half-deep, or deep?
- How communities can benefit from renewable energy
- Other relevant dimensions of green development
- Conclusions

3

Greening

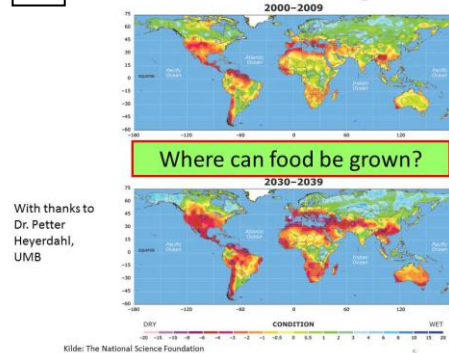
- Green Growth or Green Development?
- Triple bottom line approach
 - Economy
 - Environment
 - Society & Culture
- Seeking 'Win-Win-Win' solutions
- Building 'legitimacy' for these is important

4



5

The habitable world gets drier



6

The Current Energy Situation

- "Many regions in the Arctic are among the largest consumers of hydrocarbons per capita ..." There is "a significant problem in establishing energy related infrastructures"
- Many places are "energy islands" which "adds to the complexity in introducing several of the renewable resource options"
- (From *Megatrends*, p151)

7

Renewables in the Arctic today

- Hydro-power (Norway, Russia, Canada, etc)
- Geothermal (mainly Iceland)
- Wind Turbines (Norway, Alaska)
- Biomass – forests (Many places)
- "Waste" – food, fish, other household etc.
- Photovoltaics – summer!
- ... tidal, osmotic etc.

8

Decentralised Renewable Energy

- Small scattered communities
 - 80% of Arctic communities outside Russia have <1000 people
 - Very low population densities
 - Few grid infrastructures
- Local small scale energy systems are the norm,
 - but need to shift to renewables and get smarter!

9

Different types of energy needed

- Heating (homes, offices, schools, etc.)
 - Very important in the Arctic!
 - Low grade energy is most efficient
 - Geothermal
 - Biological (wood)
 - Heat from 'waste'
- Domestic, Office and Factory equipment
 - Electrical
- Industry
- Transportation (ships, airplanes, vehicles)
 - Needs high grade energy
 - Shift to natural gas in short- medium- run
 - Hydrogen? Cellulosic or Seaweed Ethanol? Electric?

10

Local Smart Systems are needed

- Many examples exist
 - Typically use several sources, e.g.
 - Small hydro (perhaps with pumping)
 - Wind
 - Solar PV
 - Back up fossil fuel generators
 - With energy control/management, and switching automated, plus e.g. heat and electrical storage
 - Community owned and managed
 - District heating often an important component
 - Using wood biomass (pellets, chips) or geothermal

11



12

The Island of Eigg, Inner Hebrides, Scotland



Photo: Pat Bryden, May 2012

13

E.g. The Island of Eigg, N W Scotland

- Community owned island and energy system
- All buildings had energy audit
 - installing energy efficiency measures
- Independent electricity grid
 - continuous clean power for all 86 residents & small businesses.
- The new grid
 - supplied by 3 hydro generators, 4 wind turbines and solar PV panels.
 - surplus power:
 - stored in batteries or used to heat communal buildings
 - There are backup diesel generators.
- Renewable generation meets up to 95% of the island's energy requirement
 - people are careful with what they use
 - each domestic property can use 5kW at any one time
 - everybody has an energy monitor so they can see when they're going to exceed the limits
 - 'traffic light' system lets everyone know by email when renewable sources are low so they can be extra careful with energy use.
- Eigg won the Big Green Challenge Prize of NOK 3m +

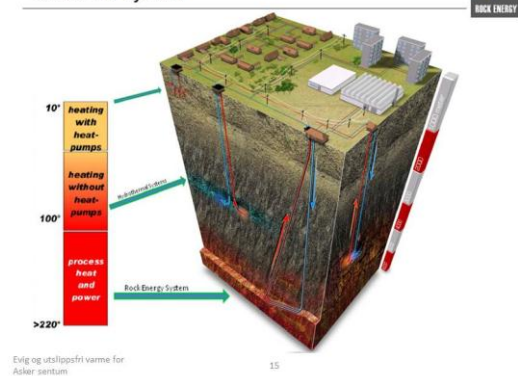
14

Geothermal has potential for heat

- Although highly variable, there are several known hot spots for geothermal energy in the Arctic region, and a lot is still unknown about the resources
 - E.g. Iceland, Svalbard
- And we know that some oil from Norwegian wells is coming out of the ground at 160°C
 - Shallow Geothermal, 30-40°C
- Simple, sustainable system for district heating and potentially more
- Costs are thought to be rapidly falling
 - For shallow Geothermal, 1000-1500m

