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Nordic cooperation and an open European Research Area: lessons for international cooperation in Science and Technology

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for international co-operation in Science and Technology**

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Introduction

Background

As a part of the Ljubljana process¹ to further develop the European Research Area (ERA)², several dedicated initiatives have been taken, among them the development of a "Strategic Framework for International Science and Technology Cooperation"³. A core element in this strategic framework is to engage Member States in joint activities *vis à vis* third countries. It raises a challenging agenda for establishing such partnerships, often in a system of variable geometry.

To help develop and implement this agenda, there is a need to learn from regions or areas where such cooperation to some extent has been used. The CREST OMC process, with a working group on international S&T cooperation, is aimed at bringing together Member and Associated States in a process for learning and exchange. During a period of two years (two phases), the working group has organised studies and discussed a wide range of issues relating to the widening of ERA and internationalisation of S&T. Of the Nordic countries Finland and Sweden were most active in the first phase. Norway took fully part in the recent phase of the OMC process, while Denmark and Iceland also made contributions. An extension to the wider Nordic landscape was deemed as fruitful in this latter phase, so that a more systematic reflection of the Nordic experience could be possible.

The Nordic region has for decades been involved in regional cooperation, including in S&T. The region has over time developed institutions and programmes that offer valuable lessons for the wider European area. The region has developed a range of strategies and instruments such as

- ▶ Joint programme activities, also with third countries;
- ▶ The Noria net activity, similar to ERA-Nets
- ▶ Development of the Top Researcher Programme;
- ▶ Addressing the Nordic Neighbours (e.g. Russia) in S&T;
- ▶ Coordination of resources/activities in institutions such as NordForsk

As the ERA changes, this will have implications for the Nordic cooperation. Nordic actors find themselves in a situation where the Nordic system of cooperation may have to adapt: What will be the future of Nordic cooperation, and how will it link to and be integrated in the development of ERA? In order to consider how an extended ERA might impact on Nordic cooperation, a dialogue process was established where also representatives from the Commission as well as the CREST OMC group could learn from the Nordic development.

¹ Initiated in Ljubljana in May 2008 to bring forward the European Research Area based on the consultation process after the ERA Green Paper.

² In 2000, the EU decided to create the European Research Area (ERA) as a unified area for research and development.

³ COM(2008)558

This report draws together the main material presented as well as the discussions, and provides an outlook and summary of the implications for international cooperation in S&T as well as for the Nordic cooperation in light of this development.

Objectives

A joint process was initiated with the aim to draw lessons from the Nordic development in the context of ERA, and in particular as an additional source of learning for the CREST OMC working group. Two meetings were held during the fall of 2008, the first meeting covering broader scoping of the Nordic region's activities in S&T cooperation, and the second a deeper discussion of selected initiatives. The programmes of these two meetings are annexed to this report.

These discussions focussed on cooperation in S&T at different levels of integration/cooperation, the key ones being in the light of **third country cooperation** issues such as

- ▶ General developments in strategies and policies, including indicators
- ▶ Mechanisms for consensus building
- ▶ Mutual opening of programmes and reciprocity
- ▶ Joint programmes
- ▶ Joint institutions

The objectives were to exchange experiences from joint activities and partnerships *vis à vis* third countries and draw lessons from key activities. The Nordic countries may enhance their understanding of the future of Nordic cooperation *vis à vis* third countries in the context of the new EU strategic framework for international S&T cooperation, while the Commission and Member States may learn from an extended sample of country lessons that may be valuable in the further implementation of the European Strategic Framework for International S&T Cooperation.

Nordic cooperation in research

General institutional background

Nordic cooperation in R&D is part of a broader, long standing cooperation in the Nordic area. This area consists of Sweden, Denmark, Norway, Iceland, Finland, as well as the autonomous regions the Faroes Greenland and Aaland. The institutional set-up goes back to 1952 with the establishment of the Nordic Council, 87 elected members of the member countries' respective parliaments. In 1971, the Nordic Council of Ministers was set up, serving as the main institution for inter-governmental cooperation. Similar to the EU set-up, this council consists of several councils of ministers related to specific policy areas. The Nordic Council represents a broad political and institutional cooperation, including on the administrative level across sectors such as energy and labour market integration (the Nordic area has e.g. had a integrated labour market since long before the emergence of the same through the EU's internal market).

Nordic cooperation in R&D works through two channels, here referred to as the generic and the dedicated. The generic channel is the most comprehensive, comprising ongoing cooperative relationships between Nordic institutions and governmental agencies. Examples are the Nordic University Association⁴ and NORHORCs⁵. The dedicated channel comprises the institutional setup and cooperation under the Nordic Council of Ministers, which is the subject of the current report (and the exchange and learning processes on which it is built).

R&D cooperation is described under the concept of NORIA, the Nordic Research and Innovation Area, with the two pillars of research and innovation. The cooperation is comprehensive, although in financial terms on the Nordic level relatively modest, and involves Nordic research funding institutions, fixed-term research programmes, Nordic Centres of Excellence (NCoE, a programme to top up national centres), grant schemes and the coordination and planning of major infrastructure investments. The overall objective is to promote research and innovation of relevance and the highest possible international quality. The cooperation adds up to some € 35 million per year, distributed across the initiatives described below. There is additional participant funding, e.g. in industrial innovation projects.

