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TOWARDS A GREEN FUTURE

– Nordic Climate Solutions

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TOWARDS A GREEN FUTURE

The negative aspects of climate change are without doubt one of the biggest challenges of our time. Luckily most people recognise this and great efforts are being made around the world with the aim of meeting these challenges. I believe that the key to success is to work on many different levels and in different sectors. The COP15 conference in Copenhagen is one very important political step, but much of the real work lies ahead of us. We need global agreements between states, but we as individual consumers must also adjust our behaviour. Our successful Nordic companies must also bear their fair share of responsibility.

Regional cooperation represents a very useful level in this regard. Nordic regional cooperation has a long tradition of different forms of cooperation between governments, parliaments, institutions, NGO's and companies. The organisation that I represent, the Nordic Council of Ministers (NCM), has for the last two years been focusing strongly on climate, environment and energy issues. For instance, the NCM is involved in the biggest-ever joint Nordic research initiative, which focuses on these important issues. For the last two years, the NCM has also arranged an expo and conference on Nordic climate solutions involving many of the important players in the field. The Nordic prime ministers, who set the agenda for the NCM, have repeatedly stated that the Nordic region has both much to give and gain in cooperating on these issues.

The NCM consists of eleven different councils of ministers, but also has over twenty institutions and other cooperation partners helping to carry out and develop projects in every area of cooperation. The institutions differ greatly in size and in their methods of working, but they are nonetheless very important contributors to Nordic cooperation. Many of our institutions are involved in projects concerning different aspects of climate change. In the following interviews some of our institutions and partners give us an idea of how they are working on climate, environment and energy issues. I hope you will find the reading interesting and inspiring!

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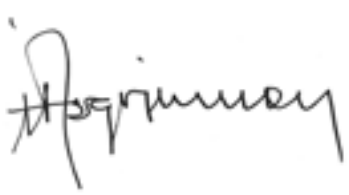

Halldór Ásgrímsson
Secetary General
Nordic Council of Ministers

PHOTO JUHANI ANNANPALO

NDF provides grants to climate change interventions related to infrastructure, natural resources and capacity-building in low-income countries in Africa, Asia and Latin America.

The Nordic Development Fund (NDF) shifted focus from soft loans for social and economic development to grants for climate efforts in spring 2009. During the autumn, NDF approved grants worth over 14 million euro for climate investments in low-income countries.

Grant Financing for Climate Efforts

NORDIC DEVELOPMENT FUND (NDF)

– We are pleased to begin our work for climate change investments in the world's poorest countries by financing several important projects. Climate change is a considerable challenge to these countries. NDF can, with its experience and its established cooperation with other financiers, support developing countries in confronting the climate issues, says NDF's Managing Director, Helge Semb.

NDF got a new mandate in 2009. What is the purpose of NDF's operations and what type of projects do you now support?

– The objective of NDF's operations is to facilitate climate change investments in low-income countries. NDF supports mitigation of and adaption to climate change through grants for technical assistance, goods and civil works related to infrastructure, natural resources and capacity-building in the world's poorest countries.

Which low-income countries are eligible for financing from NDF?

– NDF can provide grants to 27 of the world's poorest countries in Africa, Asia and Latin America. In addition to being classified as low-income, these countries must also have received previous support from NDF. In September 2009, the NDF Board approved grants to projects in the lower Mekong region (Cambodia, Laos, and Vietnam), Rwanda, and Uganda. In addition, NDF has pledged 4 million euro for a new Nordic Climate Facility (NCF), promoting technology and know-how partnerships between the Nordic countries and eligible low-income countries in the area of climate change. In December 2009, NDF will consider funding approvals for four or five more projects.

The Nordic Climate Facility is a collaborative effort of NDF and the Nordic Environment Finance Corporation. What are your expectations for this cooperation?

– The objective of the NCF is to promote cooperation initiatives between institutions, authorities, organisations or companies in the five Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden) and their partners in eligible low-income countries. A call for proposals for innovative ideas relating to climate change will be launched once a year and the best proposals may receive grant financing. A first call for proposals was launched in October 2009; for this first call the focus is on initiatives related to water resources and energy efficiency. One aspect that makes our new NDF/NEFCO facility unique is that we have Nordic specialists on development cooperation and environmental experts available 'under the same roof', as our two institutions share office premises in Helsinki, Finland.

Regarding the other projects that NDF approved this autumn: what are they aiming at?

– NDF grants normally vary between 500,000 euro and 4,000,000 euro. This September the NDF Board decided to support solar energy in Uganda with 3 million euro. The aim is to provide solar energy packages for 81 health centres and for 4 water pumping systems in rural areas. In Rwanda, NDF also supports solar energy and energy savings. NDF will provide grant financing of 4 million euro to create and build up a local market for use of hot water heaters based on solar energy. In Laos, in the urban community Pakse, NDF supports a pre-feasibility study to assist the community to adapt to and counteract to climate change with a grant of 415,000 euro. In Cambodia, Laos and Vietnam, NDF finances a programme to improve access to modern energy and energy services and reduce greenhouse gas emissions. The NDF grant amounts to 3 million euro.

How do you choose which projects to finance?

– NDF provides grants by co-financing and has a strong working relationship with the World Bank, the Asian Development Bank, the Inter-American Development Bank, the African Development Bank and Nordic bilateral development organisations; projects are usually identified through these partnerships. NDF also aims at obtaining project information and ideas through Nordic firms, organisations and networks. All financing decisions are made by the NDF Board, with representatives from all Nordic countries. NDF's operations shall mirror the Nordic countries' priorities in the areas of climate change and poverty reduction.

Some years ago there was a discussion about winding up NDF. Why did NDF now shift focus?