15

Geothermal Systems

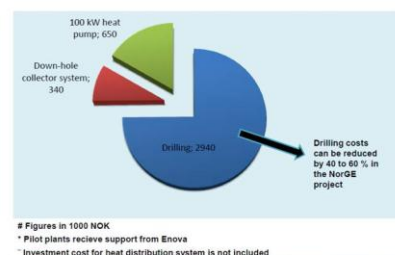


Eigg og utslippsfri varme for Åkeri-sentrum

15

16

Half-deep geothermal plant, a hybrid



Figures in 1000 NOK
* Pilot plants receive support from Enova
Investment cost for heat distribution system is not included

resonator

16

- 1500m deep well,
- 100kW heat,
- 25 degrees water
- Technical lifetime 20 years for heatpumps
- The hole delivers heat 30 – 50 years

17

Potential: Half deep geothermal systems

- Depth 1000 – 1500 m, can be drilled today
- Drill close to building - district heating not always needed
- Water temp 25 – 35 °C
- Can be used directly for low temp uses like buildings, sports arenas etc.
- Can raise the temperature with a heat pump if needed
- Moderate temperature increase can give good efficiency
 - Temp increase of 20°C can give COP of around 8:
 - 1 kW electricity gives 8 kW heat from 30 to 50°C

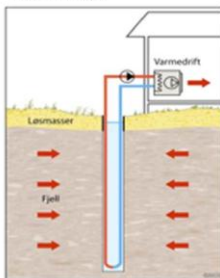
Evig og utallig varmefor
Asker sentrum

17

18

Geothermal – shallow closed loop system

Hole in the ground with
collector pipe



Thanks to UN-Prenter Næverødt, UNV

18

- Most common
- Can be established overall in Norway
- Reliable to run
- Longlasting drilling
- Close to user –
- Drilling depths:
 - 100-300m, <14 cm hole
- Costs:
 - 200m ~ NOK 70 000 (varies w/terrain)
- Liquid-water heat-pump
- Heating and cooling

19

Benefits and Challenges of Geothermal

- Simple technology,
 - utilises known (e.g. N Sea Oil) drilling technology etc
- Variable resource
 - Local assessments needed
- Mainly capital cost
 - Up-front finance
 - 30 year lifetime of drill holes/ pipes
- Can be small scale, use district heating infrastructure and be community owned and run, but financing an issue
- Can be used for greenhouse heating

20

How Communities can benefit from Renewable Energy

- 
1. supply of energy at reasonable long run cost, especially in remote areas of low population density, lacking grid infrastructure
 2. generation of new direct or indirect employment
 3. local capture of resource and policy rents by municipalities, cooperatives and individual residents by sole or part ownership of production facilities, local taxation, fees, and rents
 4. development of synergies with other industries and/or consumers, including development of supply chain activities
 5. development of new RE and related technologies which lead to 'smart specialisation' at regional level, and consequent development of new exporting industries and service enterprises

The benefits increase as you move down the list from 2 to 5, as does local support and legitimacy. All energy production is capital intensive and creates little direct employment. It is very important to capture the resource rents, and if possible some innovation and supply chain elements as well. Legitimacy is critical for future development.

21

Green Development is not only about Energy

- Water
- "Waste"
- Food
- Designs for living
 - work
 - Settlement structures
 - Recreational opportunities
 - Cultural opportunities
- BUT "Green Growth needs a Green Engine" (OECD, 2011)

22

Conclusion

- Climate change has direct and indirect impacts
 - Population and food/biomass production will move north
- Need to foster green development
 - triple bottom line approach → 'win, win, win'
 - GDP growth + environment not sufficient as indicators
- Renewable energy the 'green engine'
 - but need to capture local benefits and legitimacy
- Decentralised community led energy solutions
 - E.g. geothermal for district heating
- Other important 'green development' elements are water, food, waste, transport, designs for living
- Local policy approaches needed

23

One for your Diaries!

OECD 8th Rural Development Conference:

"Innovation and Modernising the Rural Economy"

3-5 OCTOBER, 2012
KRASNOYARSK, RUSSIA
SIBERIA International Business Exhibition Centre

Pre-conference workshops include Arctic Economic Opportunities and Service Delivery Challenges

Optional Field Visits 5-7 OCTOBER 2012
www.oecd.org/rural/krasnovarsk

24

Thank you!

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5. The three discussion groups

After the three expert presentations the participants were split up into three groups – one for each of the mega trends presented.

