2030NORTH

Session 4 - A Northern Science Policy for Canada

Session Theme

"The conference will review the Northern science policies and practices of other circumpolar countries, and examine Canada's history on northern science policy, including the recent IPY initiative. Discussion will focus on the key question of what needs to be done, at what cost, and by who, to establish a northern science policy in the context of Canadian and circumpolar needs and goals."

Session Paper Author — Dr. David Hik, Executive Director Canadian International Polar Year Secretariat and Professor of Biological Sciences, Faculty of Science, University of Alberta

Panel Members — Steve Bigras, Executive Director, Canadian Polar Commission

Dr. Peter Geller, Vice President, Association of Canadian Universities for Northern Studies

Dr. Benoit Beauchamp, Executive Director, Arctic Institute of North America

Dr. Steve Kokelj, Water Resources Division, Indian and Northern Affairs Canada

Summary of Session Paper – A Northern Science Policy for Canada – Dr. David Hik

"The time has come for a Canadian northern science policy."

Dr. Hik in his presentation on a northern science policy for Canada, emphasized four points.

First - the need to sustain and enhance our collective capacity to acquire, retain and use knowledge. He noted that scientific observations come from three main sources: operational activities, researchers and the community. That pool of collective knowledge forms the basis of other activities, for example education, policy formation and decision-making. But we tend to fund only the separate activities and not the transfer of that knowledge between groups, e.g. researchers, the community, and policy makers. We lack an ability to effectively transfer and share that information. Science policy must ensure that the information we collect is both retainable and useable.

Second - to effectively bridge the science-policy gap bring researchers and policy makers together early and often to better coordinate activities and facilitate collaboration. It is far better to connect policy-makers and scientists early on in a process that in later stages in order to produce beneficial outcomes. Furthermore, while scientists are comfortable with uncertainty, decision makers need to use information in black and white when they develop policy. Dr. Hik pressed the need to narrow the research-policy gap, it may be easier in the north than elsewhere given the relatively close ties between scientists, policy-makers and the community.

Third - the need to build capacity in the north to both inform and lead science research: agenda setting, option formulation and implementation. This requires better education and training in the north – not just research. Similarly, recommendations for scientific research must come from communities and territorial governments rather than always from scientists and the federal government. We will require directed funding to achieve these goals.

Finally, Dr. Hik elaborated the need for a northern science policy. This would serve to establish a focal point for northern science in Canada; ensure investments in northern science; facilitate capacity building; and ensure that the associated societal benefits evolving from research remains a priority.

A northern science policy would build on the advancements already made through the IPY and include:

- Northern Leadership.
- A Canadian Northern Research Institute.
- Support for evidence-based policy making.
- Support for Sustaining Arctic Observation Network.
- Improved access to data and information.
- Education outreach and communications in support of Northern science.
- The appointment of a Minister of Northern and Circumpolar Affairs.

"Over the past forty years there have been numerous attempts to develop a northern scientific capacity and associated comprehensive policy. Ultimately this will require an organization or institution to have responsibility for the development of such a plan and provide leadership in its implementation."

A complete copy of the paper can be found in PDF at www.carc.org click on 2030 NORTH.

Summary of Panel Comments – A Northern Science Policy for Canada

Steve Bigras: Dr. Bigras represents the Canadian Polar Commission, Canada's national advisory agency on polar affairs. The CPC has a broad mandate to promote polar science and, like many organizations, has struggled since its inception with the absence of a science policy.

He asked that we consider including Antarctica in a northern, or rather polar, science policy. This stems from a need for a global picture of what is happening in areas such as glaciology and global warming, and a commitment to the protection of the overall health of planet. Canadians have lots of experience in polar research and can and do make important contributions, but we cannot claim to have a strong community of polar scientists without expertise or capacity in Antarctica.

Therefore Dr. Bigras advocates for a national polar science policy. Who should lead/ be involved?? Most expertise now lies outside the federal government. The public service is losing its policy capacity and agility. They should then draw on polar scientific organizations and other Canadian organizations including representation from the territories, aboriginal groups, universities and research institutes.

What is needed is a clear vision with a long-term commitment, and one that remains apolitical. We need to establish research priorities; promote investment in key sectors to reap the full social and economic benefit; support innovation and entrepreneurship; protect the environment; invest in the future generation of polar scientists; and foster international collaboration and cooperation. Such a policy would need to be reviewed and adjusted as needed, and so must be flexible.