– NDF is the joint multilateral development finance institution of Denmark, Finland, Iceland, Norway and Sweden. Since operations began in 1989, NDF has financed 190 development assistance credits valued at 1 billion euro. In 2005 the Nordic Development Cooperation Ministers recommended a wind-up of NDF since the owner countries were unable to reach agreement on a further capital replenishment of the Fund. However, continued analyses and renewed consultations between the owners showed that there were valid reasons for NDF to continue its operations, but with a new focus grants for climate – related interventions in low-income countries. The grants are financed by repayments from the current loan stock, amounting to 1 billion euro over the next 35 years. Through its commitments during the past twenty years, NDF has gained considerable experience in project financing in developing countries, not least in environmental issues. ■

HELGE SEMB

Managing Director Helge Semb is pleased that NDF's twenty years of experience from project financing in developing countries can now be used for facilitating climate change investments.

Managing director Magnus Rystedt from the Nordic Environment Finance Corporation (NEFCO) assesses the current carbon market in this exclusive interview for the Nordic Council of Ministers.

NEFCO expects Copenhagen Summit to Support Efficient and Effective Carbon Markets

NORDIC ENVIRONMENT FINANCE CORPORATION (NEFCO)

How does NEFCO differ from other multilateral financial institutions involved in efforts to combat climate change?

NEFCO was established by the Nordic countries in 1990 to provide financing for projects that generate positive environmental benefits. Right from the beginning, environmental values have been the guiding principle for all our operations, and currently we have around 350 small and medium-sized projects that directly or indirectly reduce harmful emissions. Most of our investment activities have been focused on Eastern European countries, the Baltic States, Russia, Ukraine, and Belarus. The establishment of the NEFCO Carbon Fund and our significant involvement in carbon trade has given NEFCO a global reach.

How can a relatively small-sized international financial institution like NEFCO make a difference in the vast, global financial market?

– In my view, NEFCO's strength lies in its small size, extensive networks and international reputation. These three qualities have allowed us to be both efficient and flexible - valuable attributes necessary for elaborating new financial mechanisms and implementing pilot as well as demonstration projects. Altogether, all these qualities have given us access to a wide range of resources and know-how.

In addition to that, we are also backed by a network of reputable investors, and armed with a solid mandate to shoulder risks. Our pool of expertise and extensive experience is also a valuable asset in all our operations.

Our carbon funds operations are aimed at developing the carbon market mechanisms and also provide carbon credits for Nordic and German governments, as well as private companies, to enable compliance with the Kyoto Protocol and the EU Emissions Trading Scheme.

The Testing Ground Facility (TGF) was established in 2003, when the carbon market was still very young, and in the spring of 2008 we launched the NEFCO Carbon Fund, and thereby expanded our geographic scope from regional to global. This also enabled us to extend our carbon financing to the Clean Development Mechanism (CDM), as well as the post-2012 emission reductions.

What sort of win-win aspects do you look for when screening projects for your carbon funds?

– Synergies are perhaps most visible in projects where NEFCO has provided both investment capital and carbon financing. Financial viability of a project is boosted by revenue from the sale of carbon credits, which lowers the threshold for the project to get financing. Securing financing is, of course, the key to realizing the project's emission reduction potential.

Screening is hard work; of the over 100 emission-reduction projects examined by the TGF, only a dozen or so have been added to our portfolio. We try to find and replicate success stories, and utilize our past experiences by focusing on our areas of expertise, such as energy efficiency and renewable energy projects.

Is there any advantage in being a Nordic institution?

– In my experience, our Nordic origin has been beneficial in many ways. For one, Nordic countries have a global reputation for sustainability, integrity and efficiency. Furthermore, many Nordic companies are also renowned world-leaders in environmental technology and services, which means that we have access to an impressive network of world-class environmental experts and technology. We also have very close ties with both the Nordic Investment Bank (NIB) and the Nordic Development Fund (NDF). For example, this autumn we and NDF launched the Nordic Climate Facility (NCF), which is funded by NDF and will offer grants to projects that reduce poverty and combat climate change in low-income countries. With NIB, we routinely explore co-financing opportunities, and carry out joint project missions.

On a more practical note, what has been most challenging in implementing CDM and JI projects?

– I think the main challenge arises from the need to create a new market and introduce novel mechanisms within a relatively short period of time. Currently, the two key challenges are the uncertainty prevailing in the market, which is being exacerbated by the continuous evolution and complexity of these projects; and the financial crisis, which has made it difficult for many promising projects to get funding. However, on the other hand, the lack of funding has also generated wider interest in alternative financing mechanisms such as carbon financing.

What has worked best?

– In many emission reduction projects, we have provided hands-on support for the development of the carbon component as project owners rarely have the capacity to take the projects through the steps required for it to be registered as a CDM or JI project. This close cooperation has given us more control over the overall management of the projects. Local presence and the availability of networks have been crucial for ensuring successful implementation of projects. Simple, standardized procedures have also helped us to successfully replicate small-scale energy efficiency and cleaner production projects.

Could you highlight some key areas that need improving?

– Despite impressive recent progress, there is still much room for improvement in integrating climate aspects into the screening and decision-making routines of project developers and financiers. There is a need for user-friendly tools for expedient and reliable assessments of potential emission reduction for alternative scenarios.

What are your expectations of the COP15 conference and the post-Kyoto deal?

– We see a further need for a global carbon market. The market needs to be effective, have meaningful targets and time horizons, as well as stable and predictable policy and investment frameworks. This will allow funds to be used to reduce the most emissions at the lowest cost.

