

**Arctic Governance: Traditional Knowledge of Arctic Indigenous Peoples from
an International Policy Perspective**



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We offer to share with humanity our Traditional Knowledge, innovations and practises relevant to climate change, provided our fundamental rights as intergenerational guardians of this knowledge are fully recognized and respected. We reiterate the urgent need for collective action.

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Overview

The working assumption in this paper is that traditional knowledge (TK) is of utility not only to Arctic indigenous peoples, but to scientists, policy makers, politicians, and those aiming to better address a broad range of issues in the Arctic. Incorporating TK in decision-making should help institutions of governance promote economic development that is environmentally and socially sustainable and which reflects the precautionary principle.

It is unfortunate that this proposition needs to be justified. The fact that the knowledge of indigenous peoples, who have lived for millennia in Arctic regions, is relevant and important today should be obvious. However, debates about TK are often oriented towards ‘reformatting’ this knowledge into databases of use to scientists and policy makers. This paper argues, instead, that scientists and policy makers need to broaden their thinking to accommodate values, approaches and conclusions grounded in the TK of Arctic indigenous peoples.

Incorporating TK into negotiation and implementation of international agreements and decision-making processes can help operationalize two key concepts—intergenerational thinking and sustainability—articulated in the 1987 report of the World Commission on Environment and Development (Brundtland Commission) and in Agenda 21 which informed the various international agreements adopted at the 1992 Earth Summit in Rio de Janeiro.

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Traditional Knowledge³

TK is not a simple concept to define and/or to explain. There is much to be done to unwrap and explain the concept and to show how it could better inform Arctic governance to improve decision-making. Knowledge is contextual. TK is, first and foremost, brought to bear by the participation of indigenous peoples in the processes of decision-making. Seeking to create compendia of TK and treating TK as simply data, robs the concept of its dynamic and integrative nature, and removes it from its essential context.

Although defined and interpreted in different ways by different people, interest in the TK of indigenous peoples has grown substantially in recent years, and not just in the Arctic. The 1992 *Convention on Biological Diversity*, for example, encourages states to “promote the application” of TK to ensure “in-situ” conservation, and some states have referenced TK in national legislation. This is the case, for example, with Canada’s *Oceans Act*.

While rarely referenced as such, TK is an ingredient in governance arrangements negotiated between some northern indigenous peoples and the states in which they reside, including comprehensive land claims and self-government agreements in northern Canada and Alaska, and in such arrangements as the Government of Greenland and Saami Parliaments in northern Scandinavia. It is also formally referenced in international “aspirational” statements such as the 2007 *UN Declaration on the Rights of Indigenous Peoples* and in some resolutions adopted by the Governing Council of the United Nations Environment Programme (UNEP).

Notwithstanding considerable economic and social changes in the Arctic in recent years, TK remains an important component, a cultural touchstone, of the relationship indigenous peoples maintain with the natural environment⁴. Arctic states and non-indigenous people have something to learn from this relationship. TK is also integral to how indigenous peoples govern themselves. The Government of Nunavut, for example, has developed its Inuit Qaujimajatuqangit (IQ) policy to integrate Inuit traditions, values and vision into the governance system of this new territory in which Inuit are a majority of the population.

Canada Oceans Act, S.C., 1996, c. 31
31. The Minister, in collaboration with other ministers, boards and agencies of the Government of Canada, with provincial and territorial governments and with affected aboriginal organizations, coastal communities and other persons and bodies, including those bodies established under land claims agreements, shall lead and facilitate the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coastal waters and marine waters that form part of Canada or in which Canada has sovereign rights under international law.

³ Not only indigenous peoples of the Arctic possess local/traditional knowledge. Other populations have lived in some parts of the circumpolar region for hundreds or thousands of years. While this knowledge base is also highly relevant in the context of Arctic governance, this paper deals only with the TK of Arctic indigenous peoples.

⁴ See the paper prepared by Joanne Barnaby for the Arctic Governance Project at www.arcticgovernance.org

Building on the 1987 report of the *World Commission on Environment and Development*, the *United Nations Educational, Scientific and Cultural Organization* characterizes TK as:

The Indigenous people of the world possess an immense knowledge of their environments, based on centuries of living close to nature. Living in and from the richness and variety of complex ecosystems, they have an understanding of the properties of plants and animals, the functioning of ecosystems and the techniques for using and managing them that is particular and often detailed. In rural communities in developing countries, locally occurring species are relied on for many—sometimes all—foods, medicines, fuel, building materials and other products. Equally, people’s knowledge and perceptions of the environment, and their relationships with it, are often important elements of cultural identity.⁵

The Alaska Native Science Commission⁶ helpfully characterizes TK as:

- Practical common sense based on teachings and experiences passed on from generation to generation;
- Knowing the country—covering knowledge of the environment—snow, ice, weather, resources—and the relationship between things;
- Holistic.—cannot be compartmentalized and cannot be separated from the people who hold it. Rooted in spiritual health, culture and language. A way of life;
- An authority system. The rules governing the use of resources—respect, obligation to share, dynamic, cumulative, and stable. Truth;
- A way of life—wisdom when used in good ways. Using the heart and head together. Comes from the spirit in order to survive; and
- Gives credibility to the people.

Nonetheless, it is important to acknowledge that discussions involving TK can be frustrating for all concerned given the divergent perspectives from which this subject tends to be viewed. In some quarters there is confusion and scepticism about TK. Some “credentialed” scientists dismiss it as anecdotal and culturally determined. Albert Howard and Frances Widdowson⁷, for example, recently dismissed TK as unsystematic, unscientific “beliefs, values and practices distinct from knowledge”.

On the other hand, George Hobson, a recipient of

“Since time immemorial the natives were put here to take care of the land. Our grandfathers did not abuse the land and it’s our turn to pass our knowledge on to our younger generation. What our forefathers kept all this time is very precious. It’s now in our hands. Our creator has given us the responsibility for taking very good care of what we have. If we don’t take care of it we will lose our own culture one day.”

John Petagumskum

⁵ Quoted at by the Alaska Native Science Commission at <http://www.nativescience.org/issues/tk.htm>

⁶ Alaska Native Science Commission at <http://www.nativescience.org/issues/tk.htm>

⁷ Frances Widdowson and Albert Howard, *Disrobing the Aboriginal Industry*. (McGill-Queen’s University Press, 2008.

Canada's Northern Science Award, characterizes TK as science not anecdote ---"the accumulated knowledge and understanding of the place of human beings in relation to the world in both an ecological and spiritual sense"--- and advocates the inclusion of TK in decision-making.

Although lip service is paid by many to "incorporating" or "integrating" TK into scientific reports or policy initiatives, it is not uncommon for the science and policy communities to express frustration about where to go to find TK; how to know it when they see it; and how to use it given their adherence to the scientific method which relies on searchable data bases, peer-reviewed reports, experimentation and episodic field-work. In the science world, analysis attempts to be objective and results need to be replicable.

