

Module 10: Environment and Resource Policy in the Circumpolar North

Developed by
Douglas A. Clark
University of Saskatchewan
Canada

Overview

This module provides a broad introduction to environment and resource policy important in the circumpolar North. It also aims to provide a basic understanding of how environment and resource policy processes work in practice. The module outlines environmental impacts of globalization and resource exploitation, and compares and contrasts these impacts for traditional stakeholders and communities. It assesses Indigenous land and resource management examples including the use of Indigenous traditional ecological knowledge. The module evaluates the principle of precaution as a guiding policy for sustainable management of biological renewable resources, which can be problematic in practice. Finally, it compares market, state and co-management as models for sustainable management with a focus on linking local scale co-management to regional and global-level institutions for more effective multilevel governance. Current questions about polar bear conservation in the face of climate change provide a case study illuminating many key principles.

Learning Objectives

Upon completion of this module, you should be able to:

1. Outline environmental impacts of globalization and resource exploitation.
2. Compare and contrast impacts of environment and resource policy on traditional stakeholders and communities.
3. Assess examples of Indigenous management of land and resources, including the use of Indigenous traditional ecological knowledge.
4. Evaluate the principle of precaution as a guiding policy for sustainable management of biological renewable resources.
5. Compare market, state and co-management as models for sustainable management.

Required Readings (including web sites)

Caulfield, R. 2004. Chapter 7: Resource Governance. pp. 121-138 in AHDR. 2004. Arctic Human Development Report. Stefansson Arctic Institute, Akureyri, Iceland. URL: <http://www.svs.is/AHDR/>

Forbes, B. and Kofinas, G. (2014). *Resource Governance*. Larsen, Joan Nyman; and Fondahl, Gail (eds.) in the Arctic Human Development Report Regional Processes and Global Linkages, Akureyri: Stefansson Institute. <http://norden.diva-portal.org/smash/record.jsf?pid=diva2%3A788965&dswid=-4712>

Key Terms and Concepts

- Globalization
- Devolution
- traditional ecological knowledge
- Co-management
- scientific management
- precautionary principle
- policy process

Learning Material

Introduction

The circumpolar North is a complex, dynamic region in which social and ecological change is not new although the nature, rate and cumulative effects of change appear to be accelerating. Relatively speaking, the Arctic has always been globalized because of the region's maritime connectivity, its diverse cultural history and endowment of natural resources at a scale increasingly rare in more densely settled parts of the planet. Renewable and non-renewable resources are important locally and globally so resource policy and governance have long been of significance to northerners.

The Arctic Human Development Report (AHDR) provides a detailed overview of current conditions and trends in resource policy in the circumpolar North (Caulfield, 2004).

AHDR identified four main trends:

1. Growing importance of property rights,
2. Incorporation of local or traditional ecological knowledge (TEK) in decision-making,
3. Devolution of powers to local decision-makers and co-management, and
4. Widening involvement of Arctic peoples in ownership and development of lands and resources.

Learning Activity 1:

Read Chapter 7 of the Arctic Human Development Report. Think of examples that illustrate the four main resource policy trends described in your community or one you have visited.

A distinction should be made between devolution, which involves the actual transfer of authority and control, and co-management, which creates new institutions but may not necessarily involve a change. For example, although many wildlife co-management bodies in northern Canada have a high degree of influence, ultimately their mandate is only to advise territorial or federal ministers. Elected executives retain executive authority and are not bound by recommendations of co-management bodies although there are procedures they must follow to justify decisions.