The main components of NORIA today consist of three institutions colocated in Oslo:

- ▶ *NordForsk* was established in 2005 (based on the earlier Nordic Academy of Advanced Studies and the Nordic Science Policy council) with the aim to fund research cooperation, coordinate research in the Nordic area, and give policy advice to the Nordic governance bodies. The funds available are directed to cover coordination costs, while research activities themselves are mostly expected to come from national or other sources. The main instrument funded is the Nordic Centres of Excellence programme, consisting currently of seven centres in specific scientific areas to generate high quality and critical mass on the Nordic level (see below). Further, NordForsk also funds annual grants (9500 Nordic researchers participated in this scheme in 2007), research mobility as well as joint use of research infrastructures. The coordination and policy advice activities are specifically focused through the NORIA-net programme being launched in 2007. It builds upon the idea of ERA-net, and aims at stimulating the practical coordination in the Nordic area, leading ultimately to opening of research programmes and joint programmes. Other activities being funded in this context are conferences, analytical work and policy briefs as well as communication instruments. The NordForsk budget was for 2007 ca € 17.5 millions, mostly from the ordinary budget of the Nordic Council of Ministers.
- ▶ *Nordic Innovation Centre (NIC)* was built upon the earlier Nordic Industrial Fund. NIC belongs to a different set of governmental ministries and hence policy area, as it is linked to ministries of trade and industry. Within the development of NORIA since the white paper was launched, a key idea has been to create a better interface between the research and innovation components of the wider innovation system. However, NIC is still separated from NordForsk, and the overall system still suffers from a lack of appropriate governance processes between the two pillars. The budget for 2007 was ca € 13.75 millions, most of which came from the Nordic Council of Ministers.

⁴ NUA

⁵ Cooperative arena where the directors of the Nordic research funding institutions meet.

- *The Nordic Energy Research Cooperation:* Cooperation in this field goes back to 1985. The common energy research in energy currently operates through a real common pot with a budget of NOK 31 millions (2007), or less than € 4 millions. Contrary to the two-pillar concept of Nordforsk and NICE, Nordic Energy Research has an integrated research and innovation approach, where priorities are closely aligned with national energy research programmes defined by the needs of the energy sector. Funding comes from key national energy research funding agencies such as the Norwegian Petroleum and Energy Ministry, the Danish Energy Agency, the Icelandic Energy Agency, TEKES and the Swedish Energy Agency. This implies that research prioritisation at both national and also Nordic level reflects the societal needs of developing a sustainable, affordable and clean energy future. Due to the diversity of the national energy systems and hence also the national research priorities and relatively scarce funding, 4-year programmes have been made since the very beginning in 1986. Proper strategic research programmes based on broad public, academic and industrial consultation was made from 2003 and onwards (2003-2006, 2007-2010 and we are now preparing a foresight based strategy for 2011-2014). Nordic Energy Research participates in several ERA-NETs.

Within the Nordic structure, these three institutions have different governance structures and are differently linked to principal institutions or ministries. NIC is governed by a board with representatives that have been nominated on a personal basis, thus not representing any principal. Nordic Energy Research is governed by national energy authorities and board members are nominated by these. NordForsk is governed by a board with members nominated by the national research councils (5), Nordic universities (3) and industry (1).

Selected research programmes

Nordic cooperation research involves a number of joint programmes that have partly been established through bottom-up processes. The management practice of these programmes, often aimed at opening national programmes or being long lasting activities of joint efforts (even with "common pots" as funding systems), represent a variety of sources for learning for future European development of collaborative solutions with and between Member States. Examples are:

- *NOVA – the Nordic Forestry, Veterinary and Agricultural University Network:* The network is aimed at develop tools for cooperation in selected scientific areas, enhance quality of research and otherwise help strengthen links to industry and other partners.
- *The Nordic Research and Education Area in Agriculture and Forestry:* It builds upon NOVA and represents a deepening of cooperation with a focus on opening programmes and reduce national duplication of efforts. However, the initiative did not get much attention in the White Book on NORIA.
- *The Nordic Centres of Excellence:* These were initiated in 2002 and consist now of 16 such centres. NordForsk facilitates the funding of five years programmes with a small amount of money (common pot) on top on the research centres ordinary funding. The centres are selected by open competition. The centres are not dedicated institutional structures, but national centres that have received through competitive processes Nordic funding. The inventive funding scheme of this programme is such that the centres having received such funding represent NOK 1.2 billion in total national funding. The Nordic additional funding qualifies for further national funding (at a ration of 1 : 3 relationship), bringing the top-up funding to in this case NOK 170 millions. Hence, the added value

demonstrated through the Nordic funding serves as the basis for adding more value nationally to the Nordic cooperation.

- *Nordic Cancer Union*: This is a Nordic arrangement using a genuine common pot for funding, with a budget of some € 1 million per year. The funding sources are the national cancer research organisations.

The Nordic cooperation further involves a number of dedicated Nordic institutions, such as the Nordic Institute of Asian Studies, the Nordic Institute of Theoretical Physics and the Nordic Saami Institute. Such institutes are funded directly out of the Nordic Council's budget. Currently, these and other activities are governed through the Nordic Science Policy Council which promoted collaboration in research and research training, the Nordic Academy for Advanced Study to improve the quality of research in the Nordic Area, in 2005 to be merged into NordForsk, and the Nordic Advisory Committee on Higher Education, promoting collaboration in higher education in the Nordic area.

The Nordic cooperation is focused on adding value. The most explicit joint solution in this context is NordForsk, with the mandate of match making and identifying joint priorities, as well as fostering cooperation with third countries. It may also more easily take part in global research infrastructures. In the field of energy research, Nordic Energy Research is an internationally acknowledged transnational energy cooperation institution. It is the Nordic representative in the International Energy Agency R&D prioritization and evaluation working group together with e.g. EU Commission (SET-plan secretariat).

The first meeting: Scoping the Nordic cooperation

The meeting brought together representatives from the Nordic and Baltic countries as well as the EC institutions, with an attempt to exchange views and lessons on how the Nordic cooperation in S&T works in the context of more widespread international cooperation. A particular point of departure for discussion was the recently adopted "Strategic European Framework for International Science and Technology Cooperation", giving the EC and the Member States a joint framework in which to expand and widen the ERA towards 3rd countries.

Key issues

Process and policy

a) Presentations were made on several strategies about international cooperation on different levels from top political agenda to institutional strategies. Very few of these seem to outline or take into account grand societal challenges. Grand societal challenges are taken into account in national research programmes, but they are not in all cases internationally oriented. However, all national research programmes, for example in the case of the Academy of Finland, will be internationalized in the near future (AKA International strategy/2007).