From the perspective of many indigenous peoples, there is frustration in being asked by scientists and policy-makers to justify, quantify and articulate concepts that might not fit easily into the scientific or policy templates so often used in western and other state-based institutions. Pressures on indigenous peoples to record TK into user-friendly compendia undermines the contextual and holistic nature of TK, while the proposition that their extensive knowledge can only be relevant if presented in 'scientific' formats, is understandably repugnant.

In recent years there have been concerted efforts to bridge the divides which have produced some of these frustrations. An increasingly sophisticated discourse is underway among the indigenous, science and policy communities⁸.

A starting point is in the naming of the concept itself. Rarely, it seems, is "traditional knowledge" conceived of by non-indigenous peoples as simply knowledge, full-stop.

Bundling the knowledge bases of Arctic indigenous peoples within phrases such as "traditional knowledge", "traditional ecological knowledge", "indigenous knowledge" or referring to it as "a different way of knowing", tends to constrain and relegate its relevance. (For convenience sake, this paper uses the phrase "traditional knowledge" (TK) to cover all variations in terminology.)

"From a Western perspective, Traditional Ecological Knowledge (TEK) includes empirical facts or explanations based on observation and experience, explanations of fact, a culturally specific way of organizing and understanding information, a set of values, and—in a very broad sense—cultural norms about how to do things. From an aboriginal perspective, TEK is what people learn from experience, from family and community, and from stories handed down about how to live fully and effectively in their environment. It is both knowledge of how things work and a guide to action."

Peter Usher

⁸ For example, see the work of the Ad Hoc Open-ended Working Group on Article 8(j) under the *Convention on Biological Diversity* and the working groups dealing with TK in the context of *World Intellectual Property Organization* (WIPO).

The use of the word "traditional" tends to imply an arcane, non-modern form of knowledge that might be interesting on an academic or novelty level, but is otherwise inappropriate in a modern, science-based world where market forces and political-economy require hard-nosed, fact-based, strategic and tactical thinking. Inserting the word 'ecological' into the phrase can also limit or narrow the scope of TK.

"The World can tell us everything we want to know. The only problem for the world is that it doesn't have a voice. But the world's indicators are there. They are always talking to us."

Quitsak Tariasuk

In actuality, TK is cumulative and evolving. Generally TK is "communally generated and collectively owned". It has adapted to changing circumstances and should not be seen to be limited to a specific timeframe.⁹

TK as Participation, Rather than Data

Clearly, there is not a single corpus of TK. The cultural and linguistic diversity of Arctic indigenous peoples, and the geographical and ecological diversity of their homelands, must be emphasised when considering the potential roles and contributions TK can make to Arctic governance processes.

Perhaps a better range of adjectives could be employed such as "diverse continuous knowledge" or "extensive observational knowledge" or "holistic integrated knowledge", or "social and cultural sustainability knowledge". Renaming TK is not, however, an objective of this paper, nor is identifying examples of TK or recommending how it should be deployed. Rather, this paper attempts to provide an analytical framework which can help to move scientists and policy-makers away from methodological questions relating to recognition, justification, and relevance of TK as simply a "data source".

In making a case for the use of TK in environmental assessments of proposed industrial development, Peter Usher¹⁰ distinguishes four types of traditional ecological knowledge:

1. Knowledge about the environment;
2. Knowledge about the use of the environment;
3. Values about the environment; and
4. The knowledge system.

Usher suggests that TK about the environment is particularly useful in technical assessments and notes that TK and science have much in common because both are based on

⁹ Shabalala, Dalindyabo & Orellana, Marcos, *The Gap Between Indigenous Peoples' Demands and WIPO's Framework on Traditional Knowledge* (Centre for International Environmental Law: Sept. 2007), p.5

¹⁰ Peter J. Usher. "Traditional Ecological Knowledge in Environmental Assessment and Management." *Arctic* vol.53, no. 2 (June 2000) pp. 183-193.

close observation of natural phenomena. Indigenous peoples' knowledge of the environment is well illustrated through land use and occupancy studies first developed in Alaska in the 1960s. The three-volume Canadian *Inuit Land Use and Occupancy Project*, published in 1977, remains a standard reference in this genre. The "living memory" data acquired through interviews with Inuit hunters and the collection of map biographies are now viewed as an important human-ecological and pre-climate change baseline. In recognition of this fact, the map biographies are currently being digitized to enable their broad access.

While closely connected with empirical observations of the natural environment, TK is far more than data. The tendency of some in the science and policy communities is to treat TK as one of many potential data sources immediately takes it out of context and undermines its role in each indigenous society as:

- as value system
- as participation
- as methodology
- as consensus building
- as adaptation
- as monitoring; and
- as intergenerational decision-making framework.

In the broadest possible sense, it is the sum of culture which implies, of course, that communicating knowledge and communicating what it means to be indigenous are sides of the same coin.

Notwithstanding ongoing discussions to define the concept, it is important to acknowledge Usher's conclusion¹¹ that any claim to knowledge, including that of the working of the natural environment by indigenous peoples, should be open to examination and verification. We would add that to ensure TK has a role to play in decision-making the participation of indigenous peoples in governance is required.

Arctic Governance

How best to manage the Arctic is generating considerable comment among the eight member states to the Arctic Council and among other non-Arctic interests, including non-Arctic states. Non-governmental and intergovernmental organizations are also participating in this debate. Renewal and reinvigoration of existing multilateral soft and hard law arrangements, and/or negotiation of new arrangements could usefully draw upon existing governance agreements between Arctic indigenous peoples and Arctic states in which TK is valued, endorsed and applied.

¹¹ Peter J. Usher. "Traditional Ecological Knowledge in Environmental Assessment and Management." *Arctic* vol.53, no. 2 (June 2000) pp. 183-193.

In order to explore the potential roles and contributions of TK in international governance agreements, institutions and decision-making processes in the Arctic, it is not only necessary to understand what is meant by TK, but also to examine some of the conceptions, and misconceptions, about “Arctic governance” in media reports and even in some learned papers.

Some commentators suggest that a vacuum or near-vacuum exists in Arctic governance. This perception has supported the search for new Arctic governance systems or ways to fill gaps in existing systems of governance in conferences and workshops. This vacuum is more imagined than real.

There is certainly no shortage of governance systems in the Arctic at local, national, regional and international levels. In many respects, the call for new models and approaches to “Arctic governance” is a thinly veiled critique of existing regimes. However, to some degree, and in relation to very important issues (e.g. climate change) that have significant impacts on the Arctic, the ‘failure’ of existing governance systems is not primarily in relation to activities *in the Arctic*, but rather to activities *outside the Arctic*.