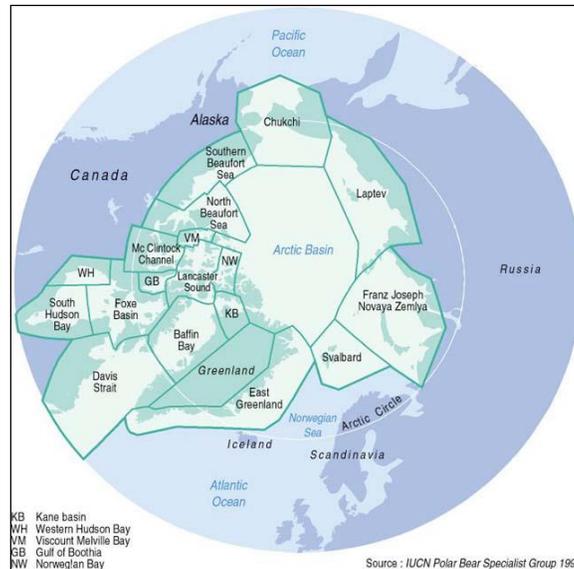
The AHDR trend summary is comprehensive and useful. Property rights are focal elements of comprehensive Aboriginal land claims, which have led to fundamental changes in the political landscape of the circumpolar North. The incorporation of TEK into decision-making is perhaps the highest profile and contentious feature of current environment and resource policy processes in the region. Devolution of authority, budgets and resources critical for policy implementation has taken place within Arctic nation states, e.g., creation of the Territory of Nunavut from the former Northwest Territories and the transition to Home Rule in Greenland, and among nation

states with a common interest in regional governance. Finally, active involvement by northern peoples in resource ownership and development has its roots in the Aboriginal self-determination movement that began in the 1960s and is being expressed in a proliferation of forms ranging from municipal-style governments to private-sector partnerships. The AHDR's summary concludes these trends are likely to continue, generally leading to greater legitimacy in management. Further, Richard Caulfield (2004) extends these trends to argue that the most appropriate resource governance institutions are typically those which take into account social and cultural values of Arctic peoples, are flexible and responsive to change, and scaled appropriately.

Positive trends are not necessarily permanent features of the decision making process about northern resources and the environment. The existence of these positive trends is the product of many long, arduous political negotiations and their continuance – let alone their sufficiency in the face of challenges such as climate change – cannot be taken for granted. The remainder of this module will provide substantive details about selected aspects of these trends.

10.1 Polar Bears: An Exemplar Case

This module reviews current efforts in polar bear conservation as a case study to examine five learning objectives. Historically, polar bears have been hunted throughout their range but have fared better than many exploited species with no significant range loss due to hunting or human encroachment on their habitat. There are estimated to be 20,000 to 25,000 polar bears worldwide (Obbard et al., 2010). In 1973, the International Agreement on the Conservation of Polar Bears was signed by Canada, Denmark (Greenland), Norway, the United States and the United Soviet Socialist Republic. This landmark document has since guided polar bear research and conservation efforts. Significantly, the Agreement allows for polar bear hunting by northern Indigenous peoples while still subject to their country's laws. International trade in polar bears is regulated by the Convention on International Trade in Endangered Species, which lists polar bears on Appendix II. Unfortunately, institutions that emerged to guide polar bear conservation were not designed with knowledge of two major forces shaping the Arctic today, i.e., climate change and the Aboriginal self-determination movement. Adapting to changing ecological and social conditions has been a profound challenge for these institutions.



Distribution of polar bear populations in the arctic

Source: <http://maps.grida.no/go/graphic/distribution-of-polar-bear-populations-in-the-arctic>

10.2 Environmental Impacts of Globalization and Resource Exploitation and Impacts for Traditional Stakeholders and Communities

Human activities have multiple impacts on the northern circumpolar environment ranging from local to global. Locally, site-specific impacts are relatively straightforward to identify and measure, but regionally and globally this process becomes more difficult. The emergence of a single, integrated global economy has had two general environmental impacts on the circumpolar North. First, it created more markets for resources such as fish, timber, petrochemicals and, ironically, wilderness spurring increased resource use. Second, the global economy relies substantially on energy sources that produce greenhouse gases causing anthropogenic global warming (IPCC, 2007).

Consequences of global change impacts for northern communities and individuals, especially those who utilize natural resources in traditional ways, can be profound. Loss of access to resources, livelihoods and culture, and increased health and societal problems have been documented (Furgal et al., 2002). Further, as the ACIA findings indicate, interactions among influences can be profound and very difficult to quantify and attribute causation.

The net effect of these cumulative direct and indirect influences can be accurately understood with reference to specific contexts (Brunner and Lynch, 2010). For example, Keskitalo et al. examined outcomes of local level forest certification in Sweden, Finland and Russia. They found costs and benefits of certification were perceived differently among study sites and national and international influences (e.g., market characteristics, non-governmental organizations) interacted in complex ways to produce local effects (Keskitalo et al., 2009).

