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University of Oulu
The Borderless North

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The main theme of the 4th NRF Open Meeting is 'Tech-knowledge in Economies and Culture'. This theme calls for dialogue crossing borders of science disciplines and society sectors. It challenges us to think about the impact and realization of the technology knowledge on economies, energy-policies and cultures – in other words on the issues, which are important to people's everyday life. In our region, Bothnian Arch-coastal zone area on the both sides of Bothnian Bay and broader Baltic Region are important regions involved in this borderless tech-knowledge. Moreover, the theme of the forum challenges us to figure the borders and barriers of science and technology, and to think about the borderless of north as a phenomenon itself.

Four Viewpoints from Science to Borderless North

1. There are no borders in the science world

There is neither local playground nor state borders in high-level research. Research work is done in international fields, where results are published in international journals and conferences and working groups are multinational. However it is important to get benefits to our own region too. The achievements of research and science should be used both for educating good researchers to the world of science but also at the same time there should be ways to integrate these achievements to support regional special needs. The University of Oulu has managed this well. For instance technology and know-how developed here in Oulu is used in processing the data obtained in the Mars Express spacecraft and in developing catalytic converters in Korea, but also in the processes of local industry.

All of the focus areas of our university: ICT, Biotechnology and Northern and Environment Issues have potential for both global high-level research and local utilisation of it. As an example of this, the green chemistry aims to renew and diversify the exploitation of natural resources by developing alternative sustainable technologies. Developing this kind of technologies fits well to northern areas where natural resources are rich, but these technologies can be researched and implemented all over the world as well. This means that the level of science skills should be high enough to compete at the highest level in the world.

2. Collaboration is a way to borderless science society

There are well-functioning networks in the arctic area like University of Arctic and its thematic networks. We have good achievements in cooperation between research groups like Arctic Climate Impact Assessment (ACIA) and Arctic Human Development Report (AHDR). These kind of concrete projects are good examples of effective cooperation. The key issue is to be concrete. Everybody should benefit of the cooperation and there should not be semipermeability between actors which would cause inequality when sharing the benefits. To get other sectors of the society to join and cooperate in research and development requires open-mindedness from all parties. There are business opportunities related to northern environmental problems and creating a business out of it might be one of the tools in solving the problems.

3. The opportunities of science and technology are both unlimited and limited

In future global changes and increase of the use of natural resources create the greatest threat for the northern environment and cultures, affecting health and welfare as well as social and economical relations and challenging sustainable development of the area. Fragile northern areas are in the key position when researching and monitoring the climate change. Due to the fragility of northern nature global and environmental changes and impacts of pollution are visible and researchable in northern areas. These changes and preventing them still needs the attention of the whole science society. But do we really understand what is going on – everybody does not. Public discussion on the Global changes, especially global climate warming, is a good example on this.

Researching new phenomena and applications of science and technology are an endless field of work in the research of global change and change mitigation. However, utilisation of results is limited

because of factors beyond science world's control. Decision-makers should recognize and also act according to recent research findings. In Europe the industry has taken the responsibility of environmental protection by launching an objective of using best available technologies and practices. Hopefully also in other parts of the world an industrial evolution takes long steps towards this direction and cleaner technology would be directly used instead of repeating all the phases and mistakes of the technological development. Brave decisions and wise politics would support this progress.

In addition to best available practices we need also best available knowledge and the skills and ability to understand it. We have to educate generations having skills to pick up and understand facts of natural laws and functions of society instead of having only pure media literacy. We have to be concerned of the skills young people have in mathematics and natural sciences and take care that these skills remain at high level. Then they will have ability to assess trends of the society and whether they are going to the right directions. And if not, they are capable to push up politicians to do right decisions. Everyone doesn't need to become an engineer or scientist but sufficient understanding on functions of nature and society has to be part of all-round education.

4. Even if there are well-functioning research networks in the North, definite financial instrument for them is lacking.

Together with the research units operating in northern areas the University of Oulu is establishing a project, which aims to develop the Northern Research Platform. A central object of development of the northern platform will be the social and environmental innovation community that complements technology platforms and operates as a part of the possible Northern Dimension Forum. Ecologically efficient exploitation of natural resources, native population and peripheries require, in addition to technical and financial expertise, also strong knowledge in environmental and social issues as well as entrepreneurship. The platform will work as a central tool in the implementation of research and innovation related to the Northern Dimension.

The aim is to define research plan based on the relevant issues.

The future content of the Northern Dimension undertaking is in process in the European Union. My opinion is that concrete substance for this forthcoming undertaking could be joint research projects and student exchange. Researching the northern areas is not possible only by integrating these themes to other general research themes, but they have to be studied in their own programmes and with targeted financing. The University of Oulu is ready to invite other operators in the area to the development of such an instrument and also to invest in it. Especially universities should be committed themselves to develop this instrument.

My proposal is that we should establish an ad-hoc high-level committee to prepare this financial instrument, which could be introduced in next Northern Research Forum.