In terms of existing governance systems, eight Arctic states control the sovereign territories encircling the Arctic Ocean. The three large federations, Russia, Canada and the USA are, respectively, the first, second and fourth largest stakeholders in terms of Arctic land territory¹². The Russian quadrant, by far the largest, spans Eurasia to western North America, roughly from meridian 32°04' 35" E to meridian 168° 58' 37" W. Given its vast territory, one cannot speak meaningfully about Arctic issues without due attention to Russia. The North American quadrant is comprised of northern Canada and northern USA (Alaska); whereas the European quadrant includes Greenland, the Faroe Islands, Iceland, northern Norway, northern Sweden and northern Finland.¹³ Sweden and Finland are considered Arctic states but have no coastal territory bordering the Arctic Ocean.

A wide range of circumpolar institutions have been established in the last 30 years to address economic, environmental, cultural, educational, research and other issues. The Northern Forum brings together sub-national governments in the circumpolar world, primarily to discuss economic development

Permanent Participants to the Arctic Council

- Aleut International Association
- Arctic Athabaskan Council
- Gwich'in Council International
- Inuit Circumpolar Council
- Russian Association of Indigenous Peoples of the North
- Saami Council

¹² The total area of Greenland is 2,170,000 sq km (840,000 sq mi). Alaska has a total area of 1,717,854 sq km (663,267 sq mi).

¹³ More specifically the land territories in the Arctic are generally considered to include Alaska; the northern territories of Canada (Northwest Territories, Yukon, Nunavut); northern Russia, including the Republics of Karelia and Komi, the Murmansk and Arkhangelsk Oblasts, the Yamalo-Nenets and Khanty-Mansi Autonomous Okrugs, the Taimyr and Evenkia former Autonomous Okrugs, the Republic of Sakha, the Magadan Oblast, and the Chukotka and Koryakia Autonomous Okrugs; Greenland; the Faroe Islands; Iceland; Arctic Norway (Finnmark, Troms, Nordland, Svalbard Archipelago and Jan Mayen), Arctic Sweden (Västerbotten and Norrbotten) and Arctic Finland (Lapland and Oulu).

and infrastructure issues. The Arctic Council, a “high level forum” established in 1996 that subsumed and enlarged upon the 1991 Arctic Environmental Protection Strategy, involves all Arctic states and six international Arctic indigenous peoples’ organizations as “Permanent Participants”. The council is the most prominent and widely known circumpolar body. Regional bodies have also been established. The Euro-Arctic Barents Regional Council, for example, was set-up in 1993 to bring together 13 regions in northern Norway, Sweden, Finland and Northwest Russia. It is also important to note that Inuit, Gwich’in, Athabaskans, Saami, and Aleut are international indigenous peoples whose homelands are located in more than one state. Co-operation between some Arctic indigenous peoples stretches back decades. In short, there is much international co-operation in the region.

The population of the entire Arctic is estimated at approximately 4 million people¹⁴, depending on which line is used to delimit the region. This represents about 0.07% of the world population and about 0.9% of the total population of the eight Arctic states. In many parts of the Arctic there are significant indigenous populations who have been residing in the region for thousands of years, with their own systems of governance which in some cases have adapted and continued to the present day.

As the *Arctic Human Development Report* describes in some detail, these ethnically dissimilar populations often differ noticeably in their demographic characteristics and lifestyles¹⁵. Some Arctic states do not maintain official statistics that identify indigenous peoples specifically. Nonetheless, the AHDR provides general data on indigenous peoples of the Arctic (see Fig. 1) and the major findings¹⁶ provide a helpful snapshot of the human dimension of the Arctic (see Appendix 1).

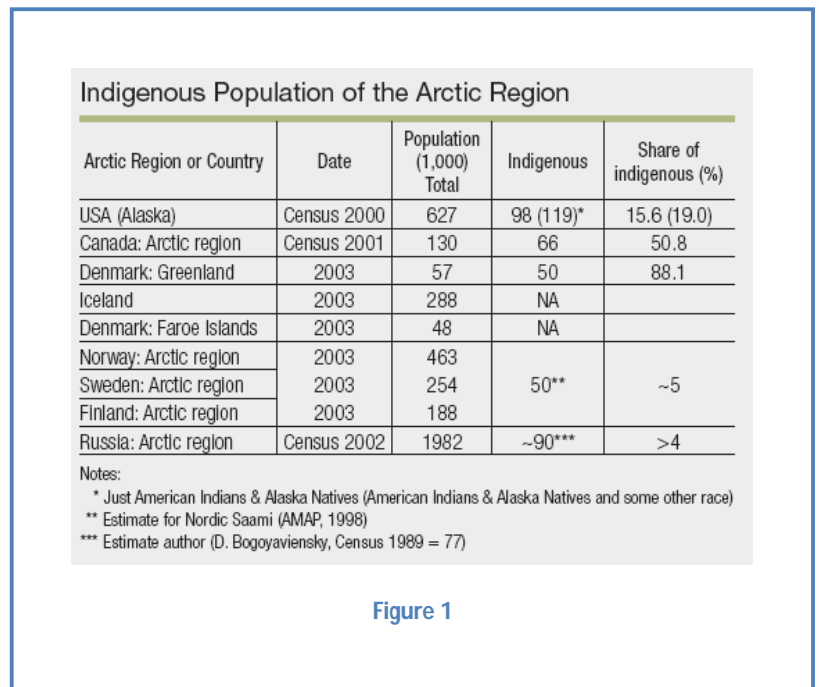


Figure 1

¹⁴ AHDR, 2004, p.27

¹⁵ AHDR, 2004, p.29

¹⁶ AHDR, 2004, p.229-240

Understanding the Arctic¹⁷

In order to better understand the potential for TK in the context of current and growing international interest in the Arctic, it is perhaps helpful to characterize the primary interests that influence governance of the region. These interests can be characterized under four broad and potentially competing conceptualisations: homeland, frontier, laboratory and wilderness.

First and foremost, the Arctic has to be understood as a *homeland* to indigenous peoples and other people¹⁸, many of whom have lived in the region for generations, if not millennia.

On another level, the Arctic is perceived by many national governments and multinational corporations as a *frontier* for exploitation of natural resources to feed national and global demands for energy, minerals, fresh water and other renewable and non-renewable resources.

The scientific and academic communities often treat the Arctic as a *laboratory* for research and cooperation. Most recently, this perception underlay the 2007-2009 International Polar Year.

Alternatively, many environmental and conservation organisations rooted in towns and cities outside the Arctic tend to see the northern circumpolar region and its flora and fauna as *wilderness* to be preserved in parks and protected areas.

While this way of characterising the Arctic is an over-simplification, juxtaposing homeland, frontier, laboratory and wilderness helps clarify some of the values and goals of various stakeholders. It is noteworthy that three of these conceptualizations, namely frontier, laboratory and wilderness, are primarily driven by interests external to the region. In approaching the Arctic as a frontier, or as a vast wilderness, or as an exciting laboratory, some interest groups have tended to undervalue, or even ignore, the homeland dimension of the region. This can lead to an undervaluing of the knowledge of the people of the region, particularly indigenous peoples. If the voices and TK of Arctic indigenous peoples are ignored or drowned out by a cacophony of competing external interests, there is likely to be a significant risk to environmentally and socially sustainable development in the region.