The three groups were given the same questions to discuss within the megatrend for that group.

The questions for the discussion groups



NORDREGIO
Nordic Centre for Spatial Development

QUESTIONS FOR THE DISCUSSION GROUPS

FIRST ROUND:

Please think alone for a moment, and perhaps make some notes here:

1. What does this trend mean to us, in light of what we are doing in our respective institutions, countries?
2. Where do we see need for new approaches that would benefit from Nordic cooperation?

SECOND ROUND:

Please think a moment and make notes. Then we will discuss:

Looking back on our previous discussion.

1. What do you think is the importance of current policies with respect to appropriate activities and encouraging development?
2. Where are there needs for new policies?
3. What might these be?



Discussion group

Demography and demographic challenges

Participants:

Erik Brattström

Harry Zilliacus

Lindis Sloan

Marianne Røgeberg

Timothy Heleniak

Øystein Imset

Facilitator: Rasmus Ole Rasmussen

Recorder: Johanna Roto

General effects and importance of the demographic changes

A lot has been discussed in relation to emigration from the Arctic and Sparsely Populated areas as well. Important to note, however, are the potential effects of immigration, which has happened occasionally during several decades, but seems to be an important contemporary trend. The out-migration of especially younger peoples adds to the ageing of the population, which of course has been a critical challenge for the smaller settlements. Even with regional supports such as for instance the “Distriktspolitikken” in Norway, the net outmigration has become a critical issue there as well. But on the national level the average age in Norway has actually decreased due to young immigrants. And several of them appears in the North, contributing not only to a less steep ageing curve, but may eventually contribute to an increase in birth rates which adds to a stabilization of the population.

Besides the question of ageing of the population eventually results in a decline in the workforce ageing also generate substantial impacts on service production needed in the sparsely populated regions. And in that connection the role of accessibility will become more and more important both in terms of distance and costs because maintaining a high level of both health and social services are more costly in these regions.

Increased distances generally turn the focus on accessibility relating to distribution of both human and financial resources, emphasizing the importance of cooperation. In this context an important divide would be in relation to two development paths related to the ageing population: Would the choice be on “active aging” or increasing marginalization? In that connection it is important to emphasize the new strategy of NCM stressing more knowledge based labor markets which are less age dependent,

and therefore adds to preventing social exclusion and secure health care quality.

In the above mentioned context it is important to emphasize the Nordic welfare model in relation to the role of distances. There are still unexploited perspectives on how various e-services can provide support to many of the future needs, because many of the needs may become less influenced by physical conditions, emphasizing communication and networking as important contributors to many of the still unresolved social needs in remote and sparsely populated areas. In this connection, there is an obvious need of multiple sectorial approaches where solutions may ensure access to communication needs and at the same time provide resources for monitoring of for instance individual health conditions.

A major question in the Arctic and in the sparsely populated areas is what to do when settlements are not viable any more. In many ways such a situation is unthinkable, and in the rhetoric there is basically a focus on maintaining the settlement structure. But shall people have the possibility to choose their place of living independent on which impacts it may have on public expenses? As long as it is an individual choice without impact on public budgets it is no problem. But for instance in relation to situations where the number of children drops below a certain threshold, should kindergartens and schools be maintained? And with an ageing and declining population should health facilities and social services be maintained? There are different approaches among the Nordic Countries, both in relation to principles and practices, very much dependent on available funding and the need to diversification of funding to different tasks in larger and smaller settlements, and very much influenced by the question of accessibility. A discussion within the Nordic countries on means and measures in this context could add to a more open discussion on this issue.

A question not often discussed in relation to the demographic challenges relates to the role of the housing markets in relation to apartments vs. selling possibilities which may have huge impact on the options for choice on whether to stay or to leave a settlement.

Furthermore the expanding spectrum of future actors in the Arctic needs to be included in the

discussion on future demographic challenges. The potential new (industrial) players may request accessibility to both physical and social conditions in order to decide on where to localize. And during the last decade the need of short term labor force with special skills (drilling, blasting, processing etc.. in connection with the establishing of new mine sites or power stations) results in situations where for the need of local labor force may be limited. Similarly, expectations in relation to the impact of new transport potentials/routes in the Arctic may create great expectations and may or may not result in the need for local initiatives. It is a difficult situation when planning on future demographic development as many uncertainties appears.

Another general issue in relation to future demographic changes has to do with the question of to what extend the local voiced are heard. National and regional planning may include settlements and communities in the planning process, but it is often the experience that the communities more often are overheard than heard.