Dr. Benoit Beauchamp: Dr. Beauchamp pointed out that the search for northern science policy is nothing new. AINA, for example, comes from an Act of Parliament following WWII. Why do we need a northern science policy? What does it mean? Is it somehow different from a southern or national science policy?

Perhaps part of the issue is the current urgency of northern issues, many of which have been raised by science, for example in climate change and health. Science is more visible in the north; there are closer links between scientists and communities in the north than the south. And certainly the role of climate change is important as it is a science-driven policy issue. Do we do science for policy or policy for science? The relationship is mutual – you need good policy for science in order to produce good science for policy. ***But science for politics – no thanks.***

Scientists must also accept that science is only one facet of policy making. This illustrated with the polar bear hunt issue. Different stakeholders – scientists, communities, and hunters – have different and sometimes competing interests.

Supporting policy making is only one reason for developing a northern science policy. Scientific research is conducted firstly in order to develop hypotheses, theories and laws. What drives scientists is curiosity and truth seeking. (Not money!) Scientists are human and not detached from their society. Only a small fraction of what is done in science pertains to what is highlighted in the media and relevant to the issues of the day. Northern science policy must therefore serve all Canadians, not just northerners, or southerner, as the case has more often been. It has to promote knowledge; be inclusive; and be comprehensive. While northern science should by and large help the people, not all science can have societal repercussions; it can often be relevant and important in ways we can't immediately detect.

We need to develop better communication and outreach between scientists and communities, and return the knowledge scientists gain to the community. But northerners can and should also be scientists –while retaining and maintaining traditional knowledge, scientific training is an important complement.

Science can and should be the engine of sound sustainable development in the north, leading to job creation and community wealth.

Dr. Beauchamp finally suggested that perhaps what is needed is not a new government position, for example the Minister for Northern and Circumpolar Affairs outlined by Dr. Hik in his paper. The North is best served through its networks, not new building s and organizations. We should focus on reinforcing and serving existing networks before embarking on new bureaucratic creations.

Dr. Steve Kokelj: Dr. Kokelj represents INAC and is a northern-based scientist. He provided his personal perspective on Canadian science in the north and felt that one of the ways scientists can contribute to the north is by being resident in the north. Other scientists, including aboriginals, are often drawn back to centres of excellence in the south after conducting field research. By 2030, he hopes to see northern- born and northern-based scientists doing northern science for community benefit. In reaching this goal, we need more capacity in the north.

What is the northern context for science?: environmental change; resource development; land claims obligations; co-management and stewardship; and collaboration and partnerships. What are some of the needs of northerners in terms of scientific research?: the use of traditional knowledge within monitoring and other scientific activities; and building and retaining capacity in the north.

Dr. Kokelj iterated how different groups 'monitor' and provide scientific information; these include northern communities, scientists and industry. But often the work of these groups is not collaborative or focused on the values and needs of northerners. We need a northern-based integrated monitoring system to bring these together.

We face many challenges in conducting northern scientific research, specifically in our implementation and capacity abilities, the enhancement of our ability to collaborate and apply the science; and in developing efforts to facilitate traditional knowledge and monitoring. However it is also a time of opportunity. We do have a healthy capacity in northern science; we have established better links through the IPY with a northern monitoring system, and there is support from NSERC and funding of research stations.

Finally, Dr. Kokelj offered the group the indigenous principle that we must watch and understand the land and use it respectfully forever.

Dr. Peter Geller: Dr. Geller, representing ACUNS, spoke of the common theme among scientific reports and assessments for more research, for example on climate change and tracking permafrost. But who provides the direction?

What is north? We need to acknowledge many north's and their different needs and cultures in our scientific research, including differences between the provincial and territorial north's, different aboriginal groups, land claim areas, and the arctic and sub arctic.

Can northern science policy build relationships? It is a hard task, but hopefully will bring people across the silos of departments, particularly within universities and the federal government. Having a multi-disciplinarily approach is the strength of northern science and policy, and we need to build further on that. The need for inclusion of all north's' and all peoples is important, but as a process more work is required, policy and funding need to consider this approach to science as well.

Finally, Dr. Geller outlined the potential of the University of the Arctic in capacity building, but iterated the need to further consider the establishment of a university in the Canadian territorial north.

