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Northern Workshop on Access to Genetic Resources and Associated Traditional Knowledge and Benefit-Sharing

Whitehorse, Yukon
2005

Canada

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1) Qipitaq Kiatainaq (child)
2) Vaccinium vitis-idaea ssp. minus (kimminaqutik)

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Northern Workshop on Access to Genetic Resources and Associated Traditional Knowledge and Benefit-Sharing

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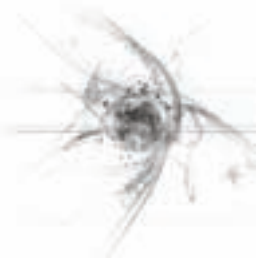
Whitehorse, Yukon

March 15 to 17, 2005



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Contents

I. Executive Summary

The Northern Workshop on Access to genetic resources and associated Traditional Knowledge and Benefit-Sharing took place in Whitehorse, Yukon, in March 2005. Organized through the close collaboration of the Government of Canada, the Arctic Athabaskan Council, the Inuit Circumpolar Conference, and the governments of the Yukon and Nunavut, the main objective of the workshop was to raise awareness about the issue of access and benefit-sharing (ABS) among Aboriginal and local communities, governments, and northern stakeholders, and to enhance understanding among all Canadians of the opportunities and challenges of developing ABS policies, particularly for the North.

The workshop provided participants with concrete information about a wide range of ABS-related issues. Presenters explained the nature and origins of ABS and its relationship with the objectives of the Convention on Biological Diversity; namely, the conservation and sustainable use of biodiversity. Government officials provided participants with an update on the international and domestic policy contexts surrounding this emerging issue.

Experts shared information on existing legal frameworks for research activities in the North, and explored the challenges for the recognition and protection of Aboriginal rights under land claims and self-government agreements in the context of ABS. Some argued that the existing legal frameworks were flexible enough to incorporate ABS principles. Aboriginal participants at the workshop expressed their concerns about the need to engage Aboriginal groups early in the policy-development process, and reminded government officials of the need to consult with them before making decisions that affect their rights.

Participants heard a number of concrete examples of genetic resources found in the North that are of interest to researchers and the biotechnology sector. Workshop discussions began the process of assessing, based on the environmental and social contexts of the North, how ABS can contribute to social and economic development in the region, particularly by offering northerners the chance to benefit from the development of biotechnology.

Experts from a number of fields of expertise across Canada shared experiences from their work, and offered innovative ideas on how to implement ABS in practice. Presentations were made on protocols for the protection of traditional knowledge (TK), northern policy developments in the area of TK, specific ABS projects undertaken with northern communities, and the regulations and procedures being put in place to ensure the sustainable and socially acceptable management of northern biodiversity.

Listed below are some of the key observations that emerged from the discussions held at the workshop. They appear in no particular order here, and do not represent an exhaustive list; however, they do provide a starting point for further

thinking about how ABS policies and practices can be developed to suit the northern context.

- Workshop participants expressed interest in ABS as a concept, and recognized the links between genetic resources and TK; however, many felt that more information was needed before meaningful decisions can be made on the sustainable use of genetic resources in the North

- The involvement of Aboriginal groups in the elaboration of ABS policies is essential, and respect for their rights must be ensured

- Aboriginal people are not opposed to sharing their TK, however, they want certain principles respected throughout the process and the relevant Aboriginal group/community/individual or government to retain the right to grant or withhold their prior-formed consent. The establishment of an efficient, community-level, prior-informed-consent system would help meet these wishes

- Innovative mechanisms for the protection of TK are already taking place at the local level, and northern communities could build on these experiences

- Specific environmental considerations in the North (e.g., the slow growth-rate of plants) make sound harvesting practices crucial. In the context of ABS, existing management structures, such as those established under land-claim and self-government agreements, could be considered examples for the sound and socially-acceptable use of genetic resources and the intergenerational survival of species and traditional practices

- Existing research-permitting systems in the North already control access and help maintain surveillance of what is being researched, by whom, and where. They also foster local involvement in research projects, and ensure that these are respectful of local social and environmental realities. It is likely that they would apply in the context of genetic resources research, and could contribute directly to meeting ABS objectives

- Aboriginal elders and scientists have knowledge about the uses of plants found in the North, yet their relationship to these resources is different. Collaboration between elders and scientists can, therefore, be beneficial to all because of the specific knowledge such cooperation would generate about conservation management and sustainable use of biodiversity

- There is interest, from biotech researchers, in the extreme environments of the North because of the unique organisms these environments contain. ABS provides opportunities to encourage research and ensure that research findings and, possibly, revenues are shared with those living in the North. How great these opportunities are remains to be explored

II. Special Thanks

The organization of the Northern Workshop on Access to genetic resources and associated Traditional Knowledge and Benefit-Sharing was made possible through the collaboration of all of the partners involved in this project.

First, we would like to thank the workshop participants who traveled from various regions of Canada to be present at the event—all of whom devoted significant time and intellectual energy to preparing for and discussing a broad range of very complex issues. Their involvement contributed significantly to a better understanding of the various challenges of developing ABS policies in Canada, particularly for the North. We are also most grateful to them for allowing us to publish their presentations which are compiled on a CD-Rom distributed with this report.

Second, we would like to extend a special thanks to the members of the Steering Committee, which was composed of Alisa Kelly of the Arctic Athabaskan Council (AAC), Violet Ford of the Inuit Circumpolar Conference (ICC), Alysa d'Argencourt of the government of Nunavut, Lise Farynowski of the government of Yukon, Martha Johnson of the Department of Indian and Northern Affairs, and Sophie Bernier of Environment Canada (EC), for their crucial contribution to the conceptualization and realization of the project.

Heartfelt thanks go to our facilitator, Bob Charlie, who made it possible for all to express their views, and to Natasha Willows (ICC), Cindy Dickson and Dave Roddick (AAC), Diane Nikitiuk (Yukon Government), and Jock Langford, Renée Leblanc, and Carole Lemay (EC), for their crucial help in the elaboration and organization of this project.

We must also acknowledge the pivotal funding and support provided to the workshop by the Canadian Biotechnology Strategy Fund.

III. Partners

Arctic Athabaskan Council[1]

The Arctic Athabaskan Council (AAC) is an international treaty organization that was established to represent the interests of member governments from Athabaskan First Nations communities in Canada and the United States at Arctic Council fora. The AAC also aims to foster a greater understanding of the common heritage of all Athabaskan peoples in Arctic North America.

The founding members of the AAC include four Alaskan Athabaskan communities (Chickaloon Village Traditional Council; Healy Lake Traditional Council [Mendas Cha~Ag]; Steven Village Tribal Government Council; and Northway Tribal Council) and three Athabaskan bodies on the Canadian side (the Council of Yukon First Nations [CYFN], representing 11 Yukon First Nations; the Dene Nation, representing 30 First Nations in the Northwest Territories and Northern Manitoba; and the Métis Nation-Northwest Territories, representing 13 communities in the Northwest Territories).

In total, Arctic Athabaskan founding-member governments represent approximately 32 000 Aboriginal peoples of Athabaskan descent residing in Arctic and Sub-Arctic North America.

The permanent office of the AAC is within the same central administrative headquarters as the CYFN, a non-profit organization the serves as the central political coordinating body for its members.

Inuit Circumpolar Conference[2]

Founded in 1977 by the late Eben Hopson of Barrow, Alaska, the Inuit Circumpolar Conference (ICC) has flourished and grown into a major international non-government organization representing approximately 150 000 Inuit of Alaska, Canada, Greenland, and Chukotka (Russia). The organization holds Consultative Status II at the United Nations.

To thrive in their circumpolar homeland, Inuit had the vision to realize that they must speak with a united voice on issues of common concern, and combine their energies and talents to protect and promote their way of life. The principal goals of the ICC are to:

- strengthen unity among Inuit of the circumpolar region
- promote Inuit rights and interests on an international level
- develop and encourage long-term policies that safeguard the Arctic environment

[1] Complete information is available at www.arcticathabaskancouncil.com.

[2] Complete information is available at www.inuitcircumpolar.com.

- seek full and active partnership in the political, economic, and social development of circumpolar regions

The ICC in Canada is a non-profit organization led by a board of directors comprising the elected leaders of the four land-claim settlement regions: Inuvialuit, Labrador, Nunavik, and Nunavut. Some of the key aims and objectives of ICC (Canada) are to:

- represent the interests of Canadian Inuit through their national organization (Inuit Tapiriit Kanatami) and settlement-claim organizations on matters of an international nature

- preserve and promote the unity of Inuit as a single people within the circumpolar Arctic, and assist Canadian Inuit in speaking collectively with Inuit in Russia, Alaska, and Greenland on international matters

- take measures to further enable Canadian Inuit to fully exercise their international rights and interests as Aboriginal peoples within Canada and globally

- act as the international vehicle through which all Canadian Inuit can voice concerns to world bodies, international conventions, intergovernmental forums, international non-government organizations, and global Aboriginal movements

- take measures at the international level to protect the Arctic environment and its renewable resources so that present and future generations of Canadian Inuit can fully benefit from the land and marine environment and its flora and fauna

- take measures at the international level to protect and promote Inuit rights related to health, culture, language, values, human rights, or any other matters that impact on the ability of Inuit to shape the future of their society within the circumpolar Arctic and the world at large

- take measures at the international level to foster trade and economic development for Canadian Inuit and assist in the development of successful business endeavours abroad

- maintain an ongoing dialogue with the ministries of the Government of Canada on issues of international importance to Canadian Inuit

- maintain an ongoing dialogue with the ministries of the Government of Canada on issues of importance to Inuit in Russia, Alaska, and Greenland, and to promote their rights and interests within Canada

Government of Nunavut

The Department of Environment has lead responsibility within the Government of Nunavut (GN) for ensuring the protection, promotion, and sustainable use of natural resources by supporting the management of the environment, wildlife, fisheries and sealing, and parks.

The Department of Environment delivers a wide range of regulatory and program functions, and implements the specific statutory and legal obligations of the GN, including a number of commitments under the Nunavut Land Claims Agreement.

It is through *avatimik kamattiarniq* (environmental stewardship), which includes using Inuit Qaujimajangit, research, planning,

monitoring, compliance, and partnerships, that the Department ensures that a balanced approach is taken in the way Nunavut's environment and resources are used.

Government of Yukon

The Government of Yukon's departments of Economic Development, Environment, and Energy, Mines, and Resources were involved in providing support for the conference.

The Department of Economic Development is committed to developing a strong and stable economy for the Yukon.

The Department of Environment is responsible for ensuring that the renewable resources and environment of the Yukon are managed and used in accordance with government policy. The Department undertakes resource-management activities that meet the Government of Yukon's obligations and respect the rights of Aboriginal people and relationships established through land-claim and self-government agreements.

The Department of Energy, Mines, and Resources is involved in regulating the Yukon's natural resource wealth in accordance with legislative requirements, as well as providing strategic leadership for natural-resource policy and planning.

Government of Canada

Indian and Northern Affairs Canada (INAC) and Environment Canada (EC) were the two federal departments involved in the realization of this project.

INAC is the principal department responsible for meeting the federal government's constitutional, political, and legal responsibilities in the North. With legislative and policy authority over most of the North's natural resources, INAC is the custodian and resource manager for an area occupying 40 per cent of Canada's land mass.