There seems to be similarities between national, Nordic and EU definition of policies. They share many of the same elements, such as integration, gradual interest in opening up national programmes, and increasing joint activities. The need to prioritize is evident, as relevance, selectiveness and focus on key partner countries is necessary to ensure a critical mass in resource deployment and coherence of policies and approaches.

b) Besides similarities, differences between Nordic countries were also highlighted: different neighbours, cultures etc. But there is also a lot of common ground and mutual trust, which results from long-standing cooperation and connections. This helps reduce transaction costs and uncertainty in the interaction between the partners, highlighted by issues such as:

- ▶ fragmentation in European funding
- ▶ need to concentrate, prioritize and select. One cannot cooperate with everyone on everything.
- ▶ need to set common agendas and fit this with competition on market niches? competition vs. cooperation can also be seen as positive tension.
- ▶ lack of knowledge on different national and regional strategies and activities: how to assure common ownership?

c) A key question emerging from the discussions is how to establish mechanisms through which to select, and thereby define, options for variable geometry? This becomes evident through the relationship between cooperation and competition in which all countries play out their internationalisation strategies. Some of this relates to instruments (see below), but other issues relating to this are:

- ▶ Domestic specialization of S&T resources
- ▶ A possible involvement of the private sector
- ▶ Joint engagement to solve common problems and challenges, such as the need for developing a sustainable, affordable and clean energy system and climate change
- ▶ A need for a centre of gravity through which disagreements can be reduced and consensus more easily be achieved
- ▶ A set of incentives for the players to engage in joint activities

It is obvious that all Nordic countries measure the added value of international cooperation in terms of national, Nordic, European and global perspectives. Nordic countries are aware of the obstacles to joint activities, which is why activities are carried out on the level most suitable for each objective. There is a practical approach to cooperation in the Nordic countries (easy, flexible and down-to-earth) to ensure this.

Instruments

d) While most countries, at least small Nordic ones, have highly overlapping priorities when it comes to partner countries, there is more diversity concerning instruments in play. The countries differ also when it comes to the degree to which their national programmes have been opened up for foreign participation. But the Nordic cooperation has evolved to achieve a high degree of institutional solutions. Three solutions are particularly worthy of attention in this context:

- ▶ The Centre of Excellence programme
- ▶ Nordic Energy Research's longer and short term research instruments (capacity building projects, integrated projects and innovation projects)
- ▶ The Top Research Initiative

Such institutionalized programmes tend to help build up lasting partnerships and positive sum impacts for all involved, while they also allow more for common pot solutions and avoiding *juste retour*.

e) The various nationally based programmes or instruments have simple criteria for participation and assessment, the easier it is to open them to more joint activities. This is especially the case for co-funding schemes. Several other questions were raised related to the issue of instruments:

- ▶ There is a multitude of national, Nordic and EU instruments for international research cooperation
- ▶ Are the ones that exist sufficient or are new, instruments needed? What are interfaces between the existing instruments?
- ▶ There are practical issues (legislative etc.), which hinder cooperation (common pot etc.)
- ▶ How to involve third country partners?
- ▶ IPR matters and how these are handled with third countries?

Issues for further exploration

f) The fundamental question of why we need international cooperation in S&T has to be the driving force in creating effective configurations for partnerships. The issue of scientific excellence does not suffice, and there is a need for more top-down clarification of policy issues to drive the cooperation.

- ▶ Why do we need international cooperation? This could be related to tackling global problems, to spread European research values (peer review, ethics...), to access markets, to learn different approaches
- ▶ Bilateral S&T cooperation agreements: what are the criteria? How could they assume the role of vehicles for international cooperation?
- ▶ Approaches to international R&D cooperation seem to vary according research areas. Some areas more top down, some bottom up. Are these useful entry points to effective cooperation?

g) The discussion highlighted several important points that should serve as building blocks for future development of international cooperation in S&T:

- ▶ Flexibility, adaptability, selectiveness, prioritization are stressed.
- ▶ Pure bottom-up schemes with third countries are difficult. There is a need for strategic view and prioritization.
- ▶ Clearer interplay is needed between different networks working on same issues.
- ▶ Small countries can be test beds for different forms of cooperation for big third countries.

Summary

There are clear similarities between the Nordic and the wider EU policy developments. In fact, the Nordic development takes place often as an adaptation to the EU, while also being a frontrunner in

many cases. The Nordic initiatives are characterized by several of the elements now being promoted in the EU S&T policy, such as joint programmes and joint or coordinated initiatives *vis à vis* 3rd countries.

- ▶ Exploring the issues highlighted above, certain cases were seen as promising for further discussion:
- ▶ The Top Research Initiative, a recently developed programme with clear global ambitions
- ▶ The evolving Nordic Cooperation with Russia, and
- ▶ The NORIA-Net project on cooperation with Asia.

The second meeting: Exploring key cases

The above conclusions paved the way for a closer scrutiny of the three initiatives in the second meeting. What follows is a condensed presentation of the various initiatives including the main issues that were discussed.

A recent development in research cooperation: the Top Research Initiative

General information

To reinforce the implementation on NORIA, a step was recently taken to formulate a strategic, collaborative programme with a view to strengthen the NORIA, build critical mass, and enhance the attractiveness of the Nordic region as a research area. The programme, "Fraan Norden till Jorden" (From the Nordic to the Earth) was proposed in March 2008, and named the "Top Research Initiative" (TFI). This is an ambitious proposal focusing on key issues at the interface between climate change, environment and energy.

The current discussion on the "Top Research Initiative" has revealed a certain scepticism concerning the initially proposed size, ambition and the funding base, and the proposal already included an annex consisting of a "test programme" with basically the same focus, but significantly scaled down and being more of a Nordic effort as such. Hence, the current programme decided on 28 October 2008 is focused on the integrated topics of climate, energy and environment, with a budget of € 50 mill over the period 2009-2013.