Main Challenges

A better knowledge base regarding reasons and rationales in relation to decisions is very much needed. The patterns of change measured through numbers on age structures migration, birth rates, death rates etc. of course provide a good idea of trends in the demographic development. But more in-depth understanding of rationales behind for instance decisions on why to stay or leave, why to choose to live as singles versus establishing families, choice of number of children etc. is rather sparse. Some research has provided input in relation to why people may choose to stay, but research on why people leave among persons who recently have moved out of the Arctic are very rare.

A better understanding on urban and rural relations in an age related perspective is very much needed. As mentioned above knowledge on who move, wherefrom and whereto is to some extend reflected in national statistics. But insight on different age groups affinity to rural and urban life and lifestyles in the Arctic is only limited researched. A lot of assumptions are made, but little is known.

In relation to discussions of demographic challenges in the Arctic the role and importance of scale is often neglected. Often a focus on processes is substantiated through small examples and hearsay more than in-depth analysis. It leaves us unable to know to what level of generalization the examples provide support. It is therefore important to keep an eye on to what level we focus, what may be

hidden by specific numbers and thereby the potential impact of the cases. For instance having a focus on net outmigration may hide the fact that the brut migration within the region has a magnitude many times the level indicated through the net migration numbers.

Besides providing discussions which are considered specific to demography it is important to connect these discussions to for instance the related social consequences, and especially connect it to the role of the welfare state.

Similarly, it is important to keep up front the fact that the development conditions are very different between the Nordic countries and regions. While it is possible to maintain a “Distriktpolitikk” in Norway where oil revenues provide the necessary funding for enabling people to stay, limitations to funding resources in for instance Greenland raise the question of whether resources are more sustainable in maintaining small de-populating villages versus ensuring better education opportunities in larger towns.

A number of issues in relation to stability/changes in the population structure are still very limited known. For instance insight into rationales behind future migration flows, and especially questions related to whether or not the present immigration to Nordic Countries will continue, and especially continue in the Arctic. Similarly the role of families versus singles in relation to migration patterns has only been limited research. Also questions related to labor migrants and the quality of vocational training in the Nordic countries will continue to be competitive in the future? Also the role of local social linkages and networks in small places versus larger places is very limited research. Investigations stemming from many decades ago are often used as references, but it is quite clear how the globalization has had an immense impact on the creation of new types of social linkages and networks.

Future focus

Cost-benefit analysis should be applied in connection with analyses on future development potentials and limitations in the Arctic. It may be used not only in providing input to considerations regarding what is viable and what is not, but also create a basis for what to support and what time frame should be focused on.

Future potentials on e-services is an important field to focus on, as it may add to resolving many recurring problems and at the same time provide new perspectives on future settlement patters.

In addition to the above, an overall question on what are the rationales and how should they be supported should be a key issue in future policies, reflecting on:

- Rationales for different type of people staying in the region
- Rationales for different types of people leaving the region

- The question of who defines what is rational,
- The question of which rationales should be supported and which not
- Rationales for Re-vitalising
- Rationales for abandoning and closing

In general which rationales should determine the development in the future.

Discussion group

Human Capacity

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The interpretation of the trends

Human and national resources are important resources, especially in the light of the constantly interchanging environment. In order to utilize the human and natural resources in a sustainable way, new knowledge is needed, also in order to make the right decisions. In this sense the production of new knowledge is essential.

The OECD perspective is to move from focus on life-time employment to focus on adaptable employments. For the coming years, more adapted skills and more flexible educational structure are important themes. OECD is focusing on learning from others. A method is to sit down and talk with people, learning through networks. It can in other words be called Global Memory or Hubs of knowledge or Knowledge through Sharing

The key word is life-long learning providing the possibility to switch careers. This is especially important to innovation as a workforce that can adapt to innovations will be needed. It will in the future be a question about "skills for life" rather than "one employer for life".

Knowledge about the demographic changes is important. In the Arctic, the demographic trend is a challenge. Institutions are the link to education. Education is a traditional sector, and to focus on the national perspective new flexible forms of education is needed. Collaborating abroad and

domestic is necessary. Using the method of think tanks has developed a number of ideas. An example of a developed idea is to establish a Cross-border Master program. It could be good if NCM could support this initiative. Anyway, more flexibility across borders is needed.

It is also about knowledge sharing and it is about building up peoples' capacity. The practical knowledge is important as well. Other issues are knowledge transfer between companies and users through communication. It must be simple communication, the simpler the better. Time is running, and it is urgent to begin sharing knowledge. Knowledge sharing is at the moment fragmented and it should be structured in better way within countries, in regions, and between countries and regions.