10.3 Indigenous Management of Land and Resources

Management of land and resources in the circumpolar North spans a range of organizational forms. Currently, the dominant situation involves transition from strict state control to inclusion

of northern Indigenous peoples in formally constituted decision-making processes. The degree of involvement is determined by the context of the situations as are the outcomes. The impetus for these transitions comes from different sources, e.g., a perceived crisis in resource management, settlement of Aboriginal land claims or processes of political devolution.

Berkes et al. (1991) suggest a working definition of co-management as “the sharing of power and responsibility between government and local resource users.” In practice this sharing occurs across a range of integration levels between state and local level management systems. Co-management regimes usually involve creation of institutions to bridge systems and are often local or regional in scope though function across levels in terms of membership and influence.

Fabricius et al. (2007) categorized the range of effective roles communities play in co-management:

1. **“Powerless spectator” communities** have low adaptive capacity and weak capacity to govern, and lack financial or technological options, natural resources, skills, institutions and/or networks.
2. **“Coping actor” communities** have the capacity to adapt but are not managing social-ecological systems, lack capacity for governance due to lack of leadership, vision and motivation, and responses are typically short term.
3. **“Adaptive manager” communities** have adaptive and governance capacity to sustain and internalize adaptation, invest in long-term management of ecosystem services, are aware of threats and take appropriate action for long-term sustainability.

A prominent feature of management systems involving Indigenous peoples is the effort to use TEK and science in decision processes. Much has been written about this endeavour praising this approach as a way of including northern peoples and their values and aspirations (Caulfield, 2004; Stevenson, 2006) and criticizing it for appropriating peoples' knowledge to perpetuate existing power structures and marginalize Indigenous peoples (Nadasdy, 1999). Regardless of the motives behind such endeavours, integration is extremely demanding especially if one is attempting to do it respectfully, authentically and skillfully. Wilkinson et al. analyzed how to approach the question of integrating local and professional knowledge and concluded:

“It is vital for natural resource professionals to work at opening new opportunities for integration, mutual learning and adaptability. Understanding previously unexamined “blind spots” can help us avoid some of the trip wires and pitfalls as we work at the nexus of multiple worldviews. Creating common-interest solutions based on mutual learning, adaptive knowledge systems, and shared respect will require improved diplomacy and democratic processes. Self-awareness is the beginning of the process towards creating healthy, honorable and viable relations between people, and between people and non-human nature” (Wilkinson et al., 2007).

A different challenge is identified by Graham White (2006) who argues there may be another disconnect other than that between TEK and science. Based on his comparison of two co-management boards, White concludes the mismatch between Indigenous

worldviews and western-style bureaucracies – the institutions of governance – is a different and possibly greater problem for cross-cultural resource management. Making this distinction is important. Interests of participants and stakeholders in northern resource and environmental governance are likely best served by recognizing the integration of knowledges and approaches to governance are equally demanding and important tasks as communities move towards being adaptive managers.

The case of polar bear co-management illustrates these challenges. In 2004, a serious controversy erupted when Nunavut's Minister of Renewable Resources announced harvest quotas for six polar bear populations would in some cases be substantially increased based on *Inuit Qaujimagatuqangit*, Inuit traditional ecological knowledge (see Wenzel, 2004 for an exploration of the subtle distinctions). One of the populations whose quota was raised and later reduced was the western Hudson Bay population. This quota increase was heavily criticized in the media by scientists and environmental groups and followed within months by the IUCN polar bear specialist group's resolution, "A precautionary approach when setting catch levels in a warming Arctic" recommended "polar bear harvests can be increased on the basis of local and traditional knowledge only if supported by scientifically collected information" (IUCN Polar Bear Specialists Group, Resolutions, 2005). This provocative position and the negative response it received from Aboriginal communities signaled the beginning of a divisive phase in polar bear conservation efforts in Canada and internationally (Tyrrell, 2006; Dowsley and Wenzel, 2008). Conflicts in polar bear management appear to be more about the distribution of fundamental values such as power, respect and well-being than about knowledge itself (Clark et al., 2008).

10.4 The Precautionary Principle as Policy

As a principle of governmental policy and international law, the precautionary principle originated in Europe and has become influential in European Union policies on environment and human health. The idea spread widely during the 1990s showing up in the United Nations' 1992 Rio Declaration where it is defined as:

"In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (UNEP, 1992).