We hope that policy makers, as well as private and public participants, will continue to work together to create an efficient carbon market capable of effectively preventing dangerous global climate change. ■

PHOTO PHOTODISC

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Climate Needs Money in Good Times and Bad

NORDIC INVESTMENT BANK (NIB)

– Environmental investments need money in difficult times too. In the current crisis, we have fully utilised our EUR 1 billion lending facility for projects aiming at climate change mitigation and adaptation, energy efficiency and renewable energy, says Johnny Åkerholm, President and CEO of the Nordic investment Bank.

What is the role of the financial sector in supporting the environment and dealing with climate change?

– The financial sector's impact on the environment is considerable, though mainly indirect through the projects it finances. Financiers will increasingly have to take into account environmental and sustainability criteria, not only conventional risk and return, as a precondition for providing financing for a project.

How has the global and economic situation affected environmental investments over the last year?

– It is clear that economic problems are having an adverse effect on the implementation of environmental projects. As an example, according to an IEA estimate, investments in renewable energy have fallen by two-thirds in 2008–2009. While everyone knows that inaction will increase costs in the future, many actors, including governments, companies and the financial sector are tending to focus on short-term survival.

What role has the Nordic Investment Bank played in dealing with energy, environmental and climate issues?

– As an international financial institution (IFI), we are driven by our mandate rather than profit. Our duty is to finance projects that strengthen competitiveness and enhance the environment. Regarding the latter, this means that in practice all projects considered for financing undergo an assessment of their potential environmental impact. The share of our environmental lending is 20 per cent of total outstanding lending, i.e. EUR 2.8 billion.

Have you been able to stick to your mandate in the crisis?

– Our role has in fact been highlighted in the current situation. We can play an especially important role in providing financing when other sources are unavailable. As I mentioned, the private sector could still consider its ability to develop environmental projects to be diminished. It is important to see that environmental projects are long-term investments which need to be implemented in good times and bad.

What level of resources have you allocated for climate projects?

– At the beginning of 2008 we established a new lending facility, CLEERE, which stands for Climate Change, Energy Efficiency and Renewable Energy. This means that we have earmarked EUR 1 billion to finance "climate-friendly" projects. To our satisfaction, most of this has already been allocated.

We have also invested in an innovative fund, the Post-2012 Carbon Credit Fund, which seeks to develop the market for carbon crediting after the Kyoto Protocol has expired and to support projects that reduce greenhouse gas emissions.

What kinds of "climate-friendly" projects have you financed recently?

– NIB provided a EUR 160 million loan for Horns Rev II, the world's largest offshore wind turbine park being built in the North Sea. The park was set in operation in September this year. Another wind farm, which received a EUR 100 million loan, is Rødsand II on the island of Lolland in Denmark. The clean, renewable energy generated by the new parks' 180 turbines will be enough to power 400,000 homes. The wind parks will replace fossil fuel-based energy production, and thus reduce emissions of carbon dioxide, dust, nitrogen dioxide, and sulphur dioxide.

NIB has also financed the upgrade of hydropower plants in Sweden and Finland, including the replacement of turbines, generators and transformers. These investments will help to increase the output of renewable and emission-free energy. The increasing efficiency of existing hydropower plants will help to reduce reliance on fossil fuel-based electricity production.

A high-grade silicon plant in Norway for the photovoltaic industry has received a EUR 145 million loan. Modern technologies used in the production process consume significantly less energy than traditional methods, lowering production costs as well as emissions and effluents. This plant was also recently commissioned.

Do you have other focus areas within your environmental lending?

– We have also set up a lending facility called BASE, which stands for the Baltic Sea Environment Financing Facility. We have earmarked EUR 500 million for projects carried out within the framework of HELCOM (the Baltic Marine Environment Commission) Baltic Sea Action Plan. The purpose is to restore the ecological status of the Baltic Sea by 2021.

As part of this cooperation, NIB will jointly manage a new trust fund with the Nordic Environment Finance Corporation (NEFCO) aimed at improving the marine environment of the Baltic Sea. The fund will speed up the implementation of the Baltic Sea Action Plan by setting aside funds for institutional support and project preparation. ■

Research, the Key to Sustainable Energy Solutions

Interview with Anne Cathrine Gjærde, Director of Nordic Energy Research.

2010 will mark 25 years of Nordic cooperation in energy technology development through Nordic Energy Research.

NORDIC ENERGY RESEARCH

Why is energy research important in mitigating climate change?

– Energy is the lifeblood of our economies, but also the main contributor of Greenhouse Gas (GHG) emissions. If we are to solve the climate crisis, and at the same time sustain economic growth and security of energy supply, we need to develop and implement a wide range of clean energy technologies. Support for energy Research and Development (R&D) is critical in bringing these technologies from the laboratory to the market.

Is it not simply a matter of implementing the clean energy technologies we already have?

– There is no silver bullet to our energy challenges. Energy systems of the future will consist of a broad portfolio of different technologies, many of which are not yet mature. Greatly increased support for R&D is necessary to bring emerging clean energy technologies down the cost curve to be competitive with established fossil fuel-based technologies, and to bring about technological breakthroughs.

How can energy R&D be better supported?

– Energy technology development is a long process, and therefore requires public support. Public R&D support however often follows the oil prices. After the oil crises of the 1970s, public energy R&D funding was at an all-time high. Since then we have seen a significant drop in funding, signalling a lack of foresight from politicians. Recently however, we have again experienced a surge in funding for energy R&D, thanks in part to stimulus packages of the financial crisis. In my view this trend for greater support will be more resilient than before, as the cocktail of energy security, economic recovery and climate change demands long-term solutions. However the level today is still far below that of three decades ago.

How much more support is needed?