Many good initiative and projects has been realized during the latest years, but in most cases they stop when the projects are finished.

In addition to the above dissemination activities are crucial, both in order to create awareness of new initiatives as well as share "best practice" experiences. So dissemination and knowledge share must be strengthened significantly.

Similarly, awareness of the public must be raised. It must be communicated why different policies are implemented. People should be given the opportunity to feel the ownership to these educational projects. Adaptability and flexibility are as well very important. Many governments are stiff and slow in their strategies. It goes for both governmental and public adaptability. Trust is also important. The question of trust should be given much more attention in the coming years.

Creativity in information sharing and communication should be developed. Without the supporting national policies NCM will not have any "real power". Better PR and communication is

needed. There must be more interest in using new ways of communication, such as by means of the social media. Transformation of communication and creative communication is necessary to reach the public, especially the younger part of the public.

New approaches to benefit from Nordic Cooperation

The seriousness of this perspective can be illustrated by asking "What happens if we lose Nordic Council of Ministers?". NCM gives Nordic countries a common international voice and the Nordic approach makes sense in the Nordic cooperation.

Good stories are always good for inspiration. The focus on best practice is important. Networking and learning from each other through best practice sharing is an important tool in developing human capital.

We have to think about the education of tomorrow, especially the knowledge production. At the moment there are only few projects that are covering this theme. Nordforsk has put together a proposal regarding an Arctic research collaboration program with focus on this theme which includes all eight Arctic countries. At the moment it is, however, just an internal draft. The Baltic countries are as well involved and the Nordic Baltic States forum. There is also a need for more flexible collaboration in relation to specific issues.

The importance of current policy

The value of the Nordic cooperation is big! It is perfect in a European Union context and as well in other international fora. It is all about being visible and generating added value to the public. Creative thinking by politicians is in this context very important. Politicians have to formulate their own agendas.

You have to have the University on board. We learn a lot outside the school environment. It has been debated in Finland how no politicians can change the school system even if they want to do so. Many consider it being too traditional. But in respect of the situation in Finland, however, it is also considered by many being seen as a best practice example when the results are measured through international tests and compared to the performance of other countries.

Not only in Finland but in all countries new forms of learning need continuously to be considered. But a challenge is of course how to further develop the existing educational systems with focus on what will be needed in 5, 10 and 20 years.

Support to innovative thinking in education is important. We may have policies in place, but do we really have the means to be innovative? Technology, and human capital is important and our politicians need to be aware of this. We need to have an open mindset, look into new ways of teaching, and especially new ways of ensure a "take off", and not the least of more diversity in relation to education.

Discussion group The Greening of the Arctic

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Impacts of a Greening of the Arctic

A major question relates to what impact such trends mean to for instance NCM seen in light of what is already done in respective institutions, countries, etc.? Does such a new focus automatically raise a need for new approaches that would benefit from

Nordic cooperation, or should it live a "life of its own" in the same way that most other businesses do?

It is of course important to be aware of the usefulness of considering more aspects in relation to future development potentials, and in this connection the need of basic information would be needed, for instance in relation to which potentials are offered by the landscape, vegetation and animal life. Due to the character of the Arctic region resources for such mappings may not be available and therefore requiring different types of joint activities.

The need of promoting a "greening" of the economy is substantiated by the many man-made

negative impacts such as black carbon, short lived climate forces, and the fact that most of the pollution in the Arctic are coming from elsewhere. Another argument for greening the economy is also the marketing opportunity when for instance thinking of green as a label, get control of your energy. In addition the Arctic is suitable for decentralised energy systems.

By getting focus on smart, decentralised systems, the market would be the Arctic itself, and thereby limiting the need of importing for instance energy resources.

It is obvious that there is a need for thinking about resource agreements, as huge mistakes have been made with examples of resource agreements being expensive for the involved region as the big companies involved in resource extraction are very powerful. In that connection it could be important to develop a joint Centre of Excellence in Mining where the national organizations may share their experiences.

A very important issue is the empowerment of the local community through coupling with related research, innovation, product development, and marketing. In order to sustain the impact of global crises the need of new ideas, inclusions of new resources, new approaches is obvious.

An important issue in relation to green growth and green development is the question of transport issues, where there are no indication of immediate progress in relation to for instance air transport being an important means of transport and communication in the Arctic.

In this connection it is important to keep focus on possibilities and proportions, i.e. being focussed on where there is a lot to win, and where it is not possible.