The principle has been defined differently elsewhere but according to Dovers and Handmer (1995) it typically incorporates the following elements:

1. Uncertainty is unavoidable in sustainability issues.
2. Uncertainty about the severity of environmental impacts resulting from a development decision or an ongoing human activity should not be an excuse to avoid or delay environmental protection measures.

3. An anticipatory or preventative approach rather than a defensive one, i.e., acting before anticipated damage becomes apparent.
4. The burden of proof shifts away from the environment or those advocating its protection onto those proposing an action that might cause environmental harm.

The principle has been promoted and resisted on a number of grounds and criticized largely because its assertions can be interpreted differently by people with different values. A recent visible application of the precautionary principle in the Arctic is no exception. In the polar bear case, the precautionary principle was invoked in a highly provocative way by the resolution of the IUCN's Polar Bear Specialist Group (IUCN Polar Bear Specialists Group, Resolutions, 2005). This resolution essentially subordinated TEK to science with divisive effects, reducing trust and respect between Arctic Indigenous peoples and scientists and managers represented by the PBSG (Clark et al., 2008). The outcome has not been constructive for polar bear management efforts.

10.5 Models for Sustainable Management

Managing natural resources and the environment is far from simple. Different models exist, societal values and priorities change, and surprises are frequent. Ron Brunner and Amanda Lynch (2010) use the term scientific management to describe the predominant natural resource management paradigm today. In this paradigm, science is taken as an objective source of authoritative information forming the basis of policies implemented in a top-down fashion by a centralized, bureaucratic state institution. This approach has been widely adopted and institutionalized over the past century. In recent decades, the approach has revealed itself vulnerable to failure in the face of complex problems with social and ecological dimensions, and attributes that describe pressing environmental management problems in the circumpolar North such as climate change. Despite the universalizing tendencies of modern scientific management, neither it nor any other single management approach should be expected to be effective across the range of situations encountered in the Arctic. More context-specific and adaptive approaches are required.

Therefore, the emergence of co-management in previously state-managed systems is a positive trend for the circumpolar North. Most natural resources in the region are publicly owned. Although there are examples of recent privatization, experience with management of privately-held resources in the North is limited (Caulfield, 2004). Most living resources and spaces in the North are treated as common-pool resources and many had effective, longstanding community-based conservation institutions and practices in place before state management agencies arrived. Communities would not have survived otherwise. That the "tragedy of the commons" can be avoided is not a new idea to northern Indigenous peoples (Ostrom, 1990).

Community-based systems have obvious benefits over bureaucratic state management systems, such as intimate long-term knowledge of resources and patterns of use, adaptiveness, and flexibility and speed of response that come with smaller-scale organizations. Community-scale management institutions cannot function effectively in isolation in today's globalized and interconnected world. Fikret Berkes (2007) points out the need to establish multilevel resource governance systems by linking local-level institutions to regional and global institutions. Such a

system should be better able to reconcile diverse social and ecological goals, foster partnerships and deliberative learning processes, and avoid being surprised by phenomena that have impacts across scales.

The polar bear case has shown progress linking the established scientific management system, which functions at state and international levels, with community-scale institutions. There are clear successes, such as the 1988 Inuvialuit-Inupiat Polar Bear Management Agreement, that have allowed Aboriginal peoples in Alaska and Canada to jointly manage a sustainable harvest from a shared population of polar bears in the south Beaufort Sea (Brower et al., 2002). This agreement served as the template for the agreement between the United States and Russia for the conservation and management of the Alaska-Chukotka polar bear population, which was ratified in 2007 and mandates Indigenous involvement from both countries.

In these cases, vertical connections have formed between scientists, managers and communities that hunt polar bears. Horizontal connections between communities have been acknowledged and strengthened. These agreements apply to a small proportion of the world's polar bears and a limited geographic range. In recent years there have been bilateral agreements between range states on aspects of managing shared populations of polar bears. It is possible the pressures of conserving polar bears in the face of climate change will spur increasing cooperation across institutional levels, but there is much work to be done to ensure efforts sufficiently include values, worldviews and knowledge of northern Indigenous peoples.

Conclusion

“Indigenous peoples and their communities, and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices” (UNEP, 1992).