INAC's role in the North is extremely broad, and includes settling and implementing land claims, negotiating self-government agreements, advancing political evolution, managing natural resources, protecting the environment, and fostering leadership in sustainable development—both domestically and among circumpolar nations. INAC's approach in managing its responsibilities is based on partnership and the principles of sustainable development.

The main objective of the Northern Affairs Program is to:

- promote the political, economic, scientific, and social development of Canada's North
- assist northerners, including Aboriginal groups, in developing political and economic institutions that will enable them to assume increasing responsibility within the Canadian federation
- effectively manage and regulate the sustainable development of the North's natural resources in preparation for devolution to the territorial governments
- preserve, maintain, protect, and rehabilitate the northern environment; and manage ongoing federal interests in the North, including federal northern policy, federal-territorial relations, claims, self-government implementation, and federal circumpolar activities

EC's business is protecting the environment, conserving Canada's natural heritage, and predicting weather and environmental change. The Department works to support sound environmental decisions to protect, conserve, and help Canadians adapt to the environment. EC works to repair the damage of the past, to collect and communicate information, and to develop and implement policies to prevent future harm.

As the number, scale, and complexity of environmental issues has increased, EC has recognized the need to move toward more preventative and integrated approaches to environmental management. This long-term, systematic approach to the environment enables the department to address current problems while working to ensure a sustainable environment for future generations.

EC, through its Biodiversity Convention Office, is responsible for coordinating the implementation of the Convention on Biological Diversity (CBD). In the area of ABS, the Department is leading the international and domestic aspects of this emerging issue and, with the help of other federal departments and provincial and territorial governments, a policy-making exercise aimed at developing options for filling the policy vacuum that currently exists in Canada for ABS at both the national and sub-national levels.

IV. Summary of Presentations and Discussions

What is ABS?

Presentation:
What is ABS? – Jock Langford (EC)

On behalf of Tim Hodges, Associate Director of the Biodiversity Convention Office at Environment Canada (EC), the first presenter identified EC's objectives for the workshop. They included:

- raising awareness of ABS in the North, including among Aboriginal communities, governments, and civil society
- enhancing understanding among all Canadians of the opportunities for and challenges of developing ABS policies
- fostering an understanding of the Convention on Biological Diversity and its objectives
- evaluating how ABS can contribute to economic development in the North
- making linkages between ABS and the conservation and management of genetic resources
- improving understanding of the relationship between TK and ABS
- understanding the role of ABS in the development of biotechnology, innovation, and competitiveness
- supporting capacity-building and networking on ABS among Aboriginal communities

The presenter suggested that, in the Canadian context, taking into account the social, environmental, and economic considerations of the North will be key to developing ABS policies that will adequately promote and protect northerners' interests.

The presenter also briefly described the voluntary Bonn Guidelines that were developed to provide guidance to governments in implementing ABS policy/law nationally. For genetic resources and associated TK, the Bonn Guidelines address prior-informed-consent (PIC) procedures and provides rules to ensure that ABS is based on mutually agreed terms (MAT). The presenter concluded by saying that our understanding of the Bonn Guidelines and national implementation is continuing to evolve based on both the experiences of other countries and discussions around Aboriginal-related ABS issues that are ongoing under the Convention on Biological Diversity.

Convention on Biological Diversity and ABS and the Bonn Guidelines

Presentations:
An Overview of the National and Regional Implementation of ABS Measures – Kathryn Garforth (Center for International Sustainable Development Law)

The Convention on Biological Diversity: Recent Developments of Interest to the WIPO IGC – John Scott (Secretariat of the Convention on Biological Diversity)

This session provided participants with some background information about existing ABS laws in foreign countries and

the objectives of the Convention on Biological Diversity.

The first presenter from the Center for International Sustainable Development Law (CISDL) presented the results of research the center has done in partnership with researchers from foreign countries on existing ABS measures. She described the measures taken in two of the 16 countries discussed in the study—Costa Rica and Australia. For both countries, the presenter explained how ABS is implemented through measures that define the subject matter of ABS and elaborate procedures for PIC and MAT to ensure benefit-sharing, as well as mechanisms for compliance, monitoring, and tracking. She also provided examples of ABS applications that have been granted under the Costa Rican and Australian systems. She concluded her presentation with an overview of trends in the implementation of ABS, including:

- the emergence of a set of common elements in ABS regimes
- an evolution in the scope of ABS measures and the continuing need to clarify the legal meaning of some terms
- the drafting of new ABS measures to accommodate the Food and Agriculture Organization of the United Nations' International Treaty on Plant Genetic Resources
- a continued lack of user measures, although progress is being made
- increased awareness of ABS and a fairly high level of activity by governments, especially in the megadiverse[3] countries
- relatively small capacity-building efforts—most of which are being done through bilateral donor support, with little being done through multilateral donor support

The second presentation focused on the objectives of the Convention on Biological Diversity, and provided the participants with some background information about the negotiation of an international regime on ABS. John Scott, program officer at the Secretariat of the Convention on Biological Diversity, briefly discussed some facts about the CBD to provide a context for ABS and TK discussions. He noted that 188 parties have signed and ratified the Convention, and that it entered into force in December 1993. He also outlined the institutional framework, its three basic objectives, and its program of work. Background information about the recent decisions of the Conference of the Parties (COP) on both ABS and Article 8 (j) was also provided to the participants. In order to help the participants understand the status of the international talks on ABS, the presenter briefly explained what COP Decision VII/19 calls for, and what exactly the Parties to the Convention are currently discussing.

ABS in Canada

Presentation:
ABS *Policy Development in Canada* –
Jock Langford (EC)

The presenter highlighted key international and domestic policy-development processes for the emerging issue of ABS.

He stated that the important international developments affecting ABS have included the World Summit on Sustainable

[3] The Like-Minded Megadiverse Countries (LMMC) is a coalition of biodiversity-rich countries composed of Brazil, China, Colombia, Costa Rica, Ecuador, India, Indonesia, Kenya, Mexico, Peru, South Africa and Venezuela. Five other countries have subsequently joined: Bolivia, Congo, Madagascar, Malaysia, and the Philippines.

Development's commitment to negotiate an international regime and the mandate to elaborate and negotiate an international regime established at the Seventh Meeting of the CBD-COP in February 2004.[4] He made reference to the report and website of the Canada-Mexico Expert International ABS workshop — (Cuernavaca, Mexico, October 2004) as a very good source of papers on a range of ABS issues.

The presenter highlighted key intersessional CBD meetings on the international ABS schedule, including the third meeting of the CBD Working Group on ABS (ABSWG-3) in Bangkok during February 2005, the ABS Head of Delegations meeting in Paris during December 2005, the CBD Working Group on Article 8(j) in Spain during January 2006, and the fourth meeting of the CBD Working Group on ABS (ABSWG-4) in Spain during January 2006, which led up to the CBD COP8 meeting in Brazil in March 2006.[5] The presenter also expressed the Government of Canada's hope of announcing, in Bangkok, that it would co-host an international expert meeting on Aboriginal-related ABS issues, in British-Columbia, in February 2006 in collaboration with the Assembly of First Nations.

The presentation also highlighted key milestones over the past 18 months in the domestic ABS policy process. The Federal Interdepartmental Committee on ABS (ICABS), chaired by the Biodiversity Convention Office, provides co-ordination for federal ABS policy development. With Canadian Biotechnology Strategy funding, the ABS domestic policy activities during 2004/05 have included federal/provincial/territorial briefing sessions in provincial and territorial capitals (May-Sept. 2004), the Workshop on Scientific/Regulatory Issues (Ottawa, Dec. 2004), and the Northern ABS Workshop (Whitehorse, March 2005).

In September 2004, the federal, provincial, and territorial (F/P/T) ministers established the F/P/T Working Group on ABS, and tasked it with preparing a domestic scoping paper and engagement strategy for their consideration in September 2005. In response to a question on the nature and level of engagement of Aboriginal peoples in Canada, the presenter indicated that he was not able to answer the question at this time since the ultimate decision on the nature and engagement of Aboriginal peoples will be taken by the F/P/T ministers.

Northern Aboriginal Perspectives on ABS

Presentations:

Inuit Land Claims and Prior Informed Consent – Violet Ford (Inuit Circumpolar Conference)

Aboriginal Knowledge Protocol: A Template for Ownership, Protection and Maintenance of our Knowledge – Merle Alexander (Boughton Peterson Yang Anderson)

Peigi Wilson (Assembly of First Nations)

The first presenter opened with an example of the relation the Inuit people share with the environment, and how natural manifestations help them recognize the arrival of the seasons. A description of the Nunavut and Labrador land-claim agreements helped the participants understand how access to genetic resources is regulated under these agreements.

4 Workshop website available at: www.canmexworkshop.com.

5 Note: After the Northern ABS Workshop, the scheduled dates for the meetings in Spain and Brazil were subsequently moved ahead. The text above has been revised to reflect these changes.

Harvesting rights and practices are regulated under article 15 of the Nunavut Land Claims Agreement, which gives the Nunavut Wildlife Management Board the right to deny access to researchers. There have been cases where the Board has exercised this right, decisions surrounding which can be based on cultural and traditional beliefs.

The Labrador Inuit Land Claims Agreement lists the appropriate matters that can be considered benefits when negotiating impact benefit agreements (IBAs). IBAs also represent examples of how prior informed consent is demonstrated. The Labrador agreement also requires approval from the communities before a major research project can be undertaken. In order to grant approval to the project, appropriate consultation must take place before the project goes ahead. Finally, the agreement includes monitoring aspects as part of the ongoing consent process.

The presenter also addressed the issue of the protection and preservation of TK. Examples such as the *Northwest Territories Scientists Act*, which requires researchers to obtain consent from local communities before research is undertaken, and the Nunavut Licensing System, under which research-licensing consent forms are required by researchers for any activities involving interviews with or the participation of Aboriginal people, help achieve the protection and preservation of TK. The Act allows for the legal protection of both parties regarding the data collected, but does not address third-party interest—therefore, uncertainty remains as to who else is benefiting from the access.

The second presentation mainly addressed the protection of Aboriginal knowledge (AK). The presenter, who has experience at the international, national, and community levels on this issue, described the context in which AK is being discussed domestically and internationally. At the domestic level, legal issues regarding AK for academic research, government-to-government or Aboriginal-to-industry relationships are becoming increasingly important. On an international scale, there is also a great deal of activity around AK, with at least 10 international treaty areas having substantive AK-related components. There is ongoing debate around the term "traditional knowledge", which has no agreed-upon definition, nationally or internationally. Some Aboriginal peoples are reluctant to accept the term "traditional", as it implies something frozen in the past that is static and unable to develop.

According to the presenter, and based on the Supreme Court of Canada comments, all constitutionally protected Aboriginal and/or treaty rights are linked to the knowledge that ensures their continuation from one generation to the next. Therefore, Aboriginal and/or treaty rights are part of AK. The initiative to develop an AK protocol arose from involvement in cultural heritage projects, Aboriginal land-use studies, and a variety of academic contexts. This innovative, Aboriginal-rights-based approach draws from a variety of existing contract types, was developed through extensive consultations with Aboriginal leaders and communities, and aims to ensure that customary laws are respected within modern society. The principles included in the protocol are as follows:

- The acknowledgement of Aboriginal prior-rights and right of self-determination
- The inseparable nature of Aboriginal knowledge from Aboriginal rights
- First Nations' participatory rights

- The right to prior informed consent throughout the term of the project and on an ongoing basis
- The general duty of confidentiality
- The non-derogation of Aboriginal rights, titles, and interests

In addition, the protocol includes a range of responsibilities for any person interested in accessing AK. The applicant must:

- respect the privacy, dignity, cultures, practices, traditions, and rights of the First Nation
- recognize the First Nation's rights to ownership, protection, and custody of its AK (including their rights to heritage resources)
- respect the anonymity of AK holders
- agree to not knowingly undertake any collection of heritage or cultural materials,
- agree not to seek to obtain any AK on the medicinal and cosmetic properties of plants from an AK holder

The protocol also includes a series of provisions on prior informed consent, including the unlimited ability of First Nations to withdraw it at any time. It also requires the acknowledgement that the First Nation will remain the exclusive owner of AK shared in the research project, and includes a clause allowing for the transfer of intellectual property rights back to the community.