The future of the Arctic will be determined, in large measure, by how the values and goals inherent in these four characterizations are reflected and reconciled in regional, national and international law and policy. For example, when we speak of 'Arctic sustainable development' do we intend this to mean development of the Arctic primarily for the benefit of non-Arctic interests? Or do we mean development as determined primarily by, and for the

¹⁷ This portion of the paper is based on an unpublished paper by Fenge, Funston & Young, *Promoting Sustainable Development in the Circumpolar Arctic* (2008) and a submission by Funston to a UNESCO meeting of Arctic experts held in Monaco, March 2009.

¹⁸ For example, although Iceland does not have an indigenous population, it has been populated for at least 1000 years.

benefit of, Arctic peoples? TK is particularly relevant in the context of these sorts of questions. As societies that have been engaged in stewardship of the region's resources for thousands of years, Arctic indigenous peoples have legitimate interests, as well as rights, and legitimate claims as authoritative voices in Arctic management and governance.

Climate Change

UNEP's governing council adopted Arctic resolutions in 2003 and 2008 which effectively characterize the circumpolar Arctic as the world's barometer of climate change. Arctic Indigenous peoples may see themselves and their TK as the mercury in this barometer. The metaphor is important politically for it can inform and promote the evolution of governance in the Arctic by helping to reconcile the homeland, frontier, laboratory and wilderness characterizations. UNEP's resolutions also set the scene for a discussion of how Arctic indigenous peoples may participate in broader debates about the role of the Arctic in global decision-making. Reflecting their Permanent Participant status in the Arctic Council, these peoples seem ideally placed to bring to the attention of global bodies just what the Arctic barometer is reading and projecting.

The Arctic Council's 2004 *Arctic Climate Impact Assessment* (ACIA) concluded that climate change was altering fundamentally the northern natural environment with accelerating social, cultural and economic effects and disruptions. The assessment attracted interest and comment worldwide. As a result, polar bears and to a lesser extent barren-ground caribou have become globally recognized images of the impacts of climate change and the need to do something about it. Drawing upon their close observations and TK of the natural environment, many Arctic indigenous peoples had already come to the conclusion that their region was in the midst of

"These lectures set out to ask "why ancient wisdom matters in the modern world." Why should their [aboriginal] voices be heard? There are scores of reasons...but two words will do, climate change."

Wade Davis

UNEP Governing Council Decision SS.X.2. (2008)

Extremely concerned over the impacts of climate change on the polar regions, especially the Arctic, because of the likely impacts of high rates of projected warming on natural systems and indigenous and other communities as well as biodiversity, with increasingly dramatic effects on the Arctic and potential significant global consequences...

1. Commends the Arctic Council for its activities related to the Arctic environment and its inhabitants;
2. Encourages the United Nations Environment Programme to cooperate, as requested, with the Arctic Council, relevant multilateral environmental agreements and other relevant regional and international bodies...
3. Urges Governments of Arctic States and other interested stakeholders to continue to apply the precautionary approach as set forth in Principle 15 of the Rio Declaration on Environment and Development...
4. Requests Governments, together with the International Council for Science and the World Meteorological Organization, the sponsoring agencies of the International Polar Year, and other relevant regional and international bodies including the Arctic Council, the United Nations Environment Programme and multilateral environmental agreements, to enhance the scientific basis for informed decision-making through the promotion of international scientific collaboration and coordination to better track, understand and predict Arctic change...

significant environmental change to which they would have to adapt. The six Permanent Participants to the Arctic Council were deeply involved in the *ACIA*, contributing TK case studies that complemented the work of the 300 scientists from 15 countries involved in the assessment.

In addition, these indigenous peoples' organizations (IPOs) contributed significantly to the development of *ACIA*-related policy recommendations adopted by Arctic Council ministers. Some of the IPOs have featured the *ACIA* in presentations to national authorities, to the annual Conferences of Parties to the *United Nations Framework Convention on Climate Change* (UNFCCC), and to other international bodies, including human rights agencies.

Both the *ACIA* and commentaries upon it point out that climate change is "opening" the region to development of globally important hydrocarbon and mineral resources and trans-Arctic shipping between industrial areas in Asia, North America and Europe. In the aftermath of the *ACIA* a consensus developed quite quickly that the region would in a few short years be of significant geopolitical importance.¹⁹ The growing interest in the region of non-Arctic European states, China, Japan, South Korea and numerous non-governmental organizations supports this conclusion.

This chain of events, projections and expectations has prompted a vigorous and unfinished debate on governance in the region including the future of co-operative action among the eight Arctic states and the role in the region of non-Arctic states, agencies of the United Nations, non-governmental organizations, and the effectiveness of multilateral environmental agreements (MEAs). In short, it is the impacts of climate change, including the economic opportunities it is creating, that are driving the debate on Arctic governance.

In the wake of climate change and the increasing global appetite for Arctic energy, some commentators have gone so far as to predict diplomatic gridlock and anarchy leading "the Arctic to erupt in an armed mad dash for its resources"²⁰. A common by-product of these sorts of analyses is a call for a legally-binding Arctic treaty to ensure "orderly" development of the region's natural resources. While foregoing inflammatory rhetoric, some European interests have similarly proposed an Arctic Treaty or Arctic Charter. More measured approaches²¹ suggest that such characterizations of the Arctic are inaccurate and exaggerated. According to this view, existing co-operative arrangements should evolve in a planned manner, and new soft and hard law agreements among Arctic states should be considered on a case by case, functional basis.

¹⁹ Alun Anderson. *After the Ice: Life, Death and Geopolitics in the New Arctic*. Smithsonian Books, 2009.

²⁰ See for example, Scott Borgerson. *Arctic Meltdown: The Economic and Security Implications of Global Warming* in *Foreign Affairs*. Mar/Apr 2008

²¹ See for example, Oran Young. *Whither the Arctic? Conflict or cooperation in the circumpolar north*. *Polar Record*, Volume 45, Issue 01, January 2009, pp 73-82

Meeting in Ilulissat Greenland in Spring 2008, the five Arctic Ocean littoral states reaffirmed their sovereign rights to develop natural resources within their boundaries, rejected the need for a new Arctic Treaty or Charter, and stressed their shared commitment to the United Nations Convention on the Law of the Sea (UNCLOS) as the framework to resolve claims to extended continental shelves in the Arctic Ocean. This should not, however, be interpreted as a rigid commitment to the legal, political and institutional status quo. Individually, a number of Arctic states have said they are open to constructive, incremental changes to promote Arctic co-operation. This is a key message, for example in the January 2009 USA Arctic Policy directive issued by President Bush.²² It is notable that article III (A) (5) of the directive states “It is the policy of the United States to involve the Arctic’s indigenous communities in decisions that affect them.”