– Despite the recent upturn in funding, the IEA estimates that annual average investment in the low-carbon sector between now and 2030 must increase 4-fold relative to that of the recent stimulus packages. Increased public funding needs to be applied though long-term programmes fostering public-private cooperation, thereby stimulating private R&D investment and eventually the commercialisation of technologies. After all, it is industry that will take the technologies to market, and utilise the knowledge created in public universities and institutes. But just as importantly, international cooperation should play a central role in energy R&D, generating synergies and eliminating wasted effort in duplication of research. A new Nordic funding programme provides a prime example of this, the Top-level Research Initiative. It is the largest joint Nordic research and innovation programme to date, and focuses on climate, energy and environmental research.

Eco-efficient economies have been a key focus under the Swedish presidency of the EU. How can the Nordic region (and specifically Nordic Energy Research) contribute to achieving such a model?

– The eco-efficient economy concept encompasses a wide range of environmental technologies and policies. The Nordic region is home to many of these solutions, with each Nordic country having different, but complimentary, specialities: Denmark in wind energy, Norway in electric vehicles and Finland and Sweden in bioenergy, for example. But while there is significant innovation going on, our understanding of innovation systems leading to these solutions and the effect of policies in supporting them could be greatly improved. Nordic Energy Research has funded studies looking to map and measure Nordic energy innovation systems. These have been compiled in a recent report entitled "Nordic Energy Technologies: Enabling a Sustainable Nordic Energy Future". Another ongoing study looks to create a Nordic strategic energy technology scoreboard, providing policy-makers and investors with much greater insight into the level of energy innovation in specific clean energy technologies. With the better understanding of energy and environmental innovation that these studies provide, policies can be better directed towards achieving more eco-efficient economies.

"Smart Grids" have been heralded as a facilitating technology for the increases in intermittent renewable generation needed to mitigate climate change. How is the Nordic region contributing in this area?

– Increasing the share of intermittent renewable energy sources such as wind power will present challenges for the current grid. As will an increase in distributed small-scale generation feeding back to the grid. Smart grids encompass a range of solutions to better deal with the complex flows of electricity we expect in the future. Nordic Energy Research is presently involved in a range of smart grid projects. The positive Nordic experiences with the development of a Nordic energy market serve as an example to the EU on how to design international energy markets that both ensure energy market liquidity and security of supply in an energy system with a high share of intermittent renewable generation.

How would you describe the political support for action on the Nordic level?

– The Nordic Prime Ministers have a goal for the Nordic region to become a "Green Valley of Europe", meaning that the region should strive to become a test-bed for clean energy and environmental solutions. This is an ambitious goal, indicative of the positive political will for action on climate issues, and the recognition of the significant economic opportunities presented by the development of eco-efficient economies.

– The Nordic Council of Ministers recently presented their action plan for cooperation in the energy sector. Focusing on continuing work to harmonise the Nordic electricity market, funding of energy research, and establishing projects on greening the Nordic transport sector, the plan sets an ambitious course for Nordic energy cooperation in the years to come. Nordic Energy Research plays an important role in putting the action plan into life, and I look forward to working closely with officials, politicians and other stakeholders to find new and better ways to generate, transport and consume energy. International energy cooperation creates the ideal foundation for reaching our climate and energy goals as quickly and as cost-effectively as possible. ■

ANNE CATHRINE GJÆRDE

Director of Nordic Energy Research, a Nordic institution co-ordinating and funding energy research.