In relation to questions of risks and pollution the disposal of ships in the Arctic need new international agreements as the UNCLOS (UN Law of the Sea) is not dealing with it, e.g. from cruise ships which is increasing. In this context a major question might be to what extend it is possible to reject cruise ships in national seas. Such issues are important when reflecting on the “green” potential in tourism industry. In relation to cruise tourism, a sea full of waste may stop the cruise ships in coming, just as the future new transportation routes may be impacting the tourism potentials in a negative way.

Cooperative possibility

It is important to realize that the Nordic countries are leading on renewable energy systems, which is not only an advantage in relation to energy production but also in relation to export of technologies, know-how and innovations in relation to further development in the Arctic.

The Arctic has many unexploited potentials in relation to energy. For instance tidal power which is a new area interesting to look into. Experiences from Iceland’s geothermal energy provide technologies and experiences useful for the rest of the Nordic countries in relation to drilling technology. There is, however, still needs assessment to know if it is sensible.

Circumpolar food production is – just like New Nordic Food – an obvious potential for development, but the question is how we can develop the concept. An example could be the possibilities of selling shark to tourists. And use the Web for linking to new types of food production.

The fact that the Arctic is blessed with sunlight all summer may provide another type of potential. Of course in relation to power and heat production during summer, but maybe also focus on high quality vegetation as basis for grazing but also for biomass and energy production.

An issue that has to be dealt with are the problems with pollutants spread through wind and water, accumulate in fat in the food chains, which – when exceeding specific thresholds – may result in un-edible produces.

Policies in place could be spread to others? Need for new policies?

A series of new foci for the development are underway. For instance a new emphasis on primary production including food production, but also focus on manpower involvement which requires skilled manpower as well as innovations. A key issue is the question of branding and exchange of knowledge.

To keep the “Clean Arctic Waters” as a selling argument it is important to promote international restrictions on dumping of waste from ships in the Arctic.

Similarly “Appropriate” policies for local energy could be emphasized, among other reasons due to the fact that communities difficult to find capital to develop policies for local energy able to compete with the traditional hydrocarbons. It may require

new innovative solutions for financing, where there are inspiring examples from Scottish islands such as an Egg lottery fund.

A Nordic initiative may be putting emphasis on the option for requesting funding from Nordic non-renewable resource extraction. An obvious path could be requesting from funding from Norwegian oil fund as part of their new activities in the Barents Sea.

A continuous need for air connections may open up for looking into schemes for experimental air routes, especially in case pioneer support could be achieved. And promoted through new routes of circumpolar nature it may be providing more links and thereby more opportunities.

In general, more cooperation in the North would be relevant. Also, cooperation in relation to communication, for instance connections air/boat.

New shipping opportunities may appear. There are messages on Chinese routes China to Iceland, and in case they were opened up for passengers this may be an addition to the limitations offered through air.

In connection with interaction across the Arctic nations in relation to Green Growth better institutions for people-to-people exchange should be established. They should not just be project based as such connections often decay after the end of the project.

As argued in the Demography section there seems to be still more immigration to the Arctic from North Africa and Asia. A challenge in this connection is how to integrate the newcomers, but at the same time make use of their traditions and ways of using the Green resources.

In connection with a future focus on Green development it would be important to advocate support for NGOs, e.g. agricultural, university, network – all kinds of organizations that have an interest in to stimulating new initiatives, and become backbones in knowledge and experience exchange between the Arctic Council members and with support from NCM. Such a network should be open to involvement of other regions where development conditions are similar, for instance Scotland.





7. Conclusions

Conclusions from the workshop is organized below at two levels.

The first level is the reporting back in plenum from the three working groups, where the main discussions are outlined. As the discussions in many ways were reflections on the five initial questions posed to the participant, the findings and recommendations from the group work are structured accordingly, but also including findings and suggestions going beyond these questions.

Across the reportings the main policy recommendations have been outlined in the following section, boiled down to the five most important issue. These concerns and recommendations are especially focussing on issues that are suggested as foci for new research initiatives in combination with suggestions for specific policy

elements. The latter, however, only include very few additional examples than already dealt with in connection with the reporting on discussions. This was due to that the working group had some difficulties in pinpointing very specific suggestions and were more reluctant to make suggestions regarding broader themes that could be pursued as follow up activities in relation to the MEGATREND report. Consequently the response to the question of policy recommendations are mostly concretization of the themes presented in the reports.

In addition to the above it was a general comment from the participantes that they recommended the MEGATREND report as a useful tool for the identification of issues for further policy development!

Reporting back in plenum

What does these trend mean to us, and where do we see need for new approaches benefitting from Nordic cooperation?