The third presenter described the involvement of the Assembly of First Nations (AFN) in ABS. The AFN has been following this complex issue and knows that First Nations share concerns over this emerging issue. Concerns arise over questions of jurisdiction, the involvement of First Nations in the debate, and the difficulty of gathering First Nations' points of view.

The AFN has negotiated First Nations' involvement and has been working with other states to allow and increase the involvement of First Nations in international talks around ABS. One difficulty posed by the current international context is that 11 different United Nations agencies are working on Aboriginal-related issues. The intense international activity around these issues and their demand on limited resources makes it challenging for First Nations to participate in the debates.

First Nations seek recognition of their inherent right to self-government. This includes First Nations developing their own laws and having them respected in international regimes.

Biological and cultural diversity are linked; the CBD protects both. Appropriate recognition of the rights of First Nations in the context of ABS is a critical element of this protection.

The AFN held a national environmental stewardship policy forum in Montréal in April 2005. Biodiversity issues were addressed at this meeting, and the issue of ABS arose during the discussions. The results of the meeting were transmitted to the Annual General Assembly of the Assembly of First Nations in July 2005, in which First Nations were encouraged to participate.

A question period followed this presentation, during which Stas Olpinski, from the Makivik Corporation, asked if the purpose of this workshop was to consult Aboriginal groups and communities on ABS.

Jock Langford, from the Biodiversity Convention Office at EC, reiterated that the main objective of the workshop was to raise awareness among northerners and

Aboriginal groups, and was not considered a consultation. He explained that the decision to start consultations on ABS will be made by the F/P/T ministers. In the current context, no resources have been identified so far to develop a consultation process. It is to be expected that consultations with Canadian stakeholders and Aboriginal groups will increase as the negotiation of a legally binding agreement gets closer to fruition.

In Canada, no specific regulations exist at the federal level on ABS; however, some interesting examples, such as the *Northwest Territories Scientists Act*, exist at the sub-national level. The current policy process is responding to international pressure, and will increase Canada's influence in the international debate. Almost all federal departments in Canada are involved in national and international policy-development processes through their participation in an interdepartmental committee on ABS. A working group on ABS was also created by the F/P/T ministers, whose role is to contribute to the policy development by elaborating an engagement strategy and drafting a scoping paper on ABS. The scoping paper will be key to starting and developing an informative debate on ABS in Canada, both at the working and ministerial levels, and will be revised according to what is heard from the ministers.

The concrete action of the federal government is currently focused on raising awareness through an informed debate, building capacity among experts, and identifying Canadian environmental, social, and economic interests in the context of ABS. This northern workshop and an upcoming international workshop on Aboriginal issues are some of the initiatives that aim to achieve these objectives.

ABS: A Resource Management Issue

Presentations:

ABS: A Resource Management Issue – Brian MacDonald (barrister and solicitor)

ABS and Protected Areas – Andrew Hurst (Biodiversity Convention Office, EC)

Lindsay Staples (consultant)

The first presenter explained the issues and challenges of managing genetic resources in the context of the Yukon, whose climate and geography create a unique environment for plant and wildlife adaptations that lead to the formation of interesting genetic material. The management of genetic resources is a new concept, especially when looking at the political history and social dynamics of the Yukon. As such, a unique opportunity exists to deal with some of these genetic-resource issues and to create unique solutions.

Along with the environmental diversity of the Yukon, the presenter also illustrated its political complexity. The territorial status of the Yukon is characterized by three levels of government jurisdiction: federal, territorial, and First Nations. The Yukon's political and jurisdictional uniqueness is also the result of 10 co-existing land-claim and self-government agreements,[6] interpretation plans to final agreements, and devolution transfer agreements. As a result, flexible and creative new processes are being created that enable the Yukon's political institutions to respond to emerging issues such as resource management and, more specifically, the management of genetic material.

[6] The final and self-government agreements recognize the authorities of the First Nation governmental structure, which represents the interests of the community. They also recognize the First Nation's authority and ownership over the resources.

The management of genetic resources is not covered by any existing laws in the Yukon; however, under the Umbrella Final Agreement (UFA), there are five sections where a connection to genetic resources can be interpreted. The presenter gave a brief explanation of each of these sections, which are summarized as follows:

- Special management areas: the Kluane National Park example demonstrates that some interpretation of this section could include genetic resource management concepts

- Access to settlement land: this section includes a surface rights board responsible for determining access rights in the case of access disputes

- Fish and wildlife management: this section stipulates that First Nations have primary authority over their settlement land. The Yukon Fish and Wildlife Management Board and local committees provide forums for members of the public and First Nation peoples to participate in the decision-making process for the management of fish and wildlife resources

- Forestry resources: Chapter 17 of this section makes possible the harvesting of forest resources

- Economic development: based on the use of genetic resources and benefit-sharing, economic development can arise through different projects that are linked to the *Environmental and Economic Assessment Act*

Under the UFA and the Self-Government Agreement, a First Nation has exclusive jurisdiction over the internal matters within its government and rights arising out of the Final Agreement, as well as the right to legislate certain areas, such as cultural rights and land- and resource-management responsibilities (First Nations laws take precedence over territorial laws; the issue of precedence with respect to federal law remains to be negotiated). These responsibilities and authorities can help to improve understanding of how the UFA can be utilized in the management of genetic material in the Yukon.

The presenter briefly discussed the Yukon's *Environmental and Socio-Economic Assessment Act* (to come into force by fall 2005), which aims to ensure the environmental assessment of projects proposed for the Yukon. The Act identifies Yukon First Nations as decision-making bodies, and requires the assessment process to consider the interests, cultures, traditions, health, and lifestyles of Aboriginal groups and communities and other residents of the Yukon and their special relationship with the wilderness.

Finally, the Yukon's research-permitting legislation, which was developed in 1958, requires non-resident researchers to apply for a permit before undertaking research in the Yukon. The practice is to refer to the First Nation if and when the research proposal touches on settlement land. The system does not require the sharing of benefits arising out of the research; however, researchers generally give credit to the people who have allowed them access to their field of study.

The *Wildlife Act* also includes permit requirements for undertaking wildlife research. In conclusion, in the Yukon there is currently no process that identifies genetic-material management with proper legal acknowledgement; however, there are existing mechanisms that can be adapted to

deal with the management of genetic resources.

The second presentation addressed the issue of protected areas and how ABS can be used to leverage benefits that support efforts to conserve and manage these areas. The presentation focused on recent experiences in Yellowstone National Park.

The biodiversity of Yellowstone has been of great interest to researchers because of the unique species found in its thermal habitats, which include hot springs, geysers, mud pots, and fumaroles. In the 1980s, Cetus Corporation, a biotechnology company, undertook research on DNA-replication technology using a microbe found in the thermal hot springs of Yellowstone called *Thermus aquaticus*. From this microbe, Cetus discovered and isolated an enzyme called *Taq polymerase*. With the use of this enzyme, Cetus developed a process—known as Polymerase Chain Reaction or PCR—that promised to make genetic research much easier through its ability to "magnify" small samples of DNA to facilitate analysis. Cetus filed patents on both *Taq polymerase* and PCR and, in the 1990s, sold the rights to both to the Swiss pharmaceutical company Hoffman-LaRoche. The annual revenues earned by Hoffman-LaRoche from PCR are reportedly in the hundreds of millions of dollars—none of which has been returned to Yellowstone National Park.

Approximately 45 patents have been granted on life-science inventions involving the use of micro-organisms originally sourced from Yellowstone, and approximately 10 more are pending approval. The global market for bio-based products is large, and with less than one per cent of thermophilic biodiversity identified, it is likely that this market will grow in the future.

The Yellowstone case illustrates how a lack of regulation of genetic resources can lead to a net loss of revenues for protected areas. Revenues generated through ABS arrangements can be invested in the conservation of protected areas. The research and economic benefits from genetic research within parks can strengthen the rationale for conserving these areas. This is a new way to think about protected-areas management, as well-designed benefit-sharing agreements can leverage institutional, environmental, and economic benefits from research conducted within these areas.

Yellowstone undertook a range of initiatives to capture these benefits. It updated the management of bioprospecting, initiated new microbial biodiversity conservation activities, reaffirmed support for scientific research, and expanded public outreach and education. The Yellowstone experience suggests the formation of a new bioprospecting paradigm in which science, industry, and society serve conservation.

Learning from this experience, Yellowstone put in place a two-step approach to ABS. First, it allows all researchers to access the park under certain terms. Second, if any research done in the park reaches the commercial stage, researchers and park authorities enter into a contract known as a cooperative research and development agreement,[7] which includes a clause providing for the sharing of benefits (including the payment of royalties and other contributions, training, increased scientific

[7] Cooperative research and development agreements authorized under the *Federal Technology Transfer Act* of 1986 (15 USC 3710a et seq.) provide for joint public-private research activities to encourage shared scientific reporting, training, technology transfer, and profit-sharing arrangements.

reporting, and technology transfer). This approach has yielded increased resources in support of conservation efforts within the park.

Can the Yellowstone example be replicated in the North? Quite possibly. ABS arrangements in northern parks could potentially support the protection of TK, increase knowledge about resources and biological material located in northern parks (taxonomy), help build capacity for Aboriginal peoples, and possibly also generate revenues for conservation.

The third speaker had extensive experience with the Inuvialuit Final Agreement (IFA)—the first land-claim agreement signed in the Northwest Territories (1984). He appeared at the suggestion of several organizations established under the IFA.

He started by asking a few questions relating to the IFA and other modern-day land-claim agreements and the management of genetic material, including:

- what kind of tools or capacity do these agreements provide in relation to genetic-material resource management?
- how well do legal definitions and terms of the 1984 IFA hold up in this context, over 20 years later?
- will capacity-building, as discussed in this workshop, ensure that all parties to this policy-development process share a common understanding of the technical terms around ABS and the legal terms and obligations in land-claim agreements?

Sustainability and sustainable development frameworks can be used when addressing these kinds of questions, as they already include the basic goals of the IFA and other land-claim agreements: participation in the northern economy, preservation of traditional cultural values, and the conservation of fish and wildlife species and habitat. Also, ABS frameworks, as contemplated in the management of genetic resources, are not new in the North; they are already entrenched as impact and benefit agreements and participation agreements (e.g., in the IFA and the Nunavut Land Claims Agreement).

The generation of wealth, protection of cultural values, and conservation of wildlife and habitat is at the heart of the workshop's discussion. Northern Aboriginal people should be active in the elaboration of ABS policies, as this is an opportunity to provide economic benefits to people whom development has often been overlooked. The broad and active participation of Inuvialuit and other northern peoples and governments in this process must be based on the precondition that these same groups will enjoy the benefits of development associated with genetic resources.