Photo: Terje Heiestad, Millimeterpress

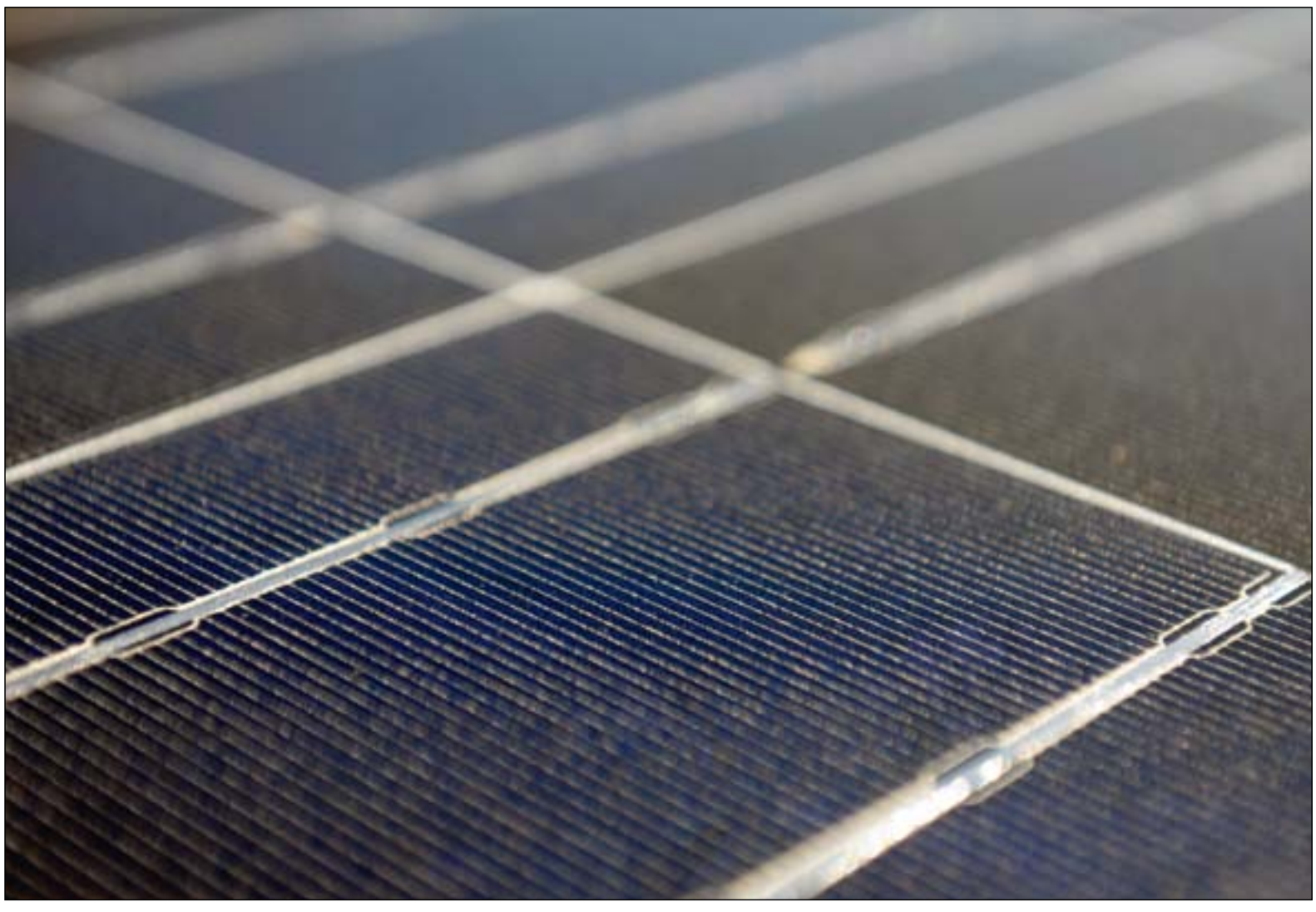


PHOTO JOHANNES JANSSON/NORDEN.ORG

Since 2006, the Nordic Innovation Centre has focused on environmental technology and sustainable use of resources. Efforts have been made to facilitate multidisciplinary Nordic cooperation in order to transform know-how and experience into products and services, and to commercialize these.

Clean, Clever & Competitive

NORDIC INNOVATION CENTER (NICe)

IVAR H. KRISTENSEN

Managing Director of the Nordic Innovation Centre. He says that there is a need for more networking and clustering in the climate, environment and energy sector at the Nordic level.

Photo: Caroline J. Roka.

Ivar H. Kristensen is the Managing Director of the Nordic Innovation Centre. He says that there is a need for more networking and clustering in the climate, environment and energy sector at the Nordic level.

– If the Nordic region is to increase its competitiveness even further, Nordic industries need to combine their experience and competences, says Kristensen.

How will such collaboration benefit the Nordic countries?

– We strongly believe that by increasing Nordic collaboration we will be better able to reach a wider audience, thus becoming a more effective and influential compliance partner globally. It will make us better able to showcase the Nordic region as a centre of innovation in the field of climate, environment and energy solutions.

Can you tell us about some projects that NICe has initiated recently?

– Today, we can see that the global market is looking for integrated environmental technology solutions, where technology and services create value chains and generate a competitive customized overall solution. Therefore, NICe financed the project "Nordic Environmental Technology Solutions" (NETS). This project brought together more than 600 Nordic companies operating within the environmental technology sector. The project has worked to enhance the visibility of the participating companies, increase access to regional and international markets and strengthen of Nordic cooperation. The project has produced two publications: Nordic Energy and Nordic Sludge Treatment, which provide a good overview of Nordic SME's and their products and also highlight examples of innovative technologies. This has now been followed by a second project: NETS II. The focus is still on commercialization through cooperation. The project will promote continuous co-operation with national export councils and industry federations. Nordic added value will be generated by cross-border and cross-sectoral synergies between clean tech networks, companies and service institutions promoting Nordic environmental technology, Kristiansen explains.

– A different, but very successful, recently completed project is NOWATECH, which stands for "Nordic Water Technology Verification Centres". Today, water technology is an emerging billion euro market. Verification of technology performance is an important element in promoting new environmental technology and thereby competitiveness. In the NOWATECH project, four Nordic test centres have developed standards for the verification of eight water treatment and monitoring products. Through this project, the Nordic countries have already become one of the frontrunners in implementing the EU's strategy for environmental technology verification.

Kristiansen says that in addition to projects within environmental technology, NICe also has ongoing projects within other sub-areas, such as transport, sustainable use of resources, and energy efficiency.

– The Nordic Innovation Centre is constantly in direct contact with a number of stakeholders to identify trends and needs within the Nordic environment and energy sector. At the moment, we are focusing on the four subareas described above. However, this does not exclude the emergence of new areas in the future.

In the future, who do you think will be the global winners in green business?

– The global winners will most probably be those who manage to organize their innovation work in such a way that they actually meet the challenges of users and communities, and rapidly produce practical solutions which can be implemented.

– This is especially critical for the Nordic countries, because the ability to create and be innovative will have a direct influence on the continuity of the Nordic welfare model. ■

PHOTO JOHANNES JANSSON/NORDEN.ORG

PHOTO PAULINE MILLS/STOCKPHOTO

The Nordic countries are focusing on climate research. Our countries have natural resources and knowledge many other regions do not have, and our proximity to the Arctic will have an impact on us now and in the future.
– In short, we have a responsibility to contribute to the climate research agenda, says Acting Director Elisabet Gustad of NordForsk, the Nordic research council that comes under the Nordic Council of Ministers.

Coping with Climate Change

NORDFORSK

In what ways does NordForsk contribute?

– First and foremost, NordForsk has played an important role in the development and implementation of the Top-level Research Initiative, which is the largest joint Nordic research and innovation venture to date. It was started by the Prime Ministers of the Nordic Countries in 2007 as their contribution to solving the global climate change challenges. The initiative consists of six sub-programmes. NordForsk has a specific responsibility for the two sub-programmes within advanced climate modelling to foresee future climate change, and within the study of effects of climate change on society. One example of such effects is how to cope with the increasing amounts of water we will see as a result of global warming, in the shape of the changes in sea level, but also surplus water on land.