Demography and demographic challenges

1. Ageing and out-migration creates a negative circle becoming a still more critical challenge for the smaller settlements. The fact, however, that immigration in many places not only substitutes the out-migrants but adds to higher viability should be of joint Nordic concern.
2. Similarly new approaches to the decline in the work force in sparsely populated areas should become an issue of joint concern. And also recognizing the role of potential in-migration as an important contribution towards a more stable situation.
3. A key concern in relation to the demographic challenge is the viability of the welfare model which should be scrutinized in order to adjustments relating to the new situations.
4. The overall and rarely discussed question of viability of settlements versus the costs of

maintaining the places need to be approached. Limited financial resources and challenged economies in as well urban, rural, and sparsely populated regions stress the fact that there are “no simple solutions out there”.

5. The question of ensuring both overall planning and the inclusion of local communities in the decision process is becoming more important as the smaller communities in the sparsely populated areas becomes still more depending on external resources as well as externally owned and driven industries, often isolated from the communities.

Human Capacity

1. In order to utilize the human and natural resources in a sustainable way, new knowledge is needed, also in order to make the right decisions. In this sense the production of new knowledge is essential. And to be open for new requirements it is necessary to move from focus on life-time employment to focus on adaptable employments. The key word is life-long learning providing the possibility to switch careers.

2. Education is a traditional sector, and to focus on the national perspective new flexible forms of education is needed. Collaborating abroad and domestic is necessary. Using the method of think tanks has developed a number of ideas. An example of a developed idea is to establish a Cross-border Master program.
 3. Knowledge sharing is at the moment fragmented and it should be structured in better way within countries, in regions, and between countries and regions. Many good initiative and projects has been realized during the latest years, but in most cases they stop when the projects are finished.
 4. Similarly awareness of the public must be raised. It must be communicated why different policies are implemented. People should be given the opportunity to feel the ownership to these educational projects. Creativity in information sharing and communication should therefore be developed.
 5. Adaptability and flexibility are as well very important. Many governments are stiff and slow in their strategies. It goes for both governmental and public adaptability. Trust is in this connection important because lack of trust limits flexibility. The question of trust should therefore be given much more attention in the coming years.
2. Parallel to knowledge regarding the resources there is a need of joint activities promoting a “greening” of the economy and the promotion of marketing opportunity when for instance thinking of green as a label for Arctic business.
 3. In addition to resource mapping and marketing there is an obvious need for thinking about resource agreements to prevent previous mistakes where resource agreements being expensive for the involved region as the big companies involved in resource extraction. In this connection for instance Joint Centres of Excellence in for instance Mining or other resource developments where the national organizations may share their experiences.
 4. A very important issue is the empowerment of the local community through coupling with related research, innovation, product development, and marketing initiatives. In order to sustain the impact of global crises the need of new ideas, inclusions of new resources, new approaches is obvious.

Parallel to the development of new initiatives it is just as important to keep a focus on questions of risks and pollution connected with the new activities related to both land and sea based resource exploitation. This applies for instance to the increased involvement of cruise ships in the Arctic and Northern waters. Such issues are important when reflecting on the “green” potential in tourism industry. In relation to cruise tourism a sea full of waste may stop the cruise ships in coming, just as the future new transportation routes may be impacting the tourism potentials in a negative way.

The Greening of the Arctic

1. A more focussed mapping of green potentials in the Arctic and sparsely populated areas is needed. Due to the character of the Arctic region resources for such mappings may not be available and therefore requiring different types of joint activities.

Policy recommendations

What do you think is the importance of current policies, are there needs for new policies, and then which policies?

Demography and demographic challenges

1. New policies promoting attractiveness and in-migration being counter-balancing out-migration in relation to age, education and gender.
2. Policy approaches focusing on integration and socialization of newcomers in their new environment.
3. Strengthened focus on policy concerns regarding the role of the welfare model.
4. Joint Nordic discussions and share of experiences on appropriate policies able to deal with the problem related to sparsely populated region versus other regions in need of access to sparse economic resources.
5. Policy development realizing the fact that different rationales are represented in the sparsely populated areas.

Human Capacity

1. Policy measures focusing on the education and knowledge production of tomorrow,
2. Policy measures enabling exchange of experiences with innovative thinking, especially with focus on “Lifelong learning” as a common Nordic profile.
3. Increased collaborating abroad and domestic using the method of think tanks.
4. Raising awareness of the public in relation to the need of education and training in order to cope with future challenges
5. Policy measures in order to move from focus on life-time employment to focus on adaptable employments.

The Greening of the Arctic

1. Policy initiatives enabling joint emphasis on primary production – food, renewable energy etc – including question of branding and exchange of knowledge.