The funds have been foreseen from four sources:

- ▶ Nordic Council of Ministers (Education and Research)
- ▶ Nordic institutions (NordForsk, NIC, and Nordic Energy Research)
- ▶ National programmes
- ▶ Partner contributions, e.g from industry

Objectives and contents

The objectives of the programme are 5-fold. It should

- ▶ be a cornerstone in Nordic cooperation in research and innovation in climate, energy and environment

- ▶ be a cross-institutional Nordic research and innovation programme with a wide range of instruments
- ▶ create good conditions for top Nordic researchers and innovation actors to cooperate at highest international standards
- ▶ contribute to increased coordination of national research and innovation activities to achieve critical mass
- ▶ act as a platform for cooperation within EU and for wider international cooperation.

These objectives should be reached by focused on key topics:

- ▶ effect studies and adjustment to climate changes
- ▶ climate changes interaction with ice, snow and glaciers
- ▶ nanotechnology and energy efficiency
- ▶ integration of wind power on a large scale
- ▶ sustainable bio-energy
- ▶ elimination and storage of carbon dioxide

Negotiating the initiative: elements of the political process

The Top Research Initiative came as a part of a broader response among the Nordic governments to the increasing globalization. A reinforced approach to globalization was seen as necessary, and the Nordic region would gain in attractiveness with deeper investments in science and technology. This approach became evident in the Nordic Prime Ministers meeting in June 2007, where a knowledge-based approach to a Nordic Globalisation Initiative was taken, consisting of elements such as the Top Research Initiative, coordination of research and innovation programmes, cooperation in higher education, and Nordic innovation offices in Asia. Further, visibility was seen as important, giving the Nordic region a higher profile outside Europe.

The June meeting resulted in an agreement on "A new phase for Nordic partnership in particular on globalization. Synergy benefits with work carried out at the European and regional level". At the end of 2007 a programme group was set up with representatives from the three Nordic research funding institutions. In addition, a steering group was set up with representatives from national research and innovation councils to ensure consolidation on the national level.

The final decision in October 2008 contained key elements for implementation: Firstly, a programme board with three representatives from each of the Nordic countries will be set up. The three Nordic institutions will form the secretariat. Secondly, the programme board will set up three or more programme committees for the different areas with representatives from the public as well as from the private sector. Thirdly, the programme as such was left "underspecified" and flexible, with many aspects of the implementation such as instruments, involvement of industry and the relation to EU being left open. Hence, the initiative combined existing formal structures with informal and flexible links and structures.

Lessons for governance

The process of developing the Top Research Initiative contains several lessons and issues for consideration. In fact some lessons can only be derived with the particular Nordic context as a reference point. The main lessons seem to be:

i. Use existing institutions and structures

The development time took only 16 months from the first idea was launched to the proposal was approved. Hence, the programme and steering groups worked under very tight pressure during most of this time. It is hardly conceivable that this would have been possible without exploiting existing institutions and structures.

ii. Aim for a heterogeneous representation in steering groups

The steering group, with representatives from the national funding agencies, had different "types" of membership, and the interface with their respective ministries was not synchronized. The institutions typically have different mandates and tasks, and thus different agendas. Hence the different linkages with different ministries created a significant degree of complexity in the governance process.

iii. Top-down and bottom-up are important

It is important to combine a top-down with a bottom-up approach. On the one hand, political commitment is important, and the Nordic Council of Ministers, with its agenda on globalization, provided momentum and facilitation to the process. The bottom-up process, using the existing institutions and networks provided a useful and effective "ecology".

iv. Develop trust

This ecology is similar to a community which is effective through a high level of trust. Hence, as the governance structure was not adapted to the task at hand, there was still a high level of joint understanding, informal representation and commitment that allowed the process to gain momentum.

v. Link national and European actors

The link foreseen with the EU system is key, as it is important that the Nordic initiatives are globalised through interacting with the EU programmes and policies.

The foreseen link to EU initiatives is also an indicator of the relevance of the Top Research Initiative for the ERA development. The Nordic initiative makes a contribution to ERA through making it less "compartementalised" and ensures coordination of national programmes. It also has more similarities with article 169 than ERA NETs, as it is a joint implementation and not a single call. Moreover, it uses existing research and legal structures rather than creating new ones as for the article 169. The Top Research Initiative fits well with the Joint Programming as a key ERA initiative, while aiming at going global and hence has a clear international ambition beyond the Nordic region.

An important but unresolved aspect of the initiative is the participation of industry. The private sector has not been part of the start-up process, but this is intended to be resolved in the next phase. However, the importance of industrial or private sector participation is crucial for the overall success and relevance of the initiative, especially for the technology components of the

programme. The involvement of industry could influence the agenda of cooperation, and hence would make the cooperation more effective with greater impact.

Contrary to for example, the EU Framework Programme, the TFI resembles more closely a framework that is still evolving and not a programme ready to be implemented. It will be further developed and negotiated, and is an example of an evolving governance where the programme itself is still underspecified. This will take place through the involvement of e.g. the research councils, illustrating the point that the Nordic cooperation is a dynamic interrelationship between the Nordic dedicated system and the national institutions.

Nordic cooperation with Russia

Introduction

The Nordic region has recently engaged more actively with cooperation with Russia in the field of research and innovation. Talks with Russian partners in this area started some two years ago, and preparatory actions were rapidly put in place: Russian researchers were invited to Nordic research centres covered by the Centres of Excellence programme, thus creating an interface of cooperation along priorities already set up by the Nordic institutions.

Future cooperation with Russia will be aligned with EU developments. Therefore the cooperation in research and innovation is guided by flexible but robust policy frameworks. Further, there is in this case a clear division of labour between the Nordic system and the individual Nordic countries and national governments: While the national governments have the usual responsibility to interact with Russia on a national level, the Nordic cooperation with Russia is a *regional* one and is limited to *North-West Russia*.