Calls for proposals within the Top-level Research Initiative are being launched, and we are looking forward to seeing the results of the initiative in the years to come.

Prior to the Top-level Research Initiative, NordForsk launched a number of Nordic Centres of Excellence (NCoE) within the framework of global change. The main objective of an NCoE programme is to create added value through Nordic cooperation and further increase the scientific quality of Nordic research. These centres have enhanced the competitiveness of Nordic research and helped to give Nordic climate change research a leading position internationally. Their work has contributed to further development of international climate change models.

NordForsk is financing a number of Nordic research networks within a variety of topics related to climate change and the environment. Among these are human-induced environmental change and marine ecosystems and the human impact on marine underwater nature.

In what areas might we experience the effects of climate change?

– Much public and official attention is on higher temperatures and melting ice. However, we need to focus more on the consequences of these changes. Natural resources within Nordic production systems will be affected. Impacts of Climate Change in Nordic Primary Industries is a thematic research network programme developed by the Nordic Council of Ministers in collaboration with NordForsk. The programme deals with the management of natural resources in the Nordic region: fisheries, agriculture, forestry and food. Its conclusions will be used in the preparation of climate policy within the area.

What else does NordForsk do in the climate change policy area?

In addition to financing and coordinating Nordic research projects, NordForsk has a role to provide policy advice and contribute to Nordic policy development. For COP15 in December 2009, NordForsk will publish a comprehensive policy brief on Nordic climate change research. This policy brief will cover the following issues:

What are the climate change research priorities in the Nordic region?

How can Nordic researchers contribute to answering questions about how and why the climate is changing, what the consequences are, and how we can respond to these consequences?

How do Nordic researchers co-operate in international research projects within climate change?

How can they contribute to solving challenges in developing countries?

What are the important climate change research priorities in the years to come?

What do you see as NordForsk's future priorities within the climate change area?

– In line with priorities at the Nordic and national levels, NordForsk's priorities will include research on climate change and the environment. Bringing together top researchers and research institutions in the Nordic countries, building strong Nordic networks and involving innovation actors and industry are important steps in the right direction.

ELISABET GUSTAD

Elisabet Lillian Gustad, Acting Director, Nordforsk.

Photo: Terje Heiestad, Millimeter press

From the main secretariat in the heart of Tórshavn – the tiny capital of the Faroe Islands – the Executive Director of NORA, Mr. Lars Thostrup, explains why in recent years the climate, the environment and energy have increasingly become focal points in the activities of his organization:

North Atlantic Perspectives on Climate Change

NORDIC ATLANTIC COOPERATION (NORA)

Being situated in the North Atlantic, the NORA region plays a strategic role in the climate debate. Greenland in particular is the focus of heightened attention from researchers and the media in their efforts to document the effects of climate change. It is therefore natural for NORA to contribute to the international climate debate by offering the unique North Atlantic perspective.

What does NORA do to offer a North Atlantic perspective?

– In 2008, we took steps to contribute to the regional climate debate by co-organizing three climate-related conferences within our region, one each in the Faroe Islands, Greenland and Iceland.

– At the TransAtlantic Climate Conference in the Faroe Islands, more than 300 scientists, politicians and business people focused on the consequences of climate change for the North Atlantic maritime region. In Greenland another conference focused on the dilemma between the need to mitigate climate change and the desire to exploit oil and mineral deposits in order to contribute to regional economic development.

– And in Iceland, a NORA conference took up the issue of oil consumption within the transport and fisheries sectors of the North Atlantic region. Being so dependent on transport over long distances and with fishing as the dominant industry, the required cuts in the use of fossil fuels are indeed a challenge for our region. Transport and fisheries are still among the main causes of CO^2 emissions in the NORA region – and we have to do something about it, says Lars Thostrup.

There are so many climate conferences at the moment. What is the point in having another one?

– Well, I believe that it is crucial for our region to provide forums where particular North Atlantic aspects can be discussed in depth. The conferences NORA held in 2008 offered such forums – and thereby formed part of the regional preparations for COP15, says Lars Thostrup.

– However, at NORA we are not just doing the talking, but also the walking. The majority of NORA's budget is allocated for project activities, many of which focus on innovation at the company level. For some years, many of these projects have focused on the environment and energy – and in recent years also more specifically on the climate issue.

Are there any specific projects you would like to point out as especially successful in this regard?

– Let me mention the company Marorka, which originally started out as a NORA project. In short, back in 2002 NORA supported a collaborative project which led to the development of an IT solution for the optimization of ships' energy requirements. This solution – Maren, it's called – is today an important tool to reduce fuel consumption – and the emission of harmful greenhouse gases, says Lars Thostrup.

On the basis of this IT solution, the successful Icelandic company Marorka was established. It currently has 20 employees and subsidiaries in Norway and Denmark and plans to establish itself in Canada.

– Without doubt, this is an example of the right idea at the right time. The technology supplied by Marorka is now in demand more than ever. Rising fuel prices coupled with increased awareness and concern about emissions of harmful greenhouse gases have put tremendous pressure on the fishing and shipping industries to reduce their consumption of fuel and reduce emissions – and Marorka offers one solution to counter this pressure.

– In 2008, Marorka – and we at NORA as the funding agency that believed in the project idea – were pleased to learn that they had been awarded the Nordic Council's Nature and Environment Prize for their work on reducing greenhouse gas emissions in the maritime industry, says Lars Thostrup.

Doesn't NORA's project portfolio include other projects focusing on the climate, environment and energy?