Recommendations from Presentation and Panel – A Northern Science Policy for Canada

1. Enhancement of northern science and research must address:
    - the need to sustain and enhance our collective capacity to acquire, retain and use knowledge.
    - the need to more effectively bridge the science-policy gap;
    - the need to build capacity in the north to both inform and lead science research
    - the need for a northern science policy to establish a focal point for northern science in Canada; ensure investments in northern science; facilitate capacity building; and ensure that the associated societal benefits evolving from research remains a priority.
2. We should develop a polar science policy that includes Antarctica: the policy should be apolitical, provide a clear vision and long term commitment, and draw on polar scientific organizations and other Canadian organizations including representation from the territories, aboriginal groups, universities and research institutes.
3. Development of a polar science policy should:
    - Establish research priorities
    - promote investment in key sectors to reap the full social and economic benefit
    - support innovation and entrepreneurship
    - protect the environment
    - invest in the future generation of polar scientists
    - foster international collaboration and cooperation.
4. A northern science policy should:
    - serve all Canadians, promote knowledge and be inclusive and comprehensive.
    - Develop better communication and outreach between scientists and communities
    - Build capacity through the development of northern scientists, while retaining and maintaining traditional knowledge.
    - Focus on reinforcing and serving existing networks.
5. We must build capacity in the North to develop northern born and northern-based scientists doing northern science for community benefit.
6. We need a northern based integrated monitoring system to bring together communities, scientists and industry, using traditional knowledge along with scientific knowledge

7. Development of a northern science policy should build relationships across departments within universities and government, and should be inclusive, addressing the needs of people within the Arctic, sub arctic and northern provincial regions.

8. Development of a northern science policy should build capacity through establishment of a University of the Arctic in the Canadian territorial north.

Recommendations from Small Group Discussions – A Northern Science Policy for Canada

The group discussions resulted in a number of common themes in regard to northern science and the development of a northern science policy. These concentrated around education, community involvement, and scientific needs in the community and policy development.

In terms of education, discussants emphasized the need to educate northerners to train and conduct research in the North. This process should start in the K-12 system and continue in post-secondary education with the development of northern-based university education, either or jointly through the University of the Arctic or through a new territorial-based university. Alternative educational opportunities, recognizing the geography and culture of the north and its unique student needs, should be developed. Many further emphasized the need for additional research centres in the North. This would contribute to capacity building and retention of knowledge in northern communities.

Many of the recommendations also focused on the need for enhanced community involvement in developing research initiatives and participation in research activities. Science in the North should be vertically and not horizontally directed. Examples include community participation in scientific monitoring activities. Community building should not be limited to relationships between scientists and indigenous communities, but also including social scientists, northern residents, industry, government and civil society.

There were some commonalities expressed regarding the scientific needs of communities. More and better research was considered needed in areas such as alternative energy development and use; infrastructure; and issues pertaining to permafrost thawing, as well as studies focusing on biodiversity and ecology.

Finally, some consensus emerged on the need for a national science policy, although some pointed to the need to simply reinforce existing networks. It was recognized that policy and science are mutually interactive but emphasized that science should be apolitical.

Recommendations

1. Establish science policy and secure long term funding for research.
2. Target the development of capacity in communities and the ability of Northerners to participate fully in and lead academic research projects.
3. Make a clear connection between parts of the research agenda and the regulatory system for Northern projects.
4. Support Northern College programming in post-secondary academia education, and recognize the cultural transition that many Northerners face as they enter post-secondary education and provide support for this.
5. Support integrative activities that blend contemporary science and traditional knowledge. Define “northern” science.
6. Fill data gaps – put an emphasis on community research issues.

7. Emphasize consultation at all levels.
8. Develop a communication strategy to educate the Canadian public, north and south, of the benefits and need for science.
9. Increase awareness of standards of ethical research and communication initiatives.
10. Highlight the Aboriginal/Northern/Traditional perspective; emphasize TEK.
11. Help develop Northern-based/raised researchers, and research centres in the North.
12. Establish a Northern-based University.
13. Keep the community component within facilities and ensure research activities reflect needs of the community.
14. Develop and fund scientific infrastructure to enhance research capabilities.
15. Coordinate and standardize research between levels of government, aboriginal and non-aboriginal groups.
16. Look at "ARCUS" (Arctic Research Consortium in the United States) as a model for inter-collaboration (www.arcus.org).
17. Build on the legacy of IPY for strengthening research networks, nationally and internationally, and continuing levels of funding
18. Build on the Arctic Portal housed at Arctic Net.
19. Science for policy and policy for science. NOT science for politics.