On the one hand, people are conscious and have financial expectations of the economic benefits that such developments may bring to the North. The Inuvialuit expect that their rights to the economic benefits contemplated under the IFA will be respected. On the other hand, Inuvialuit expect that the quality of their environment and the abundance and diversity of the fish and wildlife on which they depend will be conserved. The IFA and other land-claim agreements have established management bodies to participate in the conservation of natural resources and to provide greater certainty that their beneficiaries will be able to enjoy the harvesting rights set out in these agreements for years to come. In the North, the traditional use of fish and wildlife resources is based on legal rights and social, cultural, and economic needs that must be respected.

Twenty to 30 years ago, many of these concepts and management approaches, which have since been entrenched in land-claim agreements, were not considered in resource-development discussions. Nor was this type of development contemplated. Today, the IFA and other northern land-claim agreements are broad enough to address the possible risks and benefits of using genetic resources, and many of the rights and entitlements included in these agreements are the same. Although some differ, the differences should not represent an obstacle. The establishment of the federal *Species At Risk Act* is an example of how discussions among all parties have led to the establishment of a set of common provisions and integrated approaches for the implementation of legislation across the North. The same could and should be true of policy development as it relates to genetic resources.

The bioprospecting of fish, wildlife, and flora—either on or off traditional territories—must be integrated with the requirements of land-claim agreements, and must respect the value of the traditional relationships between many northern people and the fish and wildlife they depend upon. Research in the area of genetic resources must also respect these relationships and meet the requirements of the IFA and other land-claim agreements. Finally, respect for the traditional uses of and rights to these resources, as established in agreements like the IFA, will help to perpetuate traditional culture, improve social and economic well-being, and ensure the appropriate management of genetic resources research.

A period of questions and comments followed the presentations. The first comment was made by an elder, Pearl Keenan, who talked about her people and their relationship with the land. She talked about fish and wildlife in the Yukon, saying that a decreasing number of salmon come home to spawn, and that the songbirds and porcupines are gone. She recalled the past and how she lived happily in the Yukon, under her own people's flag.

She now understands that her people's land, medicines, and genetic materials are wanted. She reiterated that we need to respect and protect our environment and our neighbors. She also said that if the government comes down on her people and tells them what they want, she gets scared. She reinforced the idea that what can be shared needs to be written in black and white; that even First Nations' lands and homes can be shared, but the rights of the people must be ensured on paper. The elder also reiterated that the Tlingit Clan does not just give anything away—there are no books of information, and no secrets given away for nothing. Trading, peace-loving, and very respectful people have always existed in the Tlingit Clan, and still do. She concluded by calling for people to take care of the land, as it is a wonderful place to be.

A participant, Don Trudeau, commented that he had heard the terms sustainable development and traditional knowledge thrown around loosely. He believes that TK is knowledge that has been gained over thousands of years, and could be considered a science. He remembers all of the treaties that have been made across the land and that have since been broken. The UFA has not yet been broken, but it is his fear that it will be at some point.

He explained his belief that treaties have been broken in the past because the First Nations people's rights to land were not respected, and because the First Nations

refused to accept the land they were moved onto, because it lacked food, water, and resources to build lodgings.

He reiterated the need to protect resources for future generations: to take care of the land today in order to ensure that it will be protected for future generations. He continued by saying that although people are trying to make new agreements in order to achieve this, he has been protecting these resources all his life. Teaching traditional knowledge to future generations is the way to protect TK and the land. The issues should keep in mind the interest of future generations. The elaboration of these policies will take time, but must start by gaining the trust of the people in the Yukon.

The Future of Biotechnology and Implications for the North

Presentation:
Biotechnology and the North – Jock Langford (EC)

The presenter opened by explaining what biotechnology is, and the federal government's approach to it.

Biotechnology is a set of technologies (e.g., fermentation, plant breeding, natural products, genetically-modified organisms [gene splicing], cell lines [hybridomas], cloning, stem cells, genomics, proteomics) that are used to create new products. It has a wide range of applications to human health, agriculture and food, the environment, aquaculture, forestry, and bio-informatics.

The vision of the Canadian Biotechnology Strategy (CBS) is for Canada to be "a responsible world leader in the development and application of biotechnology to life sciences in the knowledge-based economy. In this way, the quality of life of Canadians can be enhanced in terms of human health, the environment, and social and economic development. " The strategy guides the actions of the Canadian government in this area based on three pillars: innovation, stewardship, and public engagement. It has evolved from an early orientation on support for research and development (R&D) to a strategic orientation that supports policy development on emerging issues such as ABS.

Building a framework for managing biotechnology is about balancing its social and environmental risks (e.g., risks to health and the environment, long-term effects, scientific foresight, ethical questions) with its benefits (e.g., investment in R&D, tax credits for research, commercialization of research). Within the CBS, the Canadian Biotechnology Advisory Committee (CBAC) is responsible for looking at various biotech-related issues and making recommendations to the ministers. The CBAC has already produced reports on genetically modified foods and the patenting of higher life forms.

The presenter also gave an overview of biotechnology investments in Canada. Canada is one of the top five countries in the world in terms of biotechnology, with the majority of money invested going toward human health (88 per cent), followed by agriculture and food processing (8 per cent), bioinformatics (2 per cent), environment (1 per cent), natural resources (1 per cent), and aquaculture (less than 1 per cent). The majority of the federal government's investments in biotechnology have aided in the establishment of R&D clusters in Ontario, Québec, British Columbia, the Prairies, and Atlantic Canada. The presenter indicated that CBS statistics suggest that there has been little or no biotechnology investments made in northern

Canada. He also said that his expectation, based on trends, is that the federal and provincial governments will continue to increase their financial support for biotechnology in the coming years.

The presenter illustrated that biotechnology is a horizontal issue that involves more than 26 federal departments and agencies. Among federal institutions, he singled out the Canadian Institutes for Health (CIHR), the National Research Council (NRC), and Genome Canada as leaders in public sector R&D. The CIHR and the NRC spend approximately $175 million and $130 million, respectively, on biotechnology each year. The NRC has established five biotech institutes across Canada, and Genome Canada has genome centers in British-Columbia, the Prairies, Ontario, Québec, and the Atlantic region. These two have also established international partnerships and a science and technology network with other countries in the Organization for Economic Cooperation and Development.

The presenter also explained the biodiversity/biotechnology strategies of Malaysia and Indonesia, where access to biodiversity is an incentive for investors to locate their research facilities in biotechnology parks. This is a model that may have potential applications to a northern ABS strategy.

The presenter concluded with a series of questions about how ABS relates to the development of the biotechnology industry and how there may be merit in developing a biodiversity-based biotechnology strategy for the North. In identifying northern biodiversity that may be of interest to researchers (e.g., extremophiles, micro-organisms, non-timber forest products, products based on TK, marine organisms) the presenter posed several questions, including:

- how can the North take advantage of this biodiversity?
- is there a need for a northern strategy on biotechnology?
- how can the North access biotechnology funding?
- how can the North best access university/government research agencies in the rest of Canada in order to build research relationships and networks?

Genetic Resources and Bioprospecting in the North

Presentation:
Biodiversity in the North – Sophie Bernier (EC)

The presenter touched briefly on the state of genetic resources in Canada, with a particular focus on the North. Most of the world's biodiversity (70 per cent) can be found in the megadiverse countries (that is, those located around the equator belt). All countries are users and providers of genetic resources, as all have different ecosystems and climates. Canada is in a unique position because of the variety of its ecosystems and climates, and because resources found in extreme environments are of potentially great importance to future biotechnology developments.

In Canada, there are approximately 140 000 unidentified species, 68 000 species that have not been described, and a limited number of endemic species in comparison to other countries. Most of the species (organisms, plants, and animals) are found in land and water ecosystems. There is a need to allocate more resources to national

taxonomy efforts, as this work will contribute to a better understanding of the types of species found in Canada.

When looking at the number of species, we should also consider the variation within each. Unfortunately, information on species variation is also limited, as techniques to measure genetic variation within species are generally prohibitively expensive to apply to Canada's wild species. Human activities and environmental effects force species to adapt themselves to new circumstances, thereby contributing to the modification of the species and their relationship to their natural habitat.

Many species (e.g., micro-organisms, trees, plants, flowers, fish and other marine resources) found in extreme environments, including toxic sites, contain interesting properties, and are or could be harvested for research and eventually commercial purposes.

— Discussion I —
Which Resources Do We Find in the North?

Presentation:
ABS: Research and Economic Development in the North – Alain Cuerrier
(Montréal Botanical Garden)

The presenter explained how animal-, plant-, and algae-based products can be developed using resources found in the North. Among all the species identified, seaweed is one of particular interest to scientists, as it is abundant along the shoreline and has a variety of uses. These include the production of food products, biomedical applications, paper products, pharmaceutical products, cosmetics, medicines, ecological tools (monitoring toxicity), and fertilizers. Freshwater and marine micro-algae can be used in the production of health products (e.g., Spirulina, Chlorella) and medicinal products (e.g., antioxidant [beta-carotene] and immuno-suppressive [peptide]).

Seaweeds are part of the Inuit's lands and TK. Harvesting and commercialization should involve the Inuit people at all decision-making levels, and should be respectful of the environment and Inuit culture.

Estimates indicate that over 2000 species can be found in the North, with around 184 of these used in the development of products and medicines. Ten percent of the species found in the North are used by the Inuit people. The presenter gave the example of *Rhodiola rosea* (also called Tullirunaq and Utsuqammat), a plant used by the Inuit in Nunavik and elsewhere in Canada as a tonic. More taxonomic, phytochemical, and pharmacological studies would likely unveil other properties of the plant and broaden the potential applications of its components. The *Rhodiola rosea* grows slowly and little is known about its distribution in Canada, therefore there is a need to assess the sustainability of wild-harvesting this resource and the possibility of cultivating it.

As a first set of conclusions about species found in the North, the presenter reiterated that the local importance of these plants should be stressed, local economy should prevail when using the plants, the global economy should be in harmony with the Aboriginal culture, little is known about the pharmacological potentials of arctic plants, and sustainable harvesting needs to be addressed.

As a second part of his presentation, Mr. Cuerrier shared information about a project he is realizing with the Cree community in northern Québec. In the northeastern part of Canada, First Nations have traditionally used around 380 species of medicinal plants. The focus of Mr. Cuerrier's work with the Cree community is the potential of certain plants to contribute to the development of a cure for diabetes. Preliminary results of the study indicate that 29 species were mentioned by Cree elders in relation to the symptoms of diabetes. Eight of these have been investigated, and all showed anti-diabetic activity, with antioxidant potentials seemingly high in numerous species.

The presenter stressed the need to work in a respectful manner when undertaking this kind of work. All of the elements of importance to both the First Nation and the scientists need to be integrated in a respectful way that leads to the final objective: to reduce diabetes. He also recalled the need to assess the sustainability of local resources. Currently, the Cree are using resources like fungi, lichens, moss, and vascular plants in the production of medicines, food, baskets, tea bags, etc. These slow-growing resources are abundant right now, given their limited and sustainable use; however, there is a need to assess the potential impacts of mass harvesting and production on these resources.

There are several potential dangers associated with the harvesting of plants, including cultural misunderstandings between First Nations and researchers about the goals of a project, the possibility of losing track of the scale of the harvesting economy, and the need for more thinking to be done about how, for whom, and based on what knowledge the resources should be conserved.