TK and International Decision-making

There is a growing interest in referencing TK in regional, national and international governance arrangements, but examples remain few and far between. With some notable exceptions²³, indigenous peoples and/or TK are rarely referenced in hard law, legally-binding international agreements applied in the Arctic, or elsewhere in part because these agreements are between states, some of which fear the self-determination aspirations of indigenous peoples are incompatible with the integrity of the state. From an Arctic perspective, perhaps the most glaring omission is the *UN Framework Convention on Climate Change* which singles out “at risk” regions of the globe including deserts, mountains and low lying areas, but fails to mention the Arctic or its indigenous peoples, even though climate change is amplified in this region well above global norms. It is worth noting that this framework convention was signed more than a decade before UNEP adopted its first Arctic resolution in 2003. It is only since the *ACIA* was published that melting sea ice in the Arctic has become synonymous globally with the impacts climate change.

The 2001 *Stockholm Convention on Persistent Organic Pollutants* (POPs) includes an expansive statement on the Arctic and indigenous peoples, but this is included in the preamble rather than the operative provisions:

Acknowledging that the Arctic ecosystems and indigenous communities are particularly at risk because of the biomagnifications of persistent organic pollutants and that contamination of traditional food is a public health issue.

²² United States of America National Security Presidential Directive and Homeland Security Presidential Directive, 09 January 2009.

²³ For example articles 8(j) and 10(c) of the Convention on Biological Diversity and the convention that established the World Intellectual Property Organization address Indigenous peoples and TK. The Canada/United States Migratory Birds Convention was amended in the 1990s to require the “use of aboriginal and indigenous knowledge” for migratory bird management (article II)

A similar preambular clause is included in the *UN Economic Commission for Europe POPs Protocol to the Convention on Long-range Transboundary Air Pollution*. The references to indigenous peoples and the Arctic region in these hard law international instruments reflects, in part, the prominence of Arctic data presented by the Arctic Council as the context in which the negotiations took place, and the very effective participation of a coalition of Arctic indigenous peoples as observers in the negotiations.²⁴

Whether referenced or not in formal international agreements, incorporating TK in decision-making is proving challenging. The proposal by the Global Indigenous Peoples' Caucus to establish an open-ended working group on indigenous peoples and TK within the *UNFCCC* has not been accepted. On the other hand, the Ad Hoc Working Group on Article 8(j) of the *Convention on Biological Diversity* has adopted ethical guidelines to guide the use and application of TK.

There are many references, however, to indigenous peoples in political “aspirational” “soft law” documents. For example, the 1992 *Rio Declaration on Environment and Development* states:

Principle 22: Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

Indigenous peoples and TK feature quite prominently in various human rights regimes which place an onus and burden on states to recognize and accommodate the rights and interests of indigenous individuals and peoples, including the right to participate in decisions that may affect the application of their rights and interests. For example, the *International Labour Organization Convention 169* (only Norway and Denmark among Arctic states have ratified this convention) requires governments in co-operation with indigenous peoples to “protect and preserve the environment of the territories they inhabit”.

Application of TK is, of course, a means to this end. The 1948 *American Declaration on the Rights and Duties of Man* has been invoked by indigenous peoples in North, Central and South America to further national recognition of their rights and interests, including protecting the natural environment.

Article 8 (j) of the Convention on Biological Diversity

8. Each Contracting Party shall, as far as possible and as appropriate:

(j) subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices.

²⁴ David Leonard Downie and Terry Fenge (eds.) *Northern Lights Against POPs; Combating Toxic Threats in the Arctic*. McGill-Queen's University Press, 2003

Following more than a decade of negotiations involving representatives of indigenous peoples and member states, the General Assembly of the United Nations in 2007 adopted a *Declaration on the Rights of Indigenous Peoples* (UNDRIP) that could be of particular relevance to Arctic governance now and in the future and as a vehicle to apply TK to governance. A broad document that outlines substantive collective and individual human rights, and procedural rights of involvement and engagement between indigenous peoples and the states in which they reside, the *Declaration* puts a significant onus on international agencies as well as national governments to live by, and live up to, the human rights standards it defines. Designed to promote “harmonious and cooperative relations between the State and indigenous peoples” and to strengthen the partnership between them, the *Declaration*’s preamble stresses:

...rights affirmed in treaties, agreements and other constructive arrangements between States and indigenous peoples are, in some situations, matters of international concern, interest, responsibility and character, and

...respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment.

How best to incorporate the principles of the *Declaration* in Arctic governance arrangements is a key question and challenge, not only for Arctic indigenous peoples but for the eight Arctic states and non-Arctic states with interests in the region. The *Declaration* requires indigenous peoples to be participants in national and international decision-making that affects their rights and in this echoes land claims and aboriginal self-government agreements, for example, in northern Canada. While not designed to operate retroactively, the *Declaration* sets the scene for substantive and procedural reform of international agreements currently being implemented in the Arctic and, if states so intend, negotiation of new agreements. For example, the Global Indigenous Peoples’ Caucus seeks to reform implementation of the *UNFCCC* to reflect the UNDRIP. This is also a theme of the declaration issued by attendees at the Indigenous Peoples’ Global Summit on Climate Change held in Anchorage in April 2009.

The United Nations Declaration on the Rights of Indigenous Peoples

Article 18: indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures...

Article 19: States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measure that may affect them.

Article 29: Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources...

Article 31: Indigenous peoples have the right to maintain control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions as well as the manifestations of their sciences, technologies and cultures...States shall take effective measures to recognize and protect the exercise of these rights.

Article 41: The organs and specialized agencies of the United Nations system and other intergovernmental organizations shall contribute to the full realization of the provisions of this Declaration...

In 2005 more than 60 Inuit in Alaska and Canada joined Ms. Sheila Watt-Cloutier, then Chair of the Inuit Circumpolar Conference²⁵, in a petition to the Inter-American Commission on Human Rights designed to defend their culture, economy and environment from the impacts of greenhouse gases emitted from the United States of America. The petition drew heavily on the ACIA and on TK articulated in interviews with petitioners conducted solely for this initiative. The objective was to get the Government of the United States to listen to the messages of the Arctic performing as the globe's environmental barometer. Inuit petitioners did not seek relief²⁶ through compensation or monetary damages. Rather, they sought changes in governance toward climate change mitigation and adaptation. The Commission was invited by the petitioners, to recommend that the Government of the USA work with Inuit to develop a plan enabling them to adapt to the unavoidable impacts of climate change.

While the Commission declined to grant the requested declaration, this petition demonstrated a strong desire on the part of Inuit to be more fully involved in the design and implementation of Arctic governance. Indeed, this petition appeared to stimulate UNEP and UNDP to characterize climate change as a question of human rights and arguably led the International Council on Human Rights Policy to propose human rights as a "lens" through which to approach the governance of climate change.²⁷ The International Council recommended that principles in the 1998 *Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters* be adopted as key components of governance.