In few places does the UNEP’s *Rio Declaration* resonate more than in the circumpolar North. The region has experience with different forms of resource and environmental policy processes propelled in part by rapid evolution of northern governance. Current trends towards securing property rights for Indigenous peoples, co-management and the inclusion of TEK with science in decision-making are bold societal goals of inclusiveness while daunting professional and civic challenges.

Discussion Questions

1. Are there trends in Arctic resource governance that should have been included in the AHDR’s list in addition to the four described in Caulfield (2004)? What are they and why should they have been included?
2. Berkes (2007) argues that community-based conservation efforts must link to regional and global-level institutions in order to be effective. What are the costs and benefits of doing so? How should a community decide whether costs outweigh benefits?
3. Do you agree with the conclusions of Clark et al. (2008) concerning the problems with the polar bear conservation policy process? Why or why not?

Study Questions

1. What are the main impacts of globalization and resource exploitation on traditional communities and stakeholders in the circumpolar North?
2. What is the difference between co-management and devolution? How should one decide which is the better approach for a given context?
3. How would you classify Inuit communities portrayed in the Isuma TV video according to Fabricius et al.'s (2007) typology: powerless spectators, coping actors or active managers? Why?
4. Is the polar bear specialist group's 2005 resolution about science and TEK (Learning Highlight 2) consistent with the precautionary principle? Why or why not?
5. If you were advising a national-level policymaker invited to an international meeting of the five polar bear range states (Canada, Greenland, Norway, Russia and the United States), what policy position(s) would you advise them to take? Justify your recommendations.

Glossary of Terms

Note: A number of terms have multiple definitions, some of which are contested. Where this is the case, sources for definitions are provided.

Co-management: sharing of power and responsibility between government and local resource users (Berkes et al., 1991). Often used synonymously with terms such as community-based management or community-based conservation.

Common-pool Resource: a resource or resource system that is sufficiently large and excluding other users is costly but not impossible, and can be depleted through overuse in the absence of a common property regime that regulates the preservation, maintenance and consumption of that resource.

Devolution: the delegation of authority and, at times, resources from one level of government to a more localized level of government.

Globalization: the process of increasing integration of economies, companies, societies and individuals across political boundaries worldwide; driven by increasing trade, rapidly-improving communication technologies and cheaply-available energy for the production and transportation of goods and people.

Local Knowledge: defined as a subset of traditional ecological knowledge and a more encompassing term that itself includes TEK. In practice, local knowledge is often used to refer to experiential knowledge of non-Aboriginal origin.

Policy Process: a social process of authoritative decision-making by which members of a community clarify and secure common interests (Clark, 2002).

Precautionary Principle: "In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (UNEP, 1992).

Problem Orientation / Problem Definition: the tasks of clarifying goals, describing trends, analyzing conditions, inventing, evaluating and selecting alternative courses of action. Developing a problem

orientation is an iterative task, informed by ongoing developments and insights into social and decision processes.

Scientific Management: a management paradigm in which science is taken as an objective source of authoritative information that forms the basis of policies implemented in a top-down fashion by a centralized, bureaucratic state institution.

Traditional Ecological Knowledge (TEK): a cumulative body of practice, knowledge and belief about relationships of living beings (including humans) with one another and with the environment evolving through adaptive processes and handed down through generations by cultural transmission (Berkes, 1999).

References

ACIA. (2004). *Impacts of a warming Arctic: Arctic climate impact assessment*. Cambridge, UK: Cambridge University Press. URL: <http://www.amap.no/acia/>

Berkes, F. (1999). *Sacred ecology: Traditional ecological knowledge and resource management*. Philadelphia, PA: Taylor and Francis.

Berkes, F. (2007). Community-based conservation in a globalized world. *Proceedings of the National Academy of Science* 104(39):15188-15193.

Berkes, F., P. George and R.J. Preston. (1991). Co-management: The evolution in theory and practice of the joint administration of living resources. *Alternatives* 18:12-18.

Brower, C.D., A. Carpenter, M.L. Branigan, W. Calvert, T. Evans, A.S. Fischbach, J.A. Nagy, S. Schliebe and I. Stirling. (2002). The polar bear management agreement for the southern Beaufort Sea: An evaluation of the first ten years of a unique conservation agreement. *Arctic* 55:362-371.