— Discussion II —
What is Being Collected, Including Non-Timber Forest Products? What Scientific Research is Being Done?

Presentations:

Bioprospecting and Biodiversity Research in the Canadian North – Victor Bradley (EC consultant)

The Nunavut Research Institute: Licensing Process and Ethical Guidelines – Nick Dennahower (Nunavut Research Institute)

The first presenter began by explaining that *in situ* bioprospecting in Canada seems to be limited. Some research institutions already keep a large collection of samples of Arctic flora, and a few Canadian museums also have collections that can be accessed without any particular or onerous requirements. The existence of *ex situ* collections in Canada, both in research institutions and museums, is an indication that a large number of genetic resources can be accessed without limitation.

The protection of genetic resources is also limited under territorial legislation. Collections of native species are relatively accessible and, although not for sale, allow researchers to have access to specimens for basic research and research on the particular characteristics of a plant.

The presenter found little information regarding bioprospecting activity in the North, biotechnology development and research in the North, or research on genetic resources in the North. However, he pointed out that there are many activities (this workshop being an example) taking place with the main objective of discussing the issue of bioprospecting in the North.

In talking to different authorities, the presenter made no discoveries of anecdotal

evidence of biotechnology research or research on the North from a bioprospecting or biotechnology perspective. It is a reality that in the debate around biodiversity in the North, issues concerning flora or fauna seem to be dominated by other issues such as climate change and pollution.

As part of his research, the presenter looked at the licensing system in the North. According to existing licensing requirements in territorial legislation, all research done in the territories is supposed to be licensed. While it is clear that a research permit could not be withheld without good reason, government agencies and the general population are supposed to be aware of the work to be undertaken in the territory. Limited time and human resources often make it difficult to monitor the activity occurring in the territory, and this reality creates enforcement issues.

Finally, the researcher addressed the impacts of biotechnology research on the environment. Certain biotech manipulations can extract the genetic components of a plant and be synthesized and reproduced in a laboratory. Not all biotechnology research leads to a mass harvesting of resources, and the detrimental or adverse environmental or cultural impacts of this research do not always occur.

The second day of the workshop started with a series of comments from the elders present at the workshop. The first participant commented that he does not work with computers, but rather prefers to work with elders, and wants to learn from them. He also expressed his interest in learning something from the participants at the workshop, and added that there are all kinds of ways to use medicinal plants. The participant explained how his First Nation settled its land claim in 1995, and how it emphasized the need to protect its culture.

The second participant to comment raised concerns about licensing systems. According to him, licensing may not work because some of the research is occurring on traditional territory. Before land-claim agreements, he said that researchers would use catch-and-release techniques to research fish, and that the fish would die afterwards. Therefore, these techniques should not be used anymore. He also talked about the fact that people make money out of the use of fish and wildlife, yet no money goes back to the First Nations. Elders have a say in how their fish and wildlife management program is run, and First Nations have their own lawyers to consult when facing issues about fish and wildlife.

The third comment was made by an elder who voiced the need to look back at past laws that did not include any property rights. Any law that would be adopted should be clear enough so that all parties understand their implications. It's a corporate responsibility for legislators to ensure that laws can be understood by all. There is a need to look at existing land-claim agreements and assess the relationship between these laws and any new regulation. It is important that First Nations understand the laws and policy guidelines and be properly involved in this process. The elder concluded by saying that TK is leaving his First Nation, and that he wants to put a stop to this.

The fourth participant to comment started by saying that her people are concerned about the caribou and the United States decision to allow some mining activities that will affect the caribou's habitat. This decision will also affect her people's future,

as they rely on caribou to take care of their spiritual needs and their every being. She also said that she found some of the presentations at the workshop hard to follow because of the technical terms used. As a young elder, she is very interested in the work being done on the protocols for accessing TK, and the workshop was a learning experience for her because it gave her the opportunity to sit with elders who have a lot to say on the issue.

The next commenter, Mr. Don Trudeau, said that the elders must think thoroughly about what they had heard. He said the elders of First Nations peoples have always shared their knowledge, but are not ready to give it away. He would share his knowledge, but people must ask for it first. In First Nations' culture, people are related to and have a spiritual respect for all things. He expressed concern over the viruses and germs that modern medicine is working against, and said that getting to know TK is important to fight these diseases. He emphasized the importance of how plants of all sizes are related. Elders are experts on plants, and the plant world is their university. Scientists need to be respectful of the plants they are studying.

The last comment was made by Mr. Gary Harrison who commented on the need to protect TK. In the past, his people shared their language with universities and couldn't afford to take it back from the university that had acquired it. The First Nations started to develop their own books and resources, and had to have their own language copyrighted. Drawing from this past experience, there is a concern about sharing TK and losing control over how it is used. Bioprospecting may exploit his people's TK.

The second presenter started by giving an overview of the structure, vision, mandate, and activities of the Nunavut Research Institute (NRI).

The NRI's primary role is to issue research licenses. It also coordinates, promotes, and facilitates research projects, identifies and communicates research needs and priorities, and compiles and communicates research results. Its responsibilities are to administer the *Scientists Act* (RSNWTc 1988, c.4) in Nunavut, and to license all research in Nunavut except terrestrial wildlife and archeological research.

According to the Act, a science advisor shall issue a license unless, for reasons stated in writing, "the research proposed to be carried out might be injurious to or unduly interfere with the natural and social environment of the territories or any part of the environment" (NWT Statues, 1985: Chap S-4, Sec 2).

The licensing review process is multifaceted and involves a wide-range of agencies, such as public-school administrators, hunters' and trappers' organizations, municipal councils, Inuit land-claim organizations, and territorial regulatory groups. The licensing process provides the community with influence over the types of research conducted in Nunavut (e.g., a license may be withheld if communities prove that the proposed research will be unduly intrusive or inappropriate) and the manner in which research is conducted (e.g., limits may be requested on the timing and location of research activities, or the types of research methods used).

One of the goals of the NRI is to address ethical questions and respond to local

frustrations over research processes. Frustrations often emanate from unethical research, lack of transparency about the end-use of research results, concerns that researchers enhance their careers at northerners' expenses by acquiring intellectual property rights, concerns over the validity of research results, and northerners' desires to have more control over research and share the benefits derived from it.

The NRI has divided its ethical principles into two categories: objective and subjective. Among the objective principles are the obtainment of prior informed consent, guarantee of anonymity, appropriate consultation at all stages of the research (including design and practice), and the right of the community/individual to withdraw consent at any point during the study. The subjective principles include showing respect for local culture and language, privacy, and dignity; applying no undue pressure to obtain consent; incorporating relevant TK into all stages of research; and striving to enhance local benefits that could result from a project. These principles are not intended to regulate research, but rather to guide the conduct of research in general ways, encourage fairness and honesty, and encourage researchers to conduct research with the consent and cooperation of affected local communities.

The presenter concluded his presentation by noting how scientific research can contribute to the economic and social development of communities. Revenues, education, and increased knowledge about the natural and social environment can all be derived from a well-established research agreement.

ABS and Marketing: Issues, Opportunities, Challenges

Presentations:

Building Partnerships for the Sustainable Management of Non-Timber Forest Products and *Canada Yew: Managing a Genetic Resource for Genetic Gain* – Jock Langford (EC)

Bev Gray (herbal specialist, Yukon)

International Plant Identification Practice – Connie Kehler (Canadian Herb, Spice and Natural Health Product Coalition)

Because the workshop was significantly behind schedule, the first presenter incorporated some of the key elements of the second presentation on the Canada yew into the presentation on non-timber forest products (NTFPs). Both of these presentations were jointly prepared by the Canadian Forest Service and the Biodiversity Convention Office.

Besides trees used for timber and pulp, Canada's forests contain a wide range of biodiversity. Plants have multiple values and uses (e.g., fibre, food, horticulture, nutraceuticals, pharmaceuticals). Historically, plants have played a very important role in human health. For example, over 35 000 species of plants are used for medicinal purposes worldwide.

Bioprospecting of NTFPs is occurring worldwide, including in northern Canada. While the significant potential of NTFPs is acknowledged in a general sense in Canada, the development of NTFP products and markets in support of the sustainable development of northern and rural communities has not fully reflected the

potential opportunities. When thinking about the potential use of NTFPs, two questions arise: which of the many plants or bioactive compounds are realistic candidates for harvesting and are included in R&D directed at commercialization? and what additional market-related factors should be considered?

NTFPs, also called non-wood forest products or specialty forest products, offer a wide range of opportunities and differ in various ways, including in their abundance, value, biological characteristics, potential uses, and possible market development. Even though these resources offer a significant potential, the demand for most "single" NTFPs will not likely be of sufficient scale to provide a full-time livelihood for individuals or to sustain rural communities. It is through a sustainable-management strategy for forest products that their potential will contribute to meet environmental, social, and economic objectives. Commercialization of NTFPs may lead to mass harvesting, and multi-agency partnerships can be effective in achieving long-term sustainable benefits while avoiding the depletion of species throughout the world. The presenter also identified a number of biological and market-factor questions that need to be considered in evaluating the potential of an NTFP and mapping out a harvesting and commercialization strategy.

The presenter provided information on the harvesting, processing, and sales of the NTFP Canada yew. Taxanes extracted from the Canada yew (*Taxus Canadensis*) are used to produce the anti-cancer drug Taxol, which has been demonstrated to be effective against more than 20 forms of cancer, including breast and ovarian cancer, and some non-cancer diseases. Because of its medicinal and ornamental characteristics, the yew is being harvested in Canada and other countries. Measures are being taken to try to counter unsustainable harvesting practices of the Canada yew by some companies. The Canadian Forest Service has a five-year research program to identify and develop superior Canada-yew plant genetics, so that plants can be grown and harvested sustainably on plantations.

The establishment of partnerships between various stakeholders is required to achieve the ultimate objective of ensuring the development of a sustainable NTFP industry. The Canadian Yew Association is a diverse group of government agencies and stakeholders that have worked to develop a set of goals and activities aimed principally at ensuring the sustainable management of the yew. The goals identified by the association are to protect the resource, maximize the benefits to workers and rural communities, and maximize value-added processing in Canada. The presenter suggested that the partnerships and strategies being used for the Canada yew may serve as a potential model for other NTFPs.

The presenter concluded that while NTFP stakeholder partnerships have not been without challenges, the Canadian Forest Service's experience with these partnerships is that they are successful in building relationships among partners, increasing awareness of NTFPs, contributing to scientific knowledge, and contributing to the achievement of economic-development goals. Competition may lead to a shift in production from one country to another and decrease interest in the same resource harvested in Canada.

The second presenter was the owner of Aroma Borealis, a natural product shop located in Whitehorse, Yukon. She explained how people harvesting plants can feel the positive energy of plants, and that everyone

has a personal journey with plants. According to the World Health Organization, 80 per cent of the world's population use natural products for healing. The increasing use of plants in various products contributes to a loss of plants, both from quantitative and qualitative perspectives. She gave, as an example, the Echinacea that is being intensively harvested in the Prairies.

According to the speaker, large corporations are looking at the Yukon as an interesting place to harvest plants. She suggests that a council should be put in place to prevent the over-harvesting of plants in the Yukon, and to manage their sustainable use. The speaker explained how she harvests plants in the Yukon in a respectful way, by taking small quantities of plants and without harming the environment.