– Yes. Most recently, a collaborative project with partners from Greenland and the Faroe Islands has started investigating the viability of utilizing solar heating systems to supply cheap and environmentally sound energy to peripheral coastal communities in the NORA region. Two of the partners in the project are the municipalities of Fuglafjørður in the Faroe Islands and Sisimiut in Greenland, and the project aims to explore the potential of establishing commercial production of a solar heating system in Greenland, explains Lars Thostrup.

How is NORA contributing to the international climate debate?

– NORA – or Nordic Atlantic Cooperation – covers Greenland, Iceland, the Faroe Islands and coastal Norway. Clearly, our region is an integrated part of the Nordic region, but given the harsh climate and a geography dominated by sparsely populated coastal communities, it is equally clearly a region with challenges that differ from other parts of the Nordic region. Therefore, we feel it is important that we contribute to the international climate debate by bringing across the North Atlantic perspective on climate change. To do this, we are launching a new book in conjunction with COP15.

– Our book is being edited in close cooperation with another Nordic institution, Nordregio. It will not just describe the challenges. The book will also dare to discuss the opportunities which a changing climate will bring to our region, promises Lars Thostrup – and mentions a couple of the positive aspects: higher temperatures will bring new opportunities for the agricultural sector in a region dominated by a harsh climate – and the opening of Northern sea routes could offer new economic opportunities within the regional transport sector. ■

DR JON AGUST THORSTEINSSON

Managing Director/CEO, Marorka. Marorka awarded the Nordic Council's Nature and Environment Prize in 2008 for their work on reducing greenhouse gas emissions in the maritime industry.

PHOTO FRÍÐRIK TRYGGVASON

The Nordic Genetic Resource Center (NordGen) secures biological livelihood for the present and the future by working for conservation and the sustainable use of genetic resources. This work has many environmental aspects. Conserving, and promoting the sustainable use of, genetic resources is an important part of our adaptation to ongoing climate change. The Nordic countries have been co-operating for more than 30 years on the conservation of genetic resources. Jessica Kathle, Director of NordGen, explains why.

Genetic Resources and the Environment

NORDIC GENETIC RESOURCE CENTER (NORDGEN)

PHOTO SIMON JEPPSON / SVEIN SOLBERG

We are constantly facing challenges in the form of new demands regarding the properties of plants, forest trees and animals (including fish). These demands can for instance be in the form of changes in quality standards, adaptations to climate change, production methods that are less of a burden for the environment, improved food production for the third world, new medical treatments, new energy sources, as well as other so far unknown needs and preferences.

To meet these challenges it is necessary to have access to a broad basis of genetic variation both between and within species. If a species or a subspecies or variety is lost, it is lost forever.

The Svalbard Global Seed Vault:

Blue Peas

JESSICA KATHLE

Director of NordGen, The Nordic Genetic Resource Center.

Why consider environmental issues when working with genetic resources?

– Conservation and the use of genetic resources are closely connected to many environmental issues. We have always had a sustainable focus upon our activities, but only in January 2009 were we given an extended and formal mandate to pay special attention to the environmental aspects of conservation and the sustainable use of genetic resources. In order to make the most of this mandate, we have established a new position of environmental coordinator. We are also in the process of establishing a special environmental coordination group made up of representatives from the departments of environment and agriculture in the Nordic countries and run by our environmental coordinator.

One important reason for linking work on genetic resources to a commitment to the environment is that genetic resources do not just exist in the form of cultivated plants and farm animals, but to an even greater degree in the form of wild species. It is important that these species continue to evolve in their natural environment in order for new properties and adaptations to emerge. It is therefore also necessary to preserve their environment. To some extent, the demands placed on the conservation of genetic resources are even greater than those on traditional nature conservation, which tends to concentrate on the species level. For us, genetic diversity within species is also important. It is therefore not always enough that the species merely survives. We also often need to protect genetically distinct populations within a species. Working to conserve the wild relatives of our cultivated species in their natural environment is therefore one of our priorities.

So what are you doing?

– In order to promote and improve the conservation of genetic resources in the natural world. we will be holding international conferences and workshops on the subject. The first one will be in Sweden on 1 December 2009.

Climate change will cause many different problems. One of the most important will be in the form of changing conditions in agriculture. As the climate changes we will not be able to grow the same crops as before in the same ways or in the same places as we used to. In order to adapt to these changes, it is necessary to have a broad basis of genetic diversity from which we can select new crops or crops that we can cross-fertilize with our present crops.

A clever use of genetic resources might in fact also help us to prevent some of the buildup of greenhouse gases in the atmosphere. We could for instance search out species and varieties that need a lower input of fossil fuels in the form of intensive management and industrial fertilizers. We could also use genetic diversity to look for more efficient biofuels, and for trees and other plants that are more effective in sequestrating CO^2 and storing carbon.

How are you making your activities visible?

– NordGen has made several public appearances where we have told about the challenges the changing climate poses for our food security and the importance of wide genetic diversity for coping with the problems. Another example is that we were an adviser to the Red Cross exhibition on climate change that opened in October. Participating in the arrangements around COP15 will allow us to reach out to new partners and at the same time we have an opportunity to communicate our activities and commitments.

What is the significance of your responsibility for managing the operations of the Svalbard Global Seed Vault?

– With the Svalbard Global Seed Vault (SGSV) we are protecting an irreplaceable resource. SGSV serves as the ultimate safety net for one of the world's most important natural resources. Seed collections are vulnerable to a wide range of threats, including natural disasters and climate change. By securing duplicates of these collections, SGSV provides an insurance policy for the world's food supply. The scientific and budget responsibility are regulated in a tri-party agreement between the Norwegian Government, the Global Crop Diversity Trust and NordGen, where we have the operative responsibility for the seed vault. We are proud to be part of this work.