Brunner, R. and A. Lynch. (2010). *Adaptive governance and climate change*. Chicago, IL: AMU Press.

Caulfield, R. (2004). Resource Governance. pp. 121-138 In: AHDR. 2004. *Arctic human development report*. Stefansson Arctic Institute, Akureyri, Iceland. URL: <http://www.svs.is/AHDR/>

Clark, T.W. (2002). *The policy process: A practical guide for natural resource professionals*. New Haven, CT: Yale University Press.

Derocher A. (2010). Climate change: The prospects for polar bears. *Nature* 468:905-906.

Dovers, S.R. and J.R. Handmer. (1995). Ignorance, the precautionary principle and sustainability. *Ambio* 24(2):92-97.

Dowsley, M. and G.W. Wenzel. (2008). The time of the most polar bears: A co-management conflict in Nunavut. *Arctic* 61:177-189.

Fabricius, C., C. Folke, G. Cundill and L. Schultz. (2007). Powerless spectators, coping actors and adaptive co-managers: A synthesis of the role of communities in ecosystem management. *Ecology and Society* 12(1):29.
URL: <http://www.ecologyandsociety.org/vol12/iss1/art29/>

Furgal, C., D. Martin and P. Gosselin. (2002). Climate change and health in Nunavik and Labrador: Lessons from Inuit knowledge. pp. 266-299 In: Krupnik, I. and D. Jolly eds. The earth is faster now: Indigenous observations of Arctic environmental change. Fairbanks, AK: ARCUS.

IPCC. (2007). Intergovernmental panel on climate change. Climate change 2007: The physical science basis. Summary for policymakers. URL: <http://www.ipcc.ch/>

Keskitalo, E.C.H., C. Sandström, M. Tysiachniouk and J. Johansson. (2009). Local consequences of applying international norms: Differences in the application of forest certification in northern Sweden, northern Finland and northwest Russia. *Ecology and Society* 14(2):1. URL: <http://www.ecologyandsociety.org/vol14/iss2/art1/>

Nadasdy, P. (1999). The politics of TEK: Power and the "integration" of knowledge. *Arctic Anthropology* 36(1-2):1-18.

Natcher, D.C., S. Davis and C.G. Hickey. (2005). Co-management: Managing relationships not resources. *Human Organization* 64:240-250.

Obbard, M.E., G.W. Thiemann, E. Peacock and T.D. Debruyne. (2010). Polar bears: Proceedings of 15th working meeting of the IUCN/SSC Polar Bear Specialist Group, Copenhagen, Denmark, 29 June – 3 July 2009. Gland, Switzerland and Cambridge, UK: IUCN.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge, UK: Cambridge University Press.

Stevenson, M.G. (2006). The possibility of difference: Rethinking co-management. *Human Organization* 65(2):167-180.

Tyrrell, M. (2006). More bears, less bears: Inuit and scientific perceptions of polar bear populations on the west coast of Hudson Bay. *Etudes Inuit Studies* 30(2):191-208.

United Nations Environment Programme. (1992). *Rio Declaration on Environment and Development*. <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=78&ArticleID=1163>

Wenzel, G. (2004). From TEK to IQ: *Inuit qaujimaqatugangit* and Inuit cultural ecology. *Arctic Anthropology* 41:238-250.

White, G. (2006). Cultures in collision: Traditional knowledge and Euro-Canadian governance processes in northern land-claim boards. *Arctic* 59(4):401-414.

Wilkinson, K.M., S.G. Clark and W.R. Burch. (2007). Other voices, other ways, better practices: Bridging local and professional environmental knowledge. Yale School of Forestry and Environmental Studies, Report No. 14. http://environment.yale.edu/publication-series/environmental_politics_and_management/5335/other-voices-other-ways-better-practices/

Supplementary Resources

Ansell, C. and A. Gash. 2008. Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory* 18:543-571.

Convention on International Trade in Endangered Species. (Documents, Events and Programs).
<http://www.Cites.Org>

ISUMA TV. 2010. Inuit Knowledge and Climate Change. Documentary film.
<http://www.isuma.tv/hi/en/inuit-knowledge-and-climate-change/movie#comments>

IUCN Polar Bear Specialist Group (International Scientific Body). <http://pbsg.npolar.no/en/index.html>