One comment followed the presentation. An elder expressed concerns about wild plant-life, and how anybody can go out and collect species when, in his view, no one owns nature and plants can't be someone's property. Bev Gray (Aroma Borealis) responded that she agreed with the elder's concerns, and reiterated the need for a body to manage plant-harvesting activities in the Yukon.

The third presenter began by introducing the Canadian Herb, Spice and Natural Health Product Coalition. The coalition connects agriculture and health, and works with leaders in the field from all the provinces and the Yukon. The work of the coalition focuses on three main areas: culinary herbs and spices, medicinal herbs, and natural health products. All of the people involved in the production chain, including producers, wild-crafters, manufacturers, practitioners, researchers, regulators, scientists, government partners, associations, companies, groups, and small micro-companies, work together to help build a sustainable chain—from the field to the shelf. This includes working to influence the development of policies relating to health products.

The network of people involved in this area contributes to building social, environmental, cultural, and economic sustainability. One of the goals of the coalition is to help community people develop projects that will foster and benefit the community. The presenter stressed the importance of the social impacts of the coalition, as the driver in this case is not primarily economic in nature. Developing principles, guidelines, and practical tools, listening to people, building bridges, and understanding are all at the heart of the coalition's actions.

The second part of the presentation focused on plant identification. According to the speaker, plant identification is essential and is one of the keys to the development of an industry based on the safe use of high-quality natural health products. Examples of misidentification, adulteration, and contamination of natural health products have been widely recorded, both within Canada and around the world. Undoubtedly, questions of botanical identity are a key feature.

Accurate plant identification is a concrete need, as it represents the foundation of the safe use of plant-based natural health products. Without proper botanical identification as a starting point, the safe use of quality products cannot be guaranteed. The coalition's main goals in this area are to develop effective and practical tools for people growing and collecting plants so that medicinal herbs are accurately identified, to make this voluntary practice available to all so that it is included into good collection

practices, and to establish a tool for the cottage industry and manufacturers to ensure appropriate identification.

A plant-identification working group, composed of representatives from industry, government, First Nations communities, the Herb Research Foundation, the American Herbal Products Association, the World Health Organization, and educational institutions was established to provide advice on how best to develop an identification practice. As a first step, the group revised literature to look at partially developed practices. As a second step, a decision-tree process was developed based on a risk-management system that looks at the risks for the people and products involved. This process encompasses the identification of correct species, varieties, and plant parts. Finally, the third step aims to observe and document the growth and harvest stages of both cultivated and wild-harvested plants.

In order to guarantee the identification of the plants, two documents have been produced. The Certificate of Authenticity, which must be signed by a recognized authority in botanical identification and, alternatively, the Declaration of Identification, which must be signed by a harvester or a producer whose knowledge or past experience has been used to identify the plants.

The identification system created by the group is now an internationally recognized practice, and resulted in the elaboration of a tool for the safety of all people involved in the production chain of health products, around the world.

The following question and answer period allowed for comments from two participants. An elder commented to reiterate the need to recognize the voices of the First Nations and rebuild trust among parties. The fact that First Nations' knowledge is being taken without permission is breaking the trust its people once had in the users of the knowledge. People have a lot to learn from the First Nations, and land managers need to see for themselves what First Nations are going through, how they live off the land, the plants they use, and their respect for the environment. The elder was thankful for the opportunity to attend the workshop, and for people to hear what she had to say. There will be no trust for First Nations' future generations if something does not get done today, she added. She concluded by reiterating that the Yukon First Nations are a government, and should be treated as such.

The next participant, Don Trudeau, explained the relationship First Nations have with plants, which they consider a living family with a special spirituality. The identification of plant varieties is easy for First Nations people, and is done through special communication with the plants and a unique energetic relationship with them. First Nations elders, shamans, and healers ask permission from the plant family as to which plant should be picked. Doing business with plants is not an option for Aboriginal people; it is the essence of life. The participant is recognized by elders as a doctor of the land. He is concerned that people are taking a simplistic approach when dealing with plants, and hopes this workshop will help people understand the special relationship that needs to be established between scientists and plants. He also hopes that people will listen to and learn from the First Nations before they take their knowledge away.

Herbals and Medicines: Aboriginal Issues

Presentations:
Ajunnginiq Centre - National Aboriginal Health Organization – Tracy O'Hearn (Ajunnginiq Centre, National Aboriginal Health Organization)

Verna Miller (Nlakapamux Health and Healing Society)

University Research on Traditional Medicines: Implications for Aboriginal Communities – Kelly Bannister (University of Victoria)

Pearl Keenan (elder)

The first presenter introduced the National Aboriginal Health Organization (NAHO), which was created in 2000 in response to recommendations from the Royal Commission on Aboriginal Peoples and the National Forum on Health. It has three centers of excellence: First Nations, Métis, and Inuit.

The Ajunnginiq (skills and knowledge) Centre focuses on issues and priorities of specific concern to Inuit in Canada and works closely with regional and national Inuit organizations, including the Inuit Circumpolar Conference (Canada), Inuit Tapiriit Kanatami, Pauktuutit Inuit Women's Association, and the National Inuit Youth Council.

The Centre's mandate is to:

- improve and promote the health of Inuit through knowledge-based activities
- promote the understanding of health issues affecting Inuit
- facilitate and promote research and develop research partnerships that respond to the research priorities of Inuit
- increase the number and capacity of Inuit researchers
- foster capacity building and the participation of Inuit in health-care professions
- affirm, promote, and protect Inuit traditional cultural, environmental, and health-related knowledge and associated intellectual property rights

In the area of traditional knowledge, NAHO focuses on building relationships with knowledge holders (takes direction from them), creating links between knowledge holders and traditional healers within Canada and internationally, and monitoring relevant discussions and processes that affect Aboriginal peoples in Canada and internationally.

The Ajunnginiq Centre works on specific issues with Inuit partners in the regions and nationally (e.g., the recent federal sectoral roundtable on the environment organized by Inuit Tapiriit Kanatami), including the protection of Inuit cultural and intellectual property; climate change, research methodologies, and research ethics.

The main objective of the Centre is to ensure the inclusion of Inuit concerns in policy development. Addressing health issues in a holistic context (i.e., environmental health and wellness), raising awareness of relevant issues (e.g., the protection of cultural and intellectual property), ensuring recognition of unique factors (e.g., land-claim agreements, language, culture, geography), developing plain-language materials in both Inuktitut and English, and the integration of Inuit traditional knowledge and practices into the examination of contemporary health issues and solutions are among the Inuit-specific activities undertaken by the Centre.

The Ajunnginiq Centre is active in the elaboration of methodologies and ethics for researchers working in Aboriginal

communities or with Aboriginal peoples. The way such research is conducted has evolved; the general principles now taken into consideration include ownership, access, control and possession of data, participatory processes that benefit those being researched, prior informed consent, the right to withdraw, and equal recognition and value of TK and Western science.

The Tri-Council Policy Statement, "Ethical Conduct for Research Involving Humans" (adopted in 1998 by the Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council), includes a chapter about the importance of recognizing self-determination in research, incorporating TK and ways of knowing, and respecting Aboriginal research ethics. These ethical guidelines and, in particular, issues of ownership and control of data have potential implications for Aboriginal peoples in Canada in relation to research related to genetic resources and provisions of related ABS agreements.

Key messages provided by the presenter were that research and knowledge must reach the right people, in the right language, and in the right ways, and that research must be respectful and support the capacity of each party to work together as equals. The Ajunnginiq Centre plays a role in knowledge translation by trying to convey complex information in a way that has meaning to people in Aboriginal communities, and ensure the fair and meaningful participation of Aboriginal peoples in the elaboration of research projects and sound policies. The implementation of the following recommendations would help lead to this latter goal:

- Full implementation of land-claim agreements
- Meaningful Inuit participation in discussions/solutions
- Inclusion of an authentic Inuit voice
- Communication by way of public meetings and non-print media
- The definition of sustainable development in both Inuit and research terms
- Impact assessments that include the social and cultural impacts of development

The second presenter was the executive director of the Nlakapamux Health and Healing Society, who started her presentation by talking about plants. She explained that while the focus of modern scientists is on the medicinal aspects of plants, they are also used for food, spiritual purposes, materials, tools (technology), and the arts by First Nations people. They are also critical for feeding animals and, in that sense, are critical to maintaining the circle of life. Human beings are not isolated, and the existence of humans, animals, and plants is not mutually exclusive. Without all the natural elements of the world, humans would be nothing; there is a symbiotic relationship among all things on earth. To illustrate the importance of plants to her ancestors, the presenter gave the example of the rose bush and the spiritual significance it had to her community.

The presenter concluded by saying that some of the issues being discussed at the workshop were difficult to understand, and that made it hard for her to determine the purposes, benefits, non-benefits, successes, and failures of what was being discussed. The discussion should not be only about medicine, but also about survival. There is a need to ensure that First Nations understand this better. People should see that this debate is about money, and not be too naïve about it.

The third presentation addressed the issue of university research on traditional

medicine and its implications for Aboriginal communities. The presenter's appreciation for non-academic types of scientific knowledge and her work with Aboriginal communities have led to her involvement in projects that address some of the ethical and legal issues surrounding such research—including non-legal mechanisms for protecting biodiversity and cultural knowledge, and the development of models for collaborative research between universities and communities.

As illustrated in a diagram used in her presentation, the presenter explained that, depending on the philosophical and methodological approach of the different researchers and their diverse areas of research, the respect for codes of ethics and recognition of the qualitative aspects of research vary considerably. One could say that research involving traditional medicines involves both research ethics and intellectual-property rights issues, but many researchers do not have adequate training in both areas.

The existing linear, extractive flow of conventional academic research—starting from the situated knowledge and natural resources in a given territory and resulting in patents and publication of research results at a university institution—is disempowering for Aboriginal communities. A circular, iterative cycle of research based on participatory approaches that integrates local consent processes, local involvement and shared decision-making, reciprocal exchange of knowledge and resources, local training and educational opportunities, data-sharing in locally useful forms, identification of further collaborative opportunities, and ongoing consent and communication was proposed as an alternative. This approach would lead to the continuous involvement of Aboriginal communities and would be mutually beneficial to all parties, as both researchers and Aboriginal communities would contribute to and learn from the research being done.

As indicated in existing literature, the basis for undertaking equitable research with Aboriginal communities rests on key principles, including prior informed consent, ongoing consultation, adherence to best practices, compliance with codes of ethics, compliance with community protocols, and the fair and equitable sharing of benefits. The elaboration of codes of ethics is key to ensuring that the research community recognizes and respects these principles. Guidelines and codes of ethics exist at the international, national, regional, and community levels—thereby increasing recognition of Aboriginal laws and institutions, and fostering respect for Aboriginal culture.

In Canada, the Tri-Council Policy Statement on research involving humans sets the minimum standard for all university human-research ethics policies. It includes general principles (such as the respect for human dignity, respect for free and informed consent, respect for privacy and confidentiality, balancing of harms and benefits), but is often criticized as being oriented towards the protection of individual rights. Section six (under revision) of the Statement focuses on additional requirements for research involving Aboriginal peoples, and includes:

- consideration of past harms to individuals and communities incurred by expropriation of cultural properties and human remains
- respect for the culture, traditions, and knowledge of Aboriginal groups
- consideration of the interests of the Aboriginal group when property or

private information belonging to the group is studied or used
- conceptualization and conduct of research as a partnership with the Aboriginal group
- adjustment of research to address the needs and concerns of the Aboriginal peoples involved
- opportunity for the community to react and respond to research findings and publications

The presenter also discussed the issue of intellectual property rights (IPRs) and the ownership policies of universities in British-Columbia. While universities set their own institutional policies for the ownership of IPRs (i.e., inventor-owned or institution-owned), many questions remain unanswered with regard to the intellectual property of research results involving TK. Who owns the results; the researcher or the community? Who is considered the valid inventor? Does the intellectual value of the cultural knowledge being disclosed exceed that of the research or transcription process, or vice versa?