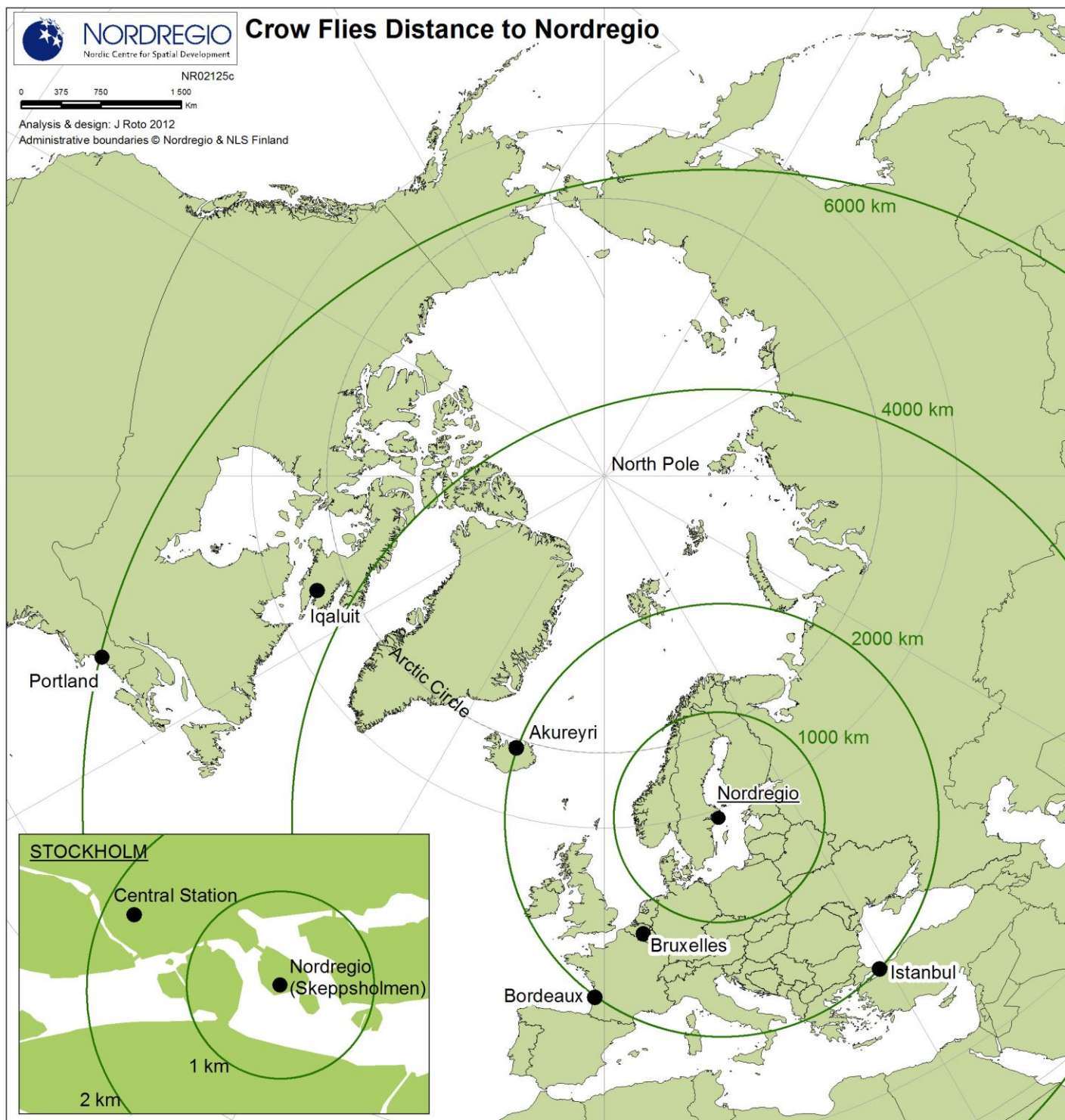
Policy measures promoting local energy consumption and development of means and measures enabling energy to become a commodity suitable for export.

2. Policy measures on new innovative solutions for financing the green initiatives.
3. Better and permanent institutions for people-to-people knowledge and experience exchange.
4. Policy measures ensuring joint initiatives regarding making companies and countries pay for clean-up and reduction of the negative consequences caused by pollution and other man-made negative impacts such as black carbon, short lived climate forces etc.

Policy recommendation synthesis

Besides individual recommendations from each of the three working groups, an important cross-cutting issue appeared in all of them. While policy initiatives in relation to the individual domains are important, it becomes still more important to develop policy approaches where interrelations and interaction between the domains are in the core.





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