The cooperation with North-West Russia on the Nordic level is seen as a long term investment. It is linked to the long term interest in engaging with the Russian science system and interacts with the best of that system in key areas for the Nordic Region.

Policy frameworks for cooperation with (North-West) Russia

A core part of the framework for cooperation with North-West Russia in research and innovation is laid down in guidelines framing the overall cooperation. The Nordic Council of Ministers have been developing cooperation with North-West Russia since 1995. The main focus has been linked to three areas seen as key to the strategic interests of the Nordic countries: Democratic societal development, open pluralist cross-border relations, and the promotion of conditions for economic cooperation and trade. The guidelines were adopted by the Ministers for Nordic cooperation in November 2008.

The regional aspect of the cooperation is important, in that developments in Russia as a whole may affect the stability and security in the region, and constructive partnership within a regional cooperation may also ensure joint activities in protecting and developing areas such as marine resources.

The regional aspect also includes an extension beyond the Nordic-Russian axis. It is closely linked to EU's policies for cooperation with Russia, as well as EU's Baltic Sea Strategy. Hence, the three Baltic countries in particular, but also other Baltic nations such as Poland and Germany are affected and included.

Another set of framework stems from the development in the Nordic research system itself. Three core elements make up this framework:

- ▶ The Nordic Top Research Initiative that has recently been developed (see above)
- ▶ NORIA (the Nordic Research and Innovation Area)
- ▶ The plan for further higher education in the Nordic region.

This means that future cooperation with North-West Russia will be implemented through the instruments made available from these policies.

Developing the cooperation

The cooperation with North-West Russia in research and innovation is just evolving, and the current political climate (especially after the Russian-Georgian conflict) has some uncertain aspects. Hence, the development reflects this uncertainty. However, the EU has recently opened up for negotiations for Russian association to the Framework Programme, and this creates a useful backing for the Nordic initiative.

The current development of the cooperation builds upon some core elements:

- ▶ Eventual funding will have to come from national funding agencies or directly from the institutional level
- ▶ One important practical step is to find and engage with an entity on the Russian side that will be able to take responsibility
- ▶ Access to Nordic Centres of Excellence for Russian researchers is promoted, and this in turn promotes a process of prioritization on the Russian side in line with the Nordic as the centres are specialized
- ▶ The cooperation is being built upon the Baltic Sea Charter with a focus on knowledge infrastructures for the "5th Freedom". This helps expand the cooperation with North-West Russia to a wider regional cooperation.
- ▶ The Nordic cooperation with Russia is small, which is also typical for Nordic cooperation in general. There could be large funding from the Russian side, but this would go beyond the Nordic "modus operandi" and require far greater participation directly from the Nordic countries.

The Asia NORIA-Net

Introduction

As already mentioned earlier in this report, the Nordic cooperation in research and innovation entered a new stage with the formalization of NORIA, the Nordic Research and Innovation Area. This move also embraces the idea of a better coordination between the Nordic level and the national level in funding research. This becomes visible with the instrument launched for this purpose, the NORIA-Nets, which are comparable to the ERA-Nets in the way they attempt to put in place practical solutions for international coordination in S&T.

As with the ERA-Net system, with the launch of a small set of internationally oriented ERA-Nets such as COREACH for cooperation with China, NORIA also has a global or international approach. With the expanding activities towards Asia in all Nordic countries, a better and more coordinated approach was seen as necessary, and an international NORIA-Net aimed at improving the coordination of Nordic efforts *vis à vis* China and India was initiated. It will run for the two years of 2008-2009, and will be funded by NordForsk. The total funds for the activity are some €125,000.

Organization and Objectives

The organization of this network is similar to ERA-Nets, with five partners, all of them funding institutions from individual Nordic countries (Academy of Finland [coordinator], Research Council of Norway, Swedish Council for Working Life and Social Research, Icelandic Centre for Research and Danish Agency of Science, Technology and Innovation). The joint work over the two years is organised according to a defined work-plan, tasks distributed across responsible partners.

This NORIA-Net will have two aims:

- ▶ To identify the needs and prepare a model for joint research funding activities for Nordic countries and China/India
- ▶ To establish long-lasting funding instruments and funding mechanisms coordinated and funded by NordForsk and the national research councils together.

This will be achieved through an approach comprising activities such as:

- ▶ Identifying current practices, needs and potential players for cooperation
- ▶ Benchmarking and disseminating good practices among the Nordic partners
- ▶ Structuring and deepening Nordic joint research activities with China and India
- ▶ Enhancing the visibility and attractiveness of Nordic research cooperation from the Asian point of view.

Issues and observations

Being not even halfway into the project, there is still not a broad set of lessons to derive. But some considerations are worth noticing:

- ▶ There is a common, Nordic interest for joint calls with China and Indian partners
- ▶ Many of the partners in the network have specific strategies for cooperation with China and India, and these may represent differences in approaches that have to be overcome
- ▶ However, there is a core set of common topics of interest, such as energy, environment, ICT
- ▶ The partners have mostly the same partner organizations in India and China
- ▶ There are similarities with the Asian partners that may ease the coordinated approach, such as joint funding practices (joint projects, mobility, programmes etc)

- ▶ There is a long tradition in collaboration on the Nordic level that reduces transaction costs
- ▶ The administrative procedures are similar, like the system of councils, peer reviews, competitive calls, transparency
- ▶ The Nordic system has in addition a set of joint funding tools.

Although the abundant similarities make a coordinated effort more effective and likely to succeed, there are also challenges in place that need to be overcome. For example, the partner organizations are engaged in different scientific areas with different topics of interests, the amount of experience in cooperation with Asia is different, the Asian strategy of the partners has to be consolidated with the Nordic strategy, and the research council system requires long consultation processes. Hence, for the NORIA-Net to succeed, there is a need for joint commitment and a common vision about the long term impacts, and success will hinge on factors such as equality among the partners and between the Nordic and the Asian partners, as well as transparency, trust and patience.