The International Relevance to Arctic Governance of National Agreements Between Arctic States and Arctic Indigenous Peoples

In the last 30 years some Arctic indigenous peoples and the states in which they reside have concluded land rights, economic development, environmental protection and self government agreements. Often reflecting court decisions nationally and drawing upon varied political and constitutional traditions, these arrangements are difficult to compare in detail, but provide frameworks within which indigenous peoples are able to participate in governance including application of TK to decision-making. To varying degrees, these agreements reflect human rights approaches and obligations assumed by Arctic states. Norway, for example, has been strongly influenced by ILO 169 in its dealings with Saami. On the other hand, Bankes suggests that Canada has been little influenced by international human rights norms in negotiating modern treaties with Inuit, Gwich'in and Athabaskans.²⁸

²⁵ Now known as the Inuit Circumpolar Council.

²⁶ See Appendix 2 for the Statement of Relief sought in the Petition

²⁷ International Council on Human Rights. *Climate Change and Human Rights A Rough Guide*. 2008

²⁸ Nigel Bankes, "Land Claim Agreements in Arctic Canada in Light of International Human Rights Norms". 2009

In addition, legislation has been passed in some states reflecting “new” relationships between states and Arctic indigenous peoples in order to move away from previous attempts to assimilate them into national cultural mainstreams.

These arrangements set precedents and benchmarks that can and should be applied to participation of Arctic indigenous peoples in international decision-making now and in the future. Indeed, it can be argued that this is already the case to some extent, given the Permanent Participant status of six Arctic indigenous peoples’ organizations in the eight-nation Arctic Council, a status that seems still to be unique in intergovernmental relations.

Norwegian Saami Parliament, Finnmark Act and draft Nordic Saami Convention

The widely publicized protests in the 1970s, that accompanied the damming of the Alta River in northern Norway, brought to attention nationally and internationally the land rights and self determination agenda and demands of Saami. A Saami Rights Commission was established in 1980 with the mandate to clarify the legal position of Saami in Norway. The commission’s 1984 report assessing international law led to the inclusion of Article 110a on the rights of Saami in the Norwegian Constitution. The establishment of the Saami Parliament, essentially an advisory body, followed and representatives were first elected to this Parliament in 1989.

Article 110a of the Norwegian Constitution

It is the responsibility of the authorities of the State to create conditions enabling the Sami people to preserve and develop its language, culture and way of life.

ILO 169, adopted in 1989 and ratified by Norway in 1990, informed the Saami Rights Commission’s 1997 report into Saami rights to land and natural resources, which, in turn led to the *Finnmark Act* of 2005.

The *Finnmark Act* provides for the administration of virtually all land in Finnmark, effectively removing the state as owner of land. The Act establishes a legal entity, the Finnmark Estate (Finnmarkseiendommen, Finnmarkkuopmodat) to hold title to land governed by a six-person board, three persons appointed by the Saami Parliament and three by the Finnmark County Council. The purpose of the Act is to facilitate land management in Finnmark in a “balanced and ecologically sustainable manner for the benefit of the residents of the county and particularly as a basis for Sami culture, reindeer husbandry, use of non-cultivated areas, commercial activity and social life.”²⁹

Section three of the Act requires the legislation to be applied in compliance with international law concerning indigenous peoples and with the provisions of agreements with foreign states concerning fishing in transboundary watercourses. Section five requires the Act to not interfere with collective and individual rights acquired by Saami. A commission and a

²⁹ Eva Josefsen. “Norwegian Legislation and Administration—Saami Rights” in Galdu Cala-Journal of Indigenous Peoples’ Rights, no. 1/2007.

special court are established to define and to adjudicate disagreements regarding the scope and content of the land and water rights of Saami.

Saami are an international people residing in more than one Arctic state. As a result, the Saami Council, an umbrella organization representing Saami in all four countries, proposed in 1986 a *Saami Convention* to support Saami rights as an indigenous people and to address problems caused by national boundaries. In 1996 Finland, Norway and Sweden appointed a committee to look at the case for such a convention. Two years later the committee recommended that such a convention be developed and in 2003 the first meeting was held of an Expert Group appointed by the three Saami Parliaments and three national governments to actually write a convention. A draft convention was finalized in late 2005 and is still under active consideration. To ensure its status under international law, the proposed convention is formally between the three Scandinavian states only, but requires the consent of the three Saami Parliaments to enter into force and to be amended. Mattias Ahren characterizes the proposed convention as a “new partnership between the Saami and the colonizing peoples”. The objective of the draft *Saami Convention* is:

Article 19 of the Proposed Nordic Sami Convention

The Sami and International Representation

The Sami Parliaments shall represent the Sami in intergovernmental matters. The states shall promote Sami representation in international institutions and Sami participation in international meetings.

“...to affirm and strengthen such rights of the Sami people that are necessary to secure and develop its language, its culture, its livelihoods and society, with the smallest possible interference of the national borders.”

The proposed convention deals with self-determination, the role of the Saami Parliament, education, health and social services, cultural heritage, rights to land and water, livelihoods and, in particular, reindeer husbandry. Article 31 of the proposed convention addresses TK and cultural expressions:

“The states shall respect the right of the Sami people to manage its traditional knowledge and its traditional cultural expressions while striving to ensure that the Sami are able to preserve, develop and pass these to future generations. When Sami culture is applied commercially by persons other than Sami persons, the state shall make efforts to ensure that the Sami people gains influence over such activities and a reasonable share of the financial revenues. The Sami culture shall be protected against the use of cultural expressions that in a misleading manner give the impression of having a Sami origin. The states shall make efforts to ensure that regard is paid to Sami traditional knowledge in decisions concerning Sami matters.”

Greenland Government

Politically, Inuit circumstances in Greenland are rather different from elsewhere in the Arctic because for thirty years Greenland experienced Home Rule—essentially a federation with Denmark—and since the spring of 2009 has moved towards greater autonomy and eventually perhaps independence. Greenlandic involvement in governance began in the 1860s and a 1908 statute introduced municipal councils together with a regional government based on democratic procedures. In 1953 Greenland became a county on the same basis as counties in Denmark. Greenlanders pressed for devolution of authority to manage their own affairs and Home Rule was initiated in 1979. A Greenland Self-Government Commission examined future governance options and a referendum in Greenland in November 2008 overwhelmingly endorsed self-government. Legislation to this effect has been passed in Denmark and progressive transfer of additional powers is being planned and underway although foreign affairs and security policy remain the jurisdiction of the Danish Government. Formal inauguration of the new Greenland Self-Government arrangements took place on 21 June 2009.

Modern Treaties in Alaska and Northern Canada

In North America, treaties were concluded between aboriginal peoples and Great Britain and, following the American War of Independence, with the Government of the United States. Great Britain continued to make treaties with aboriginal peoples in British North America and this practice was extended by the Government of Canada following Confederation in 1867. Much has been written about these treaties, essentially the means used by colonizing powers to extinguish aboriginal title to land and natural resources and to push aboriginal peoples off land they had traditionally used and occupied. From the perspective of the colonizing powers, these treaties were tools to assimilate and/or marginalize aboriginal peoples. This was not, however, the perspective of aboriginal peoples who characterized the early treaties, in particular, as compacts of peace and friendship. No treaties were concluded in the northern regions of the United States or Canada for there was at that time little demand by immigrants for northern land.