In conclusion, the presenter reiterated the importance of developing collaborative frameworks for research involving cultural knowledge and biological resources that reflect agreement on the basic principles for equitable research. Equity in research requires changes in the mindsets of individual researchers and in the research, IPRs, and ethics policies of institutions. There is a need to develop a national code of conduct for ABS to inform individuals and institutions, and to create significant incentive for compliance by embedding ethical standards in research-funding requirements. It may be useful, in developing this code, to look at the existing human-research ethics model.

The fourth presenter was an elder of the Tlingit people, who have been in the Yukon for over 500 years. She has many good stories about their life in the Yukon, but they are not in books, and are only told orally. There are boundaries between Aboriginal lands, and she was told never to push her culture on other people. Her culture is truly with the natural world, and she believes in reincarnation and in breathing-in the spirit of someone who has been on this earth before.

The Tlingit people have traditional names and their own language and cultural way. The inland Tlingit are divided into various clans: the eagle, the beaver, the frog, the wolf, and the crow. Each clan operates differently, as do their justice systems and laws. Each member of the clan takes part in the life of the clan, but clan leaders have changed over the past 20 years. They now take over the clan they represent, although this is not part of the presenter's culture or the way clans used to work. In the early days, before the arrival of the white man, it was "an eye for an eye, a tooth for a tooth". The justice system ensured that laws were acted upon. There are beautiful stories about justice and how it was acted upon seriously.

The presenter also talked about the relationship of her people with the animals. Animals came into people's lives to warn them discreetly. The Tlingit people are very respectful toward animals and plants. They hunt for food and take care of the animals that come to them. The Tlingit people are also thankful for the water and trees. They cut trees cautiously, never make clearings, and never destroy the land. The traditional way they raise their families would be a benefit to all.

The presenter said that she must be careful of what she says, because she speaks for the

eagle-clan people. It is only her and another man who know the Tlingit culture and ways, because all the other elders have passed on and taken their knowledge with them. In her culture, when there are meetings, everyone has to know the issue. About five years ago, the government was frantic about babies with Fetal Alcohol Syndrome, and never understood the causes of the problem or how to stop it. In her culture, when a woman is pregnant, it is a wonderful thing; there is a little spirit within her. When girls or boys become adults, it is the most important time in their lives. Yelling at children and teens is not a good thing, and is not respectful in her culture.

She also talked about the relationship of her people with the plants. Taking herbs from the land is sacred, and only a few people can take these medicines. If someone cannot find the plant he or she is looking for, it means that the plant does not want to come to them, and someone else will find it. Only special people can collect plants. Collecting plants irrespective of their properties will not lead to any good results. Medicine is only effective when done properly and with respect to its intrinsic spiritual value. This is the Tlingit way.

First Nations people are different across the Yukon territory. The Tlingit, Tuchone, Kaska, and others deserve equity. First Nations people own the land in the Yukon, but are not given equity. Past experiences have taken a lot from them: First Nations people have lost their language over the years, have suffered in the school system, and been forced to do what they were told by white people. First Nations not only want credit for who they are, but also want benefits. She truly hopes that we can all get somewhere, but she is she worried about her people. She only wants the truth; no more no less.

A period of comments followed this presentation. The first participant spoke about the importance of hearing the words of the elders, who are still the backbone of the First Nations. The participant recalled her years in a residential school and, although she is slowly regaining what she lost so many years ago, she still remembers the feeling of being taken away from her land, family, and parents' teachings for such a long time. Elders in the Yukon are role models for First Nations; they push First Nations to struggle for their rights and protect their culture. Yet, despite these efforts, things are still being stolen from them. She thanked the elder for the knowledge she shared at the workshop.

Gary Harrison also commented on another workshop that was taking place in the Yukon that addresses the issue of salmon-harvesting and genetics, and suggested that the two conferences be held together in the future, as they both touch on important issues involving Aboriginal people.

Current Approaches and Mechanisms in the North: Overlap with ABS

Presentations:

Aboriginal Customary Law: Reconciling the Savage with the Civilized – Merle Alexander (Boughton Peterson Yang Anderson Law Corporation)

Joining Forces Against a Common Enemy: Bridging Traditional Knowledge and Modern Medicine by Developing Ethical Phytomedicines Against Diabetes – Pierre Haddad (Université de Montréal)

The first presentation's underlying theme was that "a justifiable account of the similarities and differences between Aboriginal and common law legal systems pays equal attention to the cultural aspects of each form of law". Currently, neither Canadian common law nor international

treaties truly recognize Aboriginal customary law on an equal footing with other sources of law.

Similarities between Aboriginal and non–Aboriginal legal interpretation need further assessment and integration. More effort must be devoted to understanding how these two legal paths run in parallel, in the same direction, and intersect. The challenge is to create a true validation and affirmation process by learning to incorporate both Aboriginal and non-Aboriginal perspectives into a mutual understanding.

The presenter first discussed the domestic basis for a reconciliation of the common-law system and customary law. Aboriginal customary law, like other sources of law, is dynamic in nature. Customary law has an inextricable communal nature; the social structures that recreate, exercise, and transmit this law through generations, and the protocols that govern these processes, are deeply rooted in the traditional territories of our peoples and, understanddably, are inalienable from the land and environment itself. Aboriginal peoples frequently access their historic experiences and cultural epics in order to formulate and apply their own law. These often contain multiple meanings, and their deceptive simplicity hides a sophisticated structure and substance. Like any source of law, reflection and interpretation is seldom evident upon first hearing or reading.

Aboriginal peoples had rights of self-government and self-regulation at the time of sovereignty. Those rights rested on the customs, traditions, and practices of these peoples to the extent that they formed an integral part of their distinctive cultures. Courts have also held that Aboriginal customary law is neither abrogated nor derogated by provincial, territorial, or federal law unless there is "clear and plain" intention of the sovereign power by an act of Parliament or legislature.

The pre-existing and contemporary status of Aboriginal law was made very plain by the Supreme Court of Canada in *Mitchell v. M.N.R.* In declaring the source of Aboriginal rights, Chief Justice McLachlin wrote that "English law…accepted that the Aboriginal peoples possessed pre-existing laws and interests, and recognized their continuation…". As such, she held, "[A]boriginal interests and customary laws were presumed to survive the assertion of sovereignty, and were absorbed into the common law as rights". Canadian courts have also explicitly recognized the substantive role that Aboriginal customary law plays in developing the Aboriginal perspective of an Aboriginal right in issue.

The *Van der Peet and Delgamuukw* case law forms a significant legal basis that any regime that seeks to protect, preserve, and maintain Aboriginal knowledge must necessarily place equal emphasis on both Aboriginal and non-Aboriginal sources of law. Aboriginal groups can therefore argue that their Aboriginal customary law must be an integral and equal component in any national or international regime that seeks to address Aboriginal knowledge.

Turning to international arenas, the presenter explained how the international community is looking at the consistency between "Western" and customary law. International endeavors to protect Aboriginal knowledge (AK) as a distinct, *sui generis*, form confronts a deep paradox: giving a broader global meaning and effect to norms and knowledge systems that are intrinsically local in character and that rely on the original community context for their full significance, without eliminating the

V. Conclusions and Highlights

The Northern Workshop was an opportunity for government officials, experts on ABS-related questions, Aboriginal participants, and northerners to increase their knowledge on a range of challenging and thought-provoking issues that have potential environmental, social, cultural, economic, and health ramifications.

Addressing issues such as ABS in the North needs to be done by bearing in mind the unique specificities of this region and its importance to Canada's social and environmental diversity.

This workshop was a first step in the effort to understand the concerns of all citizens living in the North, while trying to identify ways of making ABS a useful and sound tool for social, economic, and sustainable development in northern Canada. The spectrum of issues raised at the workshop helped federal, provincial, and territorial government officials, Aboriginal participants, and other stakeholders exchange views and generate innovative thinking around ABS and its implications for the North.

Below are some key observations that have emerged from the discussions held at the workshop. They appear in no particular order here, and do not represent an exhaustive list. They do, however, provide a starting point for future thinking about how ABS relates specifically to the North:

- Workshop participants expressed interest in ABS as a concept, and recognized the links between genetic resources and TK; however, many felt that more information was needed before meaningful decisions can be made on the sustainable use of genetic resources in the North

- The involvement of Aboriginal groups in the elaboration of ABS policies is essential, and respect for their rights must be ensured

- Aboriginal people are not opposed to sharing their TK, however, they want certain principles respected throughout the process and the relevant Aboriginal group/community/individual or government to retain the right to grant or withhold consent prior to access. The establishment of an efficient, community-level, prior-informed-consent system would help meet these wishes

- Innovative mechanisms for the protection of TK are already taking place at the local level, and northern communities could build on these experiences

- Specific environmental considerations in the North (e.g., the slow growth-rate of plants) make sound harvesting practices crucial. In the context of ABS, existing management structures, such as those established under land-claim and self-government agreements, could be considered examples of the sound and socially-acceptable use of genetic

In conclusion, the greatest challenge posed by AK is that it forces us to examine the roots of other sources of law on equal footing, and to admit the limits of the current system. Perhaps the most difficult aspect of and greatest source of reluctance surrounding a *sui generis* approach is that it is negative evidence that the current system was unable to protect Aboriginal knowledge. In order to move forward progressively, we must admit that the system is not working, and address our constitutional partners as equals.

The second presenter shared some reflections about his research work on diabetes with an Aboriginal community, and how ABS mechanisms can be put in place as a means to recognize and respect Aboriginal values while contributing to social welfare.

Diabetes is a global health problem that particularly affects First Nations, and is a consequence of a changing lifestyle. Its prevalence among the Cree people is three to five times higher than among the non-native Canadian population. The use of plants and exploration of Cree traditional medicine is one approach to helping treat diabetes that is sought and encouraged by the Cree Board of Health and Social Services of James Bay.

The research project aims to explore plants that are traditionally used by the Cree to target symptoms related to diabetes, the main goal being to identify anti-diabetic species that could be used by the community. It is structured around a collaborative multidisciplinary approach that integrates elements of Cree TK, ethnobotany, phytochemistry, pharmacology, and nutritional sciences.

Ethnobotanists participating in the project used a list of 15 symptoms associated with the disease. In Mistissini and Whapmaghoosti, Québec, they held preliminary meetings with elders and healers, and conducted individual interviews with 65 people (with prior informed consent). The interviews were conducted at home, with an interpreter, and helped identify several plants used to treat each symptom. Plants were ranked according to the number of times they were mentioned, the number of symptoms they affected, and the relationship of these symptoms to diabetes.

Based on this estimated anti-diabetic potential, promising plants were put through a bioassay-guided fractionation developed by the phytochemist and pharmacologist to identify the active components of the plants. This will help to standardize plant preparation for eventual use in Cree populations. Through various testing phases, the pharmacologist was able to confirm the anti-diabetic activity of selected plants, and to begin understanding their mode of action (i.e., what proteins, organs, and tissues they affect).