Conclusions

Broad lessons

The development of the Nordic cooperation in research and innovation has been closely linked and adapted to the EU development. Hence, as the latter develops and changes, most recently through new strategic approaches to further enhance the ERA, including a closer partnership between the EC and member states in international cooperation, so is the Nordic cooperation in its structural changes and evolving instruments. This makes it relatively easy to imagine a fruitful partnership between the EU and the Nordic systems, not least in reciprocal learning.

From the above material, there are some broad lessons to be derived:

- ▶ The Nordic cooperation, including its international outreach, is characterized by the formation of dynamic, flexible and light-footed structures. The amount of money is typically small, and aims at bringing added value and excellence to the existing national structures.
- ▶ The Nordic cooperation is not aimed at replacing international cooperation strategies from the national institutions or policies, but rather complements them. This becomes evident in Nordic energy research activities as well as in the cooperation with Russia which is regional in nature. A parallel can be seen in the reduction of the former cooperation between the Be-Ne-Lux countries that gave way to a more regional approach.
- ▶ The Nordic fixed geometry (with all five countries present in all or most initiatives) is balanced by the flexibility arising from the instruments chosen. For example, the Top Research Initiative, as well as Nordic Energy Research's ordinary calls are tools which are underspecified and compensate for the rigid membership through creating variable geometries at a project level. The existence of multiple tools or instruments makes the cooperation dynamic.
- ▶ Some co-operative initiatives, such as the Top Research Initiative, are exploring uncharted territories, with few existing governance structures to build on. Hence, such mechanisms often have to be developed as part of the process.
- ▶ Launching new and often complex initiatives needs to be built on broad acceptance by stakeholders in the Nordic system. The more they are guided by or based on broader political agendas, the better. The Top Research Initiative was firmly based in a broad approach to globalisation by the Nordic Prime Ministers.
- ▶ International cooperation and network building without a predefined topic are challenging. A top down element needs to be in place to define topics and establish networks and partners for cooperation afterwards. Priorities, relevance and focus are key in a more open and globalised world.
- ▶ Launching international cooperation often suffers from poor knowledge and information about the countries or regions in question. Continuous collection of such information, e.g. through studies and policy analysis, is vital to success.
- ▶ The dedicated Nordic cooperation is built upon the logic of common pots. There is no system for *juste retour*.

Lessons learnt for the coordination of S&T policy approaches of Member States and Associated Countries

On a more detailed level, several implications can be drawn from the presentations and discussions during the Nordic exchange process. These are summarised here as imperatives for the coordination of policy approaches *vis à vis* 3rd countries as summed up in the second meeting:

1. Developing a coordinated cooperation strategy

- ▶ Build a strategy on sufficient information and analyse experiences from the past
- ▶ Ensure support from top-policy level building on common objectives of the MS/AC involved
- ▶ Consult major stakeholders in the MS/AC participating in the coordination process and accept differences in their mandates
- ▶ Foresee trans-sector policy coordination in order to ensure consistency of policy action and raise the full potential of synergies between different cooperation policies *vis à vis* the partner country (whenever appropriate)
- ▶ Be specific through addressing the situation of the partner country and its respective interests – develop a joint strategy with the partner country
- ▶ Ensure the focus and the relevance of the strategic objectives – set clear priorities in the interest of all partners involved
- ▶ Don't disturb the bilateral cooperation among individual MS/AC with the partner country – but add additional value
- ▶ Integrate national or regional approaches into overarching Community strategies (like the Four Common Spaces with Russia or the EU-Africa Strategy)
- ▶ Increase the visibility of joint strategies through proactive promotion

2. Setting-up joint instruments

- ▶ Start the implementation of coordinated activities with light, flexible instruments, which do have the potential to mobilize larger resources at a later stage
- ▶ Link joint instruments with other sources on Community level – ensure full complementarities
- ▶ Stay flexible: Aim at consensus with the partner country and respect its regulations
- ▶ Keep budgets open to allow different stakeholders to contribute
- ▶ Aim at reciprocity of efforts through requesting adequate contributions of the third partner country (whenever appropriate)
- ▶ Raise the full potential of linking different (but related) policy sectors (education, S&T, innovation, development policies,...) through combining the various instruments

3. Establishing efficient governance structures

- ▶ Formal structures matter on top-policy level (such as a Council of Ministers) as well as on an operational level through a secretariat for day-to-day activities
- ▶ Ensure governance for the definition process in order to build mutual understanding and trust
- ▶ Foresee parallel processes, which are interlinked: A policy driven top-down process and a bottom-up driven process involving relevant non-governmental stakeholders (incl. industries whenever appropriate)
- ▶ Leave sufficient room for informal discussions accompanying formal governance
- ▶ Reflect cross-sectoral issues in the governance structure through involving relevant stakeholders
- ▶ Build on and adapt existing structures, which have proven to be efficient, before creating new ones

4. Implementing impact assessment

- ▶ Fill-in the methodological gap and develop tools
- ▶ Regular learning evaluation mechanisms help improve decision-making and further development of transnational research cooperation

Appendix 1: Agenda for the first meeting

PROGRAMME

Venue: Academy of Finland, Vilhonvuorenkatu 6 - 00500 Helsinki - MAIN HALL

23 October 2008

Theme of the day: How do Nordic countries view Nordic cooperation in the light of the EU strategic framework for international cooperation?