As the northern regions of North America became better known and as precious minerals and oil and gas were discovered there, national governments appreciated once more the need for “modern” treaties to clarify ownership of land and natural resources and to legally enable settlement and development of

Alaska Native Claims Settlement Act, 1971

Section 2

- a. there is an immediate need for a fair and just settlement of all claims by Natives and Native groups of Alaska, based on aboriginal land claims;
- b. the settlement should be accomplished rapidly, with certainty, in conformity with the real economic and social needs of Natives, without litigation, with maximum participation by Natives in decisions affecting their rights and property, without establishing any permanent racially defined institutions, rights, privileges or obligations, without creating a reservation system or lengthy wardship or trusteeship, and without adding to the categories of property and institutions enjoying special tax privileges or the legislation establishing special relationships between the United States Government and the State of Alaska;

natural resources by third parties. Aboriginal peoples in Alaska continued to defend their use of land and wildlife following the purchase by the United States of Alaska in 1867 and pressed authorities for many years to acknowledge their land rights³⁰. Following hugely complex political efforts in the context of the proposed TransAlaska Pipeline, Congress in 1971 passed the *Alaskan Native Claims Settlement Act* (ANCSA) to extinguish aboriginal title, to provide for ownership of certain lands selected by aboriginal peoples, to provide cash compensation, and to establish village and regional corporate structures to hold land and to promote economic development of Alaskan native people. The terms and conditions of ANCSA, specifically the establishment of corporations to bring aboriginal peoples into the economic mainstream of the United States, the lack of protection for the aboriginal renewable resource economy, and absence of provisions for self-determination remain controversial. The fact that no opportunity was provided for aboriginal people to vote on the agreement has maintained controversy over whether aboriginal title was legally extinguished by Congress.

In Canada, demands by northern Indigenous peoples for land and self-government also increased in the 1960s. Following a 1973 decision of the Supreme Court of Canada, the Government of Canada initiated modern treaty negotiations with Inuit and northern First Nations to extinguish aboriginal title. Much thought was given by aboriginal peoples to the range of rights and benefits to be detailed in modern treaties in return for ceding their aboriginal title to the Crown. While ANCSA contributed to the political intent in Canada of aboriginal peoples and the Government of Canada to negotiate in order to settle land claims, it provided only a partial model for the substance of negotiations.

Modern treaties (“comprehensive land claims agreements” in Canadian parlance) are long and complex legal documents that address land ownership, wildlife harvesting, economic development, natural resource management, financial transfers and, as a result of a 1995 policy change, aboriginal self-government. Twenty-two modern treaties are currently being implemented in northern British Columbia, Yukon, NWT, Nunavut, northern Quebec and Labrador, covering approximately 50 percent of the country. Promises in these modern treaties confer rights which, as a result of a 1983 amendment to Canada’s constitution, are constitutionally-protected from unilateral

Objectives of the 2003 Nunavut Land Claims Agreement

- to provide for certainty and clarity of rights to ownership and use of land and resources, and of rights for Inuit to participate in decision-making concerning the use, management and conservation of land, water and resources, including the offshore;
- to provide Inuit with wildlife harvesting rights to participate in decision-making concerning wildlife harvesting;
- to provide Inuit with financial compensation and means of participating in economic opportunities;
- to encourage self-reliance and the cultural and social well-being of Inuit;

AND IN RECOGNITION of the contributions of Inuit to Canada’s history, identity and sovereignty in the Arctic.

³⁰ Donald Craig Mitchell. *Take My Land Take My Life: The Story of Congress’s Historic Settlement of Alaska Native Land Claims 1960-1971*, University of Alaska Press, Fairbanks. 2001

actions by the Government and Parliament of Canada. As a result of their breadth and complexity, it is proving difficult to implement these agreements in full accord with their provisions.³¹

As with the *Finnmark Act* in Norway and the proposed *Nordic Saami Convention*, modern treaties in northern Canada establish a partnership between aboriginal peoples and the Government of Canada. It is no exaggeration to suggest that modern treaties in Canada have altered fundamentally the place and role of northern indigenous peoples within the Canadian state. Modern treaties confirm indigenous peoples as owners outright of usually 10-25 percent of traditional territories with a smaller percentage of the subsurface, and transfer billions of dollars to aboriginal organizations. Aboriginal self-government is taking root throughout the Canadian North. Indeed, the establishment in 1999 of the Nunavut Territory with its own territorial government representing all residents of Nunavut regardless of ethnicity, is the result of the 1993 *Nunavut Land Claims Agreement*, illustrating the fact that in northern Canada, aboriginal self-government is taking many forms.

Given the terms in these constitutionally-protected modern treaties relating to Canada's North, these agreements have ramifications for the exercise of foreign

SUMMARY OF INUIT RIGHTS AND BENEFITS DEFINED IN THE NUNAVUT AGREEMENT

- Right to harvest wildlife throughout the settlement area based upon need and regardless of land ownership
- Representation on the Nunavut Wildlife Management Board, a new instrument of public government to manage wildlife in the settlement area
- Compensation if development affects the Inuit hunting-based economy
- Three national parks and provisions governing the establishment and management of additional national and territorial parks and conservation areas
- Representation on a new system of boards to manage and plan for the development of land and water and to evaluate the impact of development
- The exclusive right to use water on, in or flowing through Inuit-owned land
- Fee simple ownership of approximately 352,000 square kilometres of land (16.5 percent of the settlement area), of which nearly 37,000 square kilometres includes the subsurface
- A share of federal royalties resulting from the development of Crown land and natural resources
- The right to negotiate impact and benefit agreements with would-be developers of subsurface resources on land where Inuit own the surface estate
- Cash compensation totalling \$1.14 billion, to be paid over 14 years
- Assistance in accessing government contracts
- The establishment of a social development council
- Recognition of the Inuit role in preserving and displaying the Inuit archaeological heritage

Foreign Policy Provisions of Selected Canadian Modern Treaties

- Canada shall make reasonable efforts to ensure that when issues involving Fish and Wildlife management arise in international negotiations, the interests of affected Yukon First Nations are represented. [16.3.5. **Umbrella Final Agreement Council of Yukon Indians, 1993**]
- The Government of Canada shall include Inuit representation in discussions leading to the formulation of government positions in relation to an international agreement relating to Inuit wildlife harvesting rights in the Nunavut Settlement Area, which discussions shall extend beyond those discussions generally available to non-governmental organizations. [5.9.2 **Nunavut Land Claims Agreement, 1993**]
- The Government of Canada shall consult the Tlicho Government in the development of positions taken by the Government of Canada before an international tribunal where a law or other exercise of power of the Tlicho Government has given rise to an issue concerning the performance of an international legal obligation of Canada. Canada's position before the international tribunal shall take into account the commitment of the Parties to the integrity of this Agreement. [7.13.5 **Tlicho Land Claims and Self-Government Agreement, 2003**].