Towards a Green Future – A Territorial Approach

NORDIC CENTER FOR SPATIAL DEVELOPMENT (NORDREGIO)

– Primarily, our approach to climate change is to focus on territory. Climate change will impact European regions in very different ways. For example, southern Europe is more likely to be exposed to greater droughts and heat waves in the summer, while northern Europe will be faced with an influx of invasive species, but it could also see more rapid growth of vegetation and a more pleasant climate. We ask questions, do research and provide proposals on how an individual region or local society can adapt to the future situation, as well as how mitigation can be achieved. Adaptation and mitigation both need to be considered, summarizes Ole Damsgaard, the Director of Nordregio.

– Our starting point is the public interest, in general, as well as the challenges of politicians and planners. All are very interested and engaged in the debate about what to do, what our specific possibilities and challenges are, and how we all can contribute to a better climate future, he underlines.

– Let me provide a very recent example; on the 26th of September, 2009, a project called Worldwide Views (WWViews) of Global Warming provided citizens around the world, for the first time ever with the opportunity to discuss and communicate their own opinions and experiences of climate change and global warming.

In Sweden, Nordregio was the WWViews partner, working together with the municipality of Borlänge, which enthusiastically supported the concept. In fact, this was quite a big event, and is the biggest single consultation ever conducted on climate change. On the same day as people met in Borlänge, similar arrangements took place in no less than fifty other countries around the world. In each country, whether rich or poor, the setting was the same; one hundred citizens from all walks of life congregated in one place to contribute their views on the urgency of change and how to go forward. The next step for the WWViews project is that all of these contributions from around the world will be forwarded to the Copenhagen United Nations Climate Change Conference (COP15), in December.

– We definitely think the arrangement was a success. It got a lot of attention in the media and provided important inputs to our own work, underlines Ole Damsgaard.

Nordregio's entry into the climate field really took off when it organized the ground-breaking Nordic Conference "Planning for Climate Change," held in Helsinki in September 2007. Soon afterwards, Nordregio conducted a project to survey all 290 municipalities in Sweden with respect to the level and type of response they had to climate change.

– Another example is how adaptation and mitigation can be concretely integrated into the planning process. Here, we produced a handbook, "Climate Change Emergencies and European Municipalities," which presents guidelines for planning adaptation and communicating its implementation in the face of unexpected events. The handbook was developed in co-operation with research institutes and municipalities in Denmark, Finland, Germany, Italy, Lithuania and Sweden. It was the result of a project financed by the European Union. The guidelines have been translated into the respective languages of each of the participating countries and have become very popular.

– A third example is that Nordregio has also contributed to the development of territorial policies for so-called sparsely populated areas, including northern Finland, Norway, Sweden, Greenland and Iceland. The melting of the Greenland icecap is creating huge hydro-electric potential, which again makes the country interesting for power-intensive industries such as aluminium production. In this context, the Greenland Home Rule Administration has engaged Nordregio to study how this type of industrialization can change the social fabric of the country.

– Finally, we have also studied the regional potentials of Nordic bio-energy production. At present, we are examining the likelihood of regional fuel poverty. Also, we have developed specific recommendations for cities which are incorporating climate change adaptation and mitigation into their planning processes.

– Added to that, our own quarterly magazine, The Journal of Nordregio, has published a number of articles highlighting specific Nordic aspects of climate change, says Ole Damsgaard.

PHOTO JOHANNES JANSSON RDDEN.ORG

About Nordregio

Nordregio – the Nordic Centre for Spatial Development – is an international research institute with a comparative focus. The institute was established by the Nordic Council of Ministers in 1997.

Above all Nordregio undertakes strategic research and competence development with a view to producing useful knowledge-based foundations for decision-makers at the international, national and regional levels.

Regional development, urban and rural policy, demography, governance and gender, innovation and knowledge, global climate change and local adaptation plus international energy policy are the institute's major areas of interest.

Geographically, Nordregio focuses on the Nordic countries, the Baltic Sea Region, the Arctic and the European space, more generally.

Nordregio undertakes a great variety of projects running in parallel – usually 50 or more different commitments at any one time. Most often these are implemented in cooperation with other research institutes or partners.

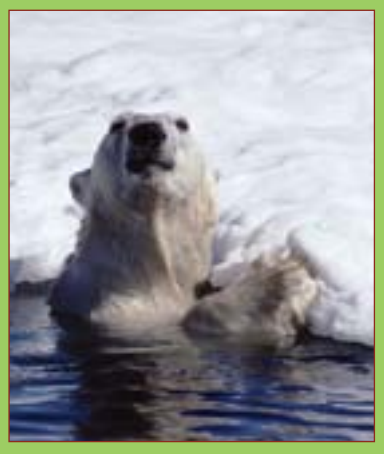
Nordregio continuously maintains and develops its database, which holds the most comprehensive overview of population, demography, the economy, labour, migration, regional, rural and urban structures plus the environment and energy in the Nordic countries. The Arctic and the Baltic Sea Region are also included.

The Nordregio database service provides an extensive suite of maps.

The institute publishes the Journal of Nordregio, the European Journal of Spatial Development (EJSD) as well as several working papers, books and reports. The Nordregio Academy offers user-orientated seminars, study tours, courses and workshops.

The institute currently has a research staff of 25 persons representing 11 different countries and speaking 13 different languages.

TOWARDS A GREEN FUTURE



The Nordic countries have a strong climate profile, either in terms of using technology to harness renewable forms of energy, promoting sustainable transportation or climate change research. The climate tops the agenda in each Nordic country individually, but also jointly, within the framework of the Nordic Council of Ministers (NCM). An ambitious Nordic globalisation process, consisting of concrete actions, was launched by the Nordic Prime Ministers in 2007. Many of these actions focus on climate and energy issues.

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