Chair of the day: Trygve Lande, Special Adviser, RCN

- 13:00 *Welcome and introduction to the workshop*
 Riitta Mustonen, Vice President, Research, Academy of Finland
- 14:00 *National positions on Nordic cooperation in a new European context from the funder's perspective*
- 14:15 CASE Denmark – DASTI: Are Straume, Head of Section (Centre for Research Policy)
- 14:30 CASE Finland:
 Academy of Finland: Tiina Vihma-Purovaara, Manager, EU-Affairs
 Tekes: Kari Komulainen, Director (International Technology Cooperation)
- 15:00 CASE Iceland – RANNIS
- 15:30 CASE Norway – RCN: Inger-Ann Ulstein, Special Adviser (Global Issues)
- 16:00 CASE Sweden – Vinnova and VR
- 16:30 *Discussion*
- 17:30 End of first day

24 October 2008

Theme of the day: Nordic success stories and lessons to be learned

Chair: Mika Tirronen, Programme Manager, Academy of Finland

- 9:00 Examples of Nordic cooperation – reflections to the future
- 9:00 NordForsk, Nordic Centres of Excellence
- Liisa Hakamies-Blomqvist, Director, NordForsk
- 9:20 Nordic Energy Research (NER)
- Birte Holst Jørgensen, Director
- 10:00 Common pot – two Nordic styles with relation to the ERA international strategy
- 10:00 Example No 1: NOS-HS - possibilities for the future
- Tina Varberg, Secretary, NOS-HS Secretariat tbc
- 10:20 Example No 2: NORFACE – lessons learned, forward-looking possibilities?
- Eili Ervelä-Myréen, Programme Manager, Academy of Finland
- 11:00 Discussion - reflecting on future developments
- 12:00 Summary of discussions and suggestions for next steps
- Sigi Gruber, Head of Unit, DG Research
- 13:30 End of workshop

Appendix 2: Agenda for the second meeting

PROGRAMME

17 December 2008

Venue: EC Commission, DG RTD, Square de Meeûs 8, Bruxelles - Room 8E

- 10.30 Sigi Gruber, Head of Unit, Directorate D, DG RTD
Welcome address and setting the stage
Tiina Vihma-Purovaara, Academy of Finland
Chair of meeting
- 10.45 Joern Sonneburg, International Bureau of the Federal Ministry for Education and Research (Chair of CREST OMC Working Group)
Progress report about CREST OMC Working Group throughout 2008
- 11.15 Dan Andree, Special Advisor, Swedish Ministry of Education and Science:
The Nordic Top Research Initiative: A test case for regional cooperation going global:
a) Pitfalls and options in negotiation of a joint initiative: Lessons related to incentives and barriers for joint initiatives
b) Top Research Initiative going global: Issues related to creating partnerships beyond the regional setting
- 13.30 Gard Titlestad, Head of Department, Nordic Council, Copenhagen
Nordic cooperation with Russia: Policy frameworks, incentives and challenges
- 14.15 Mika Tirronen, Academy of Finland
NORIA-Net for Nordic-Asian Research Funding Cooperation: Creating joint Nordic research funding focusing on China and India
- 15.00 Discussion: Policy implications from presented cases and impact on the European partnership for international S&T cooperation
Prepared introductory intervention (max 10 minutes):
Jean-Luc Clement, Ministry of higher education and research, France, CREST OMC group for international cooperation
Arie van der Zwan, Ministry of Economic Affairs, Netherlands, CREST OMC group for international cooperation

- 16.45 Summing up by Joern Sonneburg, International Bureau of the Federal Ministry for Education and Research (Chair of CREST OMC Working Group)
- 17.00 End of meeting

Appendix 3: Policy related documents and studies: Selected references from the Nordic scene

The Nordic cooperation in R&D contains a significant production of policy relevant knowledge, both in terms of policy documents and various studies being launched. Below some examples of publications from the three Nordic organisations NordForsk, NIC and NEF have been collected. The listed publications and other relevant publications and policy documents can be downloaded from the organisations home pages.

A) NordForsk - <http://www.nordforsk.org/>

NORDFORSK POLICY BRIEFS 1 - Development in Research: An Outline of the Science Systems in Russia and the Baltic States - AadneAasland

Russia and the Baltic states (Estonia, Latvia and Lithuania) have undergone profound changes in the years following the break-up of the Soviet Union in 1991.

This NordForsk Policy Brief provides a policy relevant and up-to-date overview of the science systems of the four countries, and presents some of the major reforms which the countries have undergone or are undertaking. It also discusses some of the major challenges facing the four countries, like brain drain from research to other parts of the economy and to foreign countries, and a lack of mechanisms that feed science results into the economies at large. Furthermore it gives an overview of current research priorities in the four countries and presents some examples of international, including Nordic, collaboration.

NORDFORSK POLICY BRIEFS 2 - Stem Cell Research in the Nordic Countries: Science, Ethics, Public Debate and Law - For NordForsk by the Nordic Committee on Bioethics

Stem cell research has grown rapidly in this decade and the scientific achievements have created hopes for new treatments of severe incurable diseases. As a result of the research, the economic prospects are also growing. At the same time, ethical questions related to the sources of some stem cells, i.e. human embryos, have stimulated intense debate among scientists, ethicists, health professionals, patient organisations and the public. Funding agencies, policy makers and legislators have also responded to the rapid scientific advancement in the field.

The present report was commissioned from the Nordic Committee on Bioethics by NordForsk in December 2006. The aim of the report is to strengthen the Nordic stem cell research community and policy makers by providing a joint Nordic knowledge base as a support to future, well-informed decision making regarding such issues.

NORDFORSK POLICY BRIEFS 3 - Urban Development: Nordic strengths and challenges under the heading of a new global agenda

Future global challenges are closely linked to the urbanisation process and to the development of the urban regions of the world.

Nordic urban research plays an important role because the impacts of globalisation will always be dependent on the specific regional and local situation; the potentials and the capacity to respond to global challenges. Nordic urban research functions as an interpreter of the impacts of the globalisation processes according to different Nordic regional and local settings, and can thus help to open the way for innovative and proactive Nordic strategies for the future. This study gives an

overview of the current state of play of Nordic urban research and sets out relevant themes for future Nordic research cooperation in the field.