The nutrition phase of the project helped the scientists better understand community traditions regarding the consumption of traditional foods and plants in relation to diabetes. This phase was carried out to confirm that the community commonly used the plants recommended by elders and healers and that showed promising anti-diabetic potential. The project also aimed to determine the most respectful and convenient way to re-introduce the standardized plant preparations.

In the second part of his presentation, the presenter emphasized the need to follow ethical and culturally acceptable principles in the realization of this type of research project. In the case of this project, the main goal was to improve human health; it was not a profit-driven project and no pharmaceutical companies were involved.

The project was respectful of the plants and their habitat, and of Cree culture and knowledge (ABS and intellectual property). A confidentiality agreement was signed by all members of team, including the Cree participants.

From beginning to end, the researchers involved in the project were fully transparent with the Cree communities, and reached a common understanding of some key principles, such as benefit-sharing mechanisms and intellectual property concerns (e.g., Cree representatives will review all pertinent documents prior to publication). The intellectual property is shared between the parties, as the Cree contributed their TK, and the academic researchers provided scientific knowledge of the mode of action and active principles of the plants.

The success of the project relied on the mutual sharing of ideas and knowledge and on the collaborative and equal participation of all parties. This was achieved, in part, through the establishment of a steering committee composed of representatives from the Cree nation and the research team. Increased knowledge of all the participants is one of the benefits of this collaborative effort. The potential commercialization of the anti-diabetes plant preparations, or components thereof, will only proceed with Cree consent and implication. For the Cree nation, this project increased the legitimacy and understanding of Cree traditional medicine. It also improved diabetes management, provided employment for community members, and developed educational materials (herbarium specimens). This project also benefited Canadian society in general, as it led to a better understanding of the anti-diabetic potential of Cree traditional pharmacopoeia and the adaptation of diabetes care and education in a culturally-sensitive manner.

Aboriginal Governance and ABS: the Relationship between ABS and Land-Claim Agreements—Perspectives from Aboriginal Representatives

Presentations:

Inuit Land-Claim Agreements as a Guide to Benefit-Sharing Arrangements – Violet Ford (Inuit Circumpolar Conference)

Aboriginal Governance and ABS: A Case Study on Protecting Traditional Knowledge – Brian MacDonald (barrister and solicitor)

The first presenter addressed the interface between ABS and Inuit land-claim agreements. As an introduction, she explained how the Arctic is virtually untested as a source of potential therapeutics, and remains unexplored by scientists interested in the medical potential of Arctic plants and micro-organisms. A large proportion of Arctic plant species that have medicinal properties are already known by Arctic peoples. The presenter also raised concerns about the fact that research grants often come from large companies, thereby influencing the way some researchers are encouraged to conduct their research.

Plants of the tundra live in extreme conditions characterized by nutrient-poor soils containing high levels of metals, and a short growing season with up to 70 days of total darkness. The latter forces them to convert light into energy under the snow, and to produce sun-blocking agents in the summer. Because they grow in such particular conditions, Arctic plants and microbes utilize unique metabolic pathways that yield new and unusual compounds. These compounds may lead to new drugs and industrial chemicals. However, the full commercial potential of Arctic genetic resources has not been realized, and the collection of specimens and academic research continues.

One question that remains to be answered is whether Inuit land-claim agreements can adequately respond to these issues. Aboriginal rights under Inuit land claims are constitutionally protected, and these agreements are recognized as modern-day treaties. What does this mean in relation to establishing ABS arrangements?

The goals and objectives of the Inuit land-claim agreements are to ensure the cultural well-being and self-reliance of Inuit people, and their control and management of resources. Interpreted broadly, these objectives would include the protection of TK. The Inuit land-claim agreements provide for Inuit to be involved in the negotiations of inter-jurisdictional matters that go beyond those of a non-government organization. These land-claim agreements create expectations around consultation by government on matters such as Inuit participation as rights holders in the negotiations of international regimes and treaties that will affect their rights and the goals and objectives of the land-claim agreements

Nunavut has established a series of co-management regimes related to wildlife, land, and water, and environmental impact assessments that recognize the importance of Inuit TK. The Inuvialuit Final Agreement and the James Bay and Northern Québec Agreement both include co-management arrangements, and have led to the establishment of new wildlife- and resource-management boards. These boards recognize and promote the use of Inuit TK. In this sense, it is possible to interpret the agreements as containing potential ABS mechanisms.

The management of R&D activities in Canada's Arctic is commonly done through impact and benefit agreements. The Inuvialuit Final Agreement requires participation agreements when surface use is more than casual or temporary. Inuit land-claim agreements include sections on IBAs; more precisely, Article 26 of the Nunavut Land Claims Agreement states that major development projects require a finalized Inuit IBA. IBAs would apply to major Crown-Corporation or private-sector projects involving more than 200 person-years of employment during a five year period or $35 million in capital costs.

The *Northwest Territories Scientists Act* (RSNWT 1988, c.S-4) can also be viewed as a legislated access regime to Aboriginal knowledge and resources. The Act does not involve any benefit-sharing obligations, but training and capacity-building is encouraged by the Aurora Institute and the Nunavut Research Institute. The Act requires the prior informed consent of communities before research is undertaken, promotes communication between researchers and territorial residents, promotes the recognition of TK, supports research that contributes to the social, cultural, and economic well-being of residents, and requires research results to be reported back to the community in plain language in Inuktitut and English.

The presenter described a case to illustrate the interface between ABS and genetic resources found in the Arctic. The case is about the Whitehorse-based aquaculture company Icy Waters, which farms specially bred Arctic char under the trademark brand Yukon Gold. In 1997-98, Icy Waters financed a research project at the University of Guelph to study low-temperature fish-farming. The university needed wild Arctic char in order to broaden the genetic diversity of Icy Waters' commercial fish stocks, and to develop cold-tolerant, high-growth char. Icy Waters approached the Nunavut Wildlife Management Board (NWMB) about partnerships with Inuit hunter and trapper organizations. The company wanted Inuit partners to provide

wild-fish stocks for use in breeding superior strains of char. The NWMB turned down the research application based on the negative implications of the research on Aboriginal TK and belief systems.

As a conclusion, the presenter raised a few challenges that need to be addressed when developing ABS mechanisms, and reiterated that the aims and objectives of the Convention on Biological Diversity can only be fully achieved if the rights of Aboriginal peoples are respected and adhered to in its implementation.

The second presenter described his work in the development of a TK framework policy for the Yukon. The number of requests for accessing TK is constantly increasing, and TK is increasingly incorporated within mainstream applications. While the protection and regulation of TK lies within the self-government responsibilities, there are currently limited mechanisms to protect TK.

The idea of developing a policy framework for the protection of TK was initiated by the Yukon First Nations Heritage Group. The project was developed by two consultants and, although it is primarily being pursued by seven self-governing First Nations, will be made available to all Yukon First Nations.

The primary focus of the policy is to recognize the distinctiveness of each of the First Nations that will be using the policy. It recognizes various levels of sensitivity of information, and serves as a tool to assess the needs of the communities, citizens, and First Nations governments. This framework will create the foundation for further legislative and policy development for the Yukon First Nations. Secondly, this policy framework will respond to external legislative needs (e.g., *Yukon Environmental and Socio-Economic Assessment Act, Species at Risk Act*), assist with the application of existing legal rights, and help First Nations provide input into the development of international mechanisms.

At the basis of the policy framework are a set of key concepts that range from recognizing the need for communication and education in the area of TK and the need to establish processes that incorporate due diligence to ensuring informed decision-making.

The policy lays out some general principles with regard to TK, provides some definitions and general provisions, and addresses some more specific TK-related concepts, such as prior informed consent, government TK holdings, access, and the protection of intellectual property rights. Other elements are also part of the policy, and illustrate the complexity of the issue.

The presenter also stressed the importance of the policy framework being consistent with the elements described in article 27 of the Bonn Guidelines in relation to the appropriate measures that should be taken by States in establishing an effective system for prior informed consent.

There are still a few steps to go through before the completion of the policy framework, including approval and input by Yukon First Nations governments, consultations with communities and third parties, the development of a legislative framework, and the establishment of protocols, contracts, and agreements. There is still a tremendous amount of work to be done in order to ensure that communities understand the purpose of this policy, and why it is important that they get involved in its development and implementation.

V. Conclusions and Highlights

The Northern Workshop was an opportunity for government officials, experts on ABS-related questions, Aboriginal participants, and northerners to increase their knowledge on a range of challenging and thought-provoking issues that have potential environmental, social, cultural, economic, and health ramifications.

Addressing issues such as ABS in the North needs to be done by bearing in mind the unique specificities of this region and its importance to Canada's social and environmental diversity.

This workshop was a first step in the effort to understand the concerns of all citizens living in the North, while trying to identify ways of making ABS a useful and sound tool for social, economic, and sustainable development in northern Canada. The spectrum of issues raised at the workshop helped federal, provincial, and territorial government officials, Aboriginal participants, and other stakeholders exchange views and generate innovative thinking around ABS and its implications for the North.

Below are some key observations that have emerged from the discussions held at the workshop. They appear in no particular order here, and do not represent an exhaustive list. They do, however, provide a starting point for future thinking about how ABS relates specifically to the North:

- Workshop participants expressed interest in ABS as a concept, and recognized the links between genetic resources and TK; however, many felt that more information was needed before meaningful decisions can be made on the sustainable use of genetic resources in the North

- The involvement of Aboriginal groups in the elaboration of ABS policies is essential, and respect for their rights must be ensured

- Aboriginal people are not opposed to sharing their TK, however, they want certain principles respected throughout the process and the relevant Aboriginal group/community/individual or government to retain the right to grant or withhold consent prior to access. The establishment of an efficient, community-level, prior-informed-consent system would help meet these wishes

- Innovative mechanisms for the protection of TK are already taking place at the local level, and northern communities could build on these experiences

- Specific environmental considerations in the North (e.g., the slow growth-rate of plants) make sound harvesting practices crucial. In the context of ABS, existing management structures, such as those established under land-claim and self-government agreements, could be considered examples of the sound and socially-acceptable use of genetic

resources and the intergenerational survival of species and traditional practices

- Existing research-permitting systems in the North already control access and help maintain surveillance of what is being researched, by whom, and where. They also foster local involvement in research projects, and ensure that these are respectful of local social and environmental realities. It is likely that they would apply in the context of genetic resources research, and could contribute directly to meeting ABS objectives

- Aboriginal elders and scientists have knowledge about the uses of plants found in the North, yet their relationship to these resources is different. Collaboration between elders and scientists can, therefore, be beneficial to all because of the specific knowledge such cooperation would generate about conservation management and sustainable use

- There is interest from biotech researchers in the extreme environments of the North because of the unique organisms these environments contain. ABS provides opportunities to encourage research and ensure that research findings and, possibly, revenues are shared with those living in the North. How great these opportunities are remains to be explored

Next Steps

The Northern Workshop was an opportunity to make connections with northerners and to inform them of the opportunities and challenges posed by ABS, particularly in the northern context.

The development of ABS policies in Canada is at a very early stage. A common approach, inclusive of provincial and territorial, Aboriginal, academic, and private perspectives, is key to helping legislators better identify the environmental, social, and economic interests of Canadians and find the best solutions to promote and protect them.

Future awareness-raising activities—such as workshops on forests, agriculture, marine, environment, and intellectual property—discussions among groups and governments, and meeting opportunities will help foster Canada's understanding of ABS and move the policy process ahead, in the right direction.