³¹ Terry Fenge. "Implementing Comprehensive Land Claims Agreements" Policy Options. July/August 2008 pp. 81-85.

policy by the Government of Canada.³² While provisions of individual modern treaties differ, essentially the Government of Canada is required to consult with and sometimes accommodate indigenous peoples when it negotiates agreements with other states that may affect rights defined in modern treaties.



³² John Noble. "The Treaty Process with First Nations in British Columbia". An address to the Canadian Retired Heads of Missions of Associations (RHOMA), July 2008. See also John Noble's presentation to the International Conference sponsored by the Canadian Land Claims Agreements Coalition, Ottawa, Canada April 2009.

Concluding Thoughts

As a result of their engagement in the Arctic Environmental Protection Strategy and their Permanent Participant status in the Arctic Council, Arctic indigenous peoples are well positioned to contribute to Arctic governance and to bring TK to bear in such discussions. As the International Chair of the Inuit Circumpolar Council noted at a recent meeting of Senior Arctic Officials to the Arctic Council, governance arrangements in the Arctic continue to evolve. In this context, we offer the following concluding thoughts:

1. The Arctic should be treated, first and foremost, as a homeland to indigenous peoples and other people³³, the ancestors of whom have lived in the region for generations, if not millennia. The voices of Arctic indigenous peoples should not be treated as simply another interest group in a cacophony of competing external interests. When this basic fact is accepted, it is then not difficult to grasp why the knowledge of these peoples is a critical and necessary element of decision-making in relation to the region;
2. For TK to be brought to bear in relation to Arctic governance systems, whether at the local, national or international level, the participation of indigenous peoples in the processes of decision-making will be a necessary and crucially important factor. Knowledge is contextual. Seeking to create compendia of TK and treating TK as simply another data source, robs the concept of its dynamic and integrative nature, and removes it from its essential context;
3. International human rights regimes and agreements in North America and Scandinavia between indigenous peoples and the states in which they reside provide concepts, models and commitments that should inform debate on the evolution of governance internationally within the Arctic; and
4. There is a compelling need for Arctic perspectives to inform debate on negotiation of new and implementation of existing *global* governance agreements relevant to Arctic residents, particularly the region's indigenous peoples.

We believe that specific and detailed recommendations to improve international governance arrangements in the Arctic can be developed on the basis of these four concluding thoughts.

³³ For example, although Iceland does not have an indigenous population, it has been populated for at least 1000 years.

APPENDIX 1: Summary of Major Finding of the Arctic Human Development Report 2004

Demography

- The human population of the Arctic is sparse, unevenly distributed, and skewed in terms of both age structure and gender balance.

Societies and cultures

- Human societies in the circumpolar North are highly resilient; they have faced severe challenges before and adapted successfully to changing conditions.

Economic systems

- Arctic economies are narrowly based and highly sensitive to outside forces, including market fluctuations and political interventions.

Political systems

- The devolution of political authority to regional and local governments in the Arctic has not been accompanied by significant reallocations of material resources.

Legal systems

- There is a growing dualism between the legal rights of indigenous peoples and the authority of public governments in the Arctic.

Resource governance

- Many new and promising systems of resource governance have arisen in the Arctic, but little has been done so far to assess their performance using common criteria of evaluation.

Human health

- Telemedicine has been highly successful in the Arctic, but effective responses to problems involving mental health, violence, and accidental death require the development or strengthening of community-based health services. Also, dietary concerns arising from changing lifestyles and responses to contamination have to be addressed.

Education

- Although education in the hands of missionaries, economic entrepreneurs, and colonial administrators has been a vehicle for assimilation, there are opportunities today to develop education systems well-suited to the needs of Arctic residents.

Community viability

- Maintaining the viability of Arctic communities requires an enhanced ability to take advantage of interactions among governmental, corporate, organizational, and personal networks from the local level to the global level.

Gender issues

- Recent developments in the Arctic have generated new concerns about gender roles, without alleviating pre-existing problems.

International relations

- The impacts of both global environmental change and global social change threaten to overwhelm efforts to carry out regional initiatives and to forge a strong sense of regional identity in the Arctic.

Cultural integrity

- The experience of the Arctic demonstrates that cultures can remain viable even in the face of rapid and multi-dimensional changes.

Political and legal innovations

- The Arctic has become a leader in the development of innovative political and legal arrangements that meet the needs of the residents of the circumpolar North without rupturing the larger political systems in which the region is embedded.

Technological advances

- Evidence from the Arctic demonstrates both the feasibility and the desirability of applying advanced technologies to address social problems.

Cultures and Societies

- There is a need for a better understanding of the effects of cumulative changes on cultural and social well-being in the Arctic.

Demography

- There is a need to collect more and better information on the Arctic's residents using common data protocols.

Settlers

- There is a need to learn more about the experiences of recent settlers in the Arctic and their interactions with the region's indigenous peoples.

Industry

- There is a need to improve our understanding of the roles that modern industrial activities play in the pursuit of sustainable development at the regional level.

Governance

- There is a need to do more to compare and contrast new institutions in the Arctic and to distil lessons relevant not only to the Arctic itself but also to other areas of the world characterized by an abundance of natural resources and sparse and culturally diverse populations.

APPENDIX II: Excerpt from the Petition to the Inter American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Act and Omissions of the United States

...the Petitioners respectfully requests that the Commission:

1. Make on onsite visit to investigate the confirm the harms suffered by the named individuals whose rights have been violated and other affected Inuit;
2. Hold a hearing to investigate the claims raised in this Petition;
3. Prepare a report setting Forth all the facts and applicable law, declaring that the United States of America is internationally responsible for violations of rights affirmed in the American Declaration of the Rights and Duties of Man and in other instruments of international law, and recommending that the United States:
 - a. Adopt mandatory measures to limit its emissions of greenhouse gases and co-operate in efforts to the community of nations—as expressed, for example, in activities relating to the United Nations Framework Convention on Climate Change—to limit such emissions at the global level;
 - b. Take into account the impacts of US Greenhouse gas emission on the Arctic and affected Inuit in evaluation and before approving all major government actions;
 - c. Establish and implement, in coordination with the Petitioner and the affected Inuit, a plan to protect Inuit culture and resources, including, *inter alia*, the land, water, snow, ice, and plant and animal species used or occupied by the named individuals whose rights have been violated and other affected Inuit; and mitigate any harm to these resources by US greenhouse gas emissions;
 - d. Establish and implement, in coordination with Petitioner and the affected Inuit communities, a plan to provide assistance necessary for Inuit to adapt to the impacts of climate change that cannot be avoided;
 - e. Provide any other relief that the Commission considers appropriate and just.