NORDFORSK POLICY BRIEFS 4 - The Nordic region as a global health lab - For NordForsk by Monday Morning

The rise in obesity and chronic diseases poses a major threat to global public health. Governments and policy makers are now responding with action plans and strategies to ensure more effective prevention. In this context, knowledge of what works and for whom, is crucial for the support of policy decisions and resource allocations. Research communities therefore play a central role in enhancing knowledge creation in relation to health prevention.

The Nordic region has the potential to become a global role model in developing innovative, research-based solutions for preventing chronic diseases. The NordForsk Policy Brief *The Nordic region as a global health lab* sets out a vision of how scientific research, through new mindsets, new partnerships and new platforms can make a significant contribution to improving health standards by curbing the global crisis of chronic diseases.

NORDFORSK POLICY BRIEFS 5 - Nordic Excellence: A Bibliometric Exploration of Common Nordic Research Funding Opportunities - For NordForsk by Technopolis Group

Based on bibliometric analysis the NordForsk Policy Brief Nordic Excellence: A Bibliometric Exploration of Common Nordic Research Funding Opportunities identifies areas of Nordic strength in research and suggests joint Nordic funding priorities.

The authors have taken something of an investor's perspective in this analysis, aiming to focus on selected areas of established or likely strength.

At the level of large scientific fields, the report suggests that the major Nordic funding opportunities exist in:

- ▶ Applied Biology and Earth and Space Sciences
- ▶ Fundamental Biology
- ▶ Mathematics

The report also identifies the ten strongest sub-fields of Nordic science.

NORDFORSK POLICY BRIEFS 7 Improving research capabilities – An evaluation of the possibilities for increased Nordic cooperation on research infrastructures - For NordForsk by NIFU STEP

The report "Improving research capabilities – An evaluation of the possibilities for increased Nordic cooperation on research infrastructures" in the series NordForsk Policy Briefs provides an overview of current policies for research infrastructures in the Nordic countries and Europe and evaluates the scope for increased Nordic coordination.

Research infrastructures are an essential precondition for gaining new scientific insights and the development of new infrastructures is an important element in science policy. Larger infrastructures are technologically and economically demanding to construct, and their realisation is often dependent upon extensive international cooperation. The author provides an overview of current policies for research infrastructures in the Nordic countries and Europe and identifies some alternative paths for increased Nordic cooperation and coordination in this area.

B) Nordic Energy Research (NEF) - <http://www.nordicenergy.net/>

Competitive policies in the Nordic Energy Research and Innovation Area eNERGIA

Part 1: Country reports - NIFU-Step Report 25/2008

Antje Klitkou, Trond Einar Pedersen, Lisa Scordato and Åge Mariussen

Competitive policies in the Nordic Energy Research and Innovation Area eNERGIA

Part 2: Technology reports - NIFU-Step Report 26/2008

Antje Klitkou, Trond Einar Pedersen, Lisa Scordato and Åge Mariussen

Competitive policies in the Nordic Energy Research and Innovation Area eNERGIA

Part 3: Special reports - NIFU-Step Report 27/2008

Antje Klitkou, Trond Einar Pedersen, Lisa Scordato and Åge Mariussen

Nordic Collaboration with China in Energy Research and Development

Jørgen DELMAN and Yong CHEN

Nordic Institute of Asian Studies - November 2008

Nordic energy innovation systems - Patterns of need integration and cooperation

Mads Borup, Per Dannemand Andersen, Staffan Jacobsson, and Atle Midttun

November 2008

C) Nordic Innovation Centre - <http://www.nordicinnovation.net/>

Exploiting the potential of Nordic internationalisation of services

A feasibility study examining the possibilities for Nordic service standardisation initiatives.

The service sector is of increasing importance to the European and Nordic economies. However, the availability of standards within the service sector is very poor put in regard to the economic importance and potential of this area. Therefore the Nordic Innovation Centre has commissioned a feasibility study with the aim of selecting and defining those service sectors where standardisation can contribute to economic growth and internationalisation of Nordic service provision.

To certify your services

A study of the certification market in the Northern European service sector.

The service sector accounts for more than 2/3 of economic activity in most European countries. However, there is relatively little trade in services across national boundaries. The certification of services has the potential to become an important mechanism for assuring the quality both of the services themselves, and thus also the trade in these services

Nordic Technology Transfer Network for Regional Innovation

The Nordic Technology Transfer Network gives its members an easy and quick way of obtaining and giving answers to technology requests. The result is the Nordic knowledge pool of members, interacting and gaining technology from the simple e-based network tool. A Nordic technology transfer network is attractive to everyone seeking and providing technology, i.e. businesses, technology brokers and science parks.

User-Driven Innovation - Context and Cases in the Nordic Region

The nature of innovation is changing. An increasingly globalized society, enabled by information and communication technologies (ICT), has changed the process of value creation and shifted the balance of power between firms and individual consumers – or users. Companies can no longer rely solely on operational efficiency or technological superiority in order to create a competitive advantage. Today, companies must also find ways to define and deliver unique experiences, together with users, in order to survive.

D) Nordic Council of Ministers - <http://www.norden.org/>

An English summary of the original White Paper on NORIA, the Nordic parallel to ERA, can be downloaded from the homepage of the Nordic Council of Ministers together with a series of other publications:

The Nordic Research and Innovation Area (NORIA) and synergies with the European Research Area (ERA) Dan Andrée - TemaNord 2008:597 - Nordic Council of Ministers, Copenhagen 2008

N O R I A - White Paper on Nordic Research and Innovation

Summary in English (2002) - <http://www.norden.org/pub/sk/showpub.asp?pubnr=2003:756>

Building Nordic Strength through more Open R&D Funding - Study 3: The Next Step in NORIA. Erik Arnold, Annelie Eriksson, Sven Faugert and Tommy Jansson. Technopolis. Published by the Nordic Council of Ministers, Copenhagen 2006

