

An Exploration of Potential Directions for Climate Change Policy in Northern Canada¹

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Abstract

Climate change is a global issue whose causes and consequences require action at local, national and global levels. Despite the relatively small contribution to greenhouse gas emissions, which are the cause of anthropogenic climate change, by residents of Northern Canada, scientists project changes in average annual temperatures in the North to be among the highest in the world. If Northerners are to cope effectively with the potential impacts of climate change it is important that more precise understandings be achieved, of what may happen (and what is already beginning to happen), as well as actions of a precautionary nature that can be taken now, and what actions will likely be required in the longer term. This document provides information, suggestions and a possible framework for developing integrated climate change policy options and implementing measures for Northern Canada. While the focus of the paper is the situation in the North, basic policy considerations are addressed, as is the global context that influences national frameworks and local initiatives. To conclude, tentative policy choices are proposed and discussed, within the overall context of the global dilemma that climate change presents, for the design of coherent regional public policy.

Introduction

The development of policy⁴ is a long, and often complex, process requiring integration of many conflicting demands/pressures and consultation with a diversity of interest groups, organisations and governments. The process that leads to the development of policy is one of making choices and balancing interests. For climate change, the initial phases of this process have been evolving with increased intensity across Canada, and around the world, since the Rio Summit in 1992. During this period, climate change has been well documented (IPCC 1995, 2001; Dotto 2000), though not well understood, especially by society at large.

Nonetheless, scientific research continues, models estimate impacts, international protocols are negotiated, and the public appears ambivalent and unresponsive to projections of increases in annual average temperatures. Amid this activity we are challenged, as individuals, to process conflicting

messages, translate the situation to our lives, and reflect on what to do. Too often no clearly defined path appears that is both attractive and affordable. The issue is tough to grapple with; it seems to intrude into so many aspects of our lives and touch diverse corners of our governance structures. Climate change is a trans-disciplinary phenomenon attempting to find a home in a linear system structured according to vertical silos of subject or expertise. Progress has been slow as a result, underscoring the need for new operating frameworks and for stronger efforts in understanding the impacts of climate change; and for the identification, assessment and implementation of adaptation measures and policies.

In the Canadian North, decision-makers face a similar situation, exacerbated by a vast landmass, a thinly distributed population and predictions that impacts will be felt here first. How then to proceed? What are the risks and uncertainties? How might policies be crafted to reflect northern values and cultures? Unfortunately, there are no clear answers, only the beginnings of a new policy direction for climate change action in Northern Canada.⁵ Within the circumpolar community of nations, Canada has a strong reputation for thoughtful assessment and action and, as such, is well positioned to take a lead role in addressing climate change in northern regions, where the impacts are already being felt. With an appreciation of the wider context of the issue, this paper begins to explore policy choices in the North, outlining some directions worthy of further consideration and development. The intent is not to craft policy positions or documents, but to outline an array of possible policy directions and influential considerations to provide a catalyst for on-going discussion and deliberation on climate change actions in Northern Canada (see Table 1).

Guiding Principles

To move from concept to result requires cognitive manipulation, which translates desires and wishes into a substantive form, and places them in the context of daily life. A framework of values helps to guide this translation, giving direction and providing parameters that structure and focus the process in an evolutionary, rather than a deterministic manner. The statement of underlying principles imparts a necessary transparency to the process, and establishes a strong, common foundation from which to explore policy options for climate change in the North.

The principles listed in Table 1 do not tell us what to do, but provide a cognitive roadmap to refer to and guide decision-making. Consideration needs to be given to further elaborate the relevance of these principles, in terms that relate specifically to climate change policy in Northern Canada. Through acknowledging and accepting the basic principles presented in Table 1, participants in the policy development process will address the issue of

climate change in Northern Canada with a broadly shared set of values. Discussion of these and, possibly, other principles represents a helpful starting point in deliberations and meetings to draw participants back, if only momentarily, to the foundation they are working from. Looking in the same direction is an excellent position from which to share a common vision.

Table 1: Guiding principles for climate change policy development in Northern Canada

	Principles	Description
1.	Inclusive	All partners have a contribution to make. Consult widely and listen well. A participatory development process will aid in reaching a northern consensus on how to act.
2.	Build Capacity	Development of policy presents an opportunity to both build and liberate the latent capacity of northerners to take an active role in guiding the futures of their families and communities.
3.	Ownership	Through a sense of ownership and control, communities, corporations and individuals will take responsibility for local initiatives and achieve previously unimaginable results.
4.	Open Mindedness	Answers are a collective resource; the views of others need to be heard and weighed. Multiple views limit biased perspectives, enhance cooperation and lead to understanding.
5.	Practicality	The issue is urgent and thus the products and processes must be straightforward and practical. To be useful and applied in northern communities will require approaches that are easy to understand and use.
6.	Harmonise	Northern Canada includes many jurisdictions and organisations, but the North speaks most strongly with one voice, and will be heard more clearly if policies and proposals reflect a common vision.
7.	Subsidiarity	The transfer of responsibility to the appropriate level can realize optimum effectiveness. Shift authority and the means to exercise it to the most appropriate level of decision-making.
8.	Partnerships	Encourage and develop partnerships at all levels (i.e. circumpolar, Northern, territorial, and community) to achieve stated goals. Share responsibility and build commitment through joint efforts.
9.	Integration	Recognise and understand crucial links and dependencies for climate change in the North. Connect to sustainability and coping with hazards. Aim to institutionalise the concept and supporting attitudes.

	Principles	Description
10.	Transparency	Development and delivery of climate change initiatives in Northern Canada must be undertaken with a high degree of transparency to all partners and participants. Clarity in this matter is crucial to buy-in.
11.	Mentorship	Seek and accept guidance from other individuals, communities and jurisdictions to build on their successes and learn from their mistakes. Encourage formal and informal mechanisms.
12.	Celebration	Formalise and acknowledge efforts at all levels through awards, celebratory events, song/dance, and announcements. Praise all efforts and make honouring them a celebration for everyone.

Northern Vision 21

Almost all efforts, from reaching the North Pole to building a community hall, benefit from a vision, generally shared. The idea of a common vision is not new; it is essential. A view of the future northerners aspire to for themselves, their families and their communities, no matter the uncertainties that surround it, helps chart a course of action, and helps stay the course in times of doubt. The March 2001 Whitehorse Declaration (see page 120), developed through a modified Delphi technique with the conference participants,⁶ provides one basis for developing a guiding process for climate change actions in Northern Canada. In line with the evolution of international climate change debate, and moving forward from the Whitehorse Declaration, there is a need to express more strongly the specific character of northern vulnerability to climate change and the need for adaptation, including the strengthening of adaptive capacity at both territorial and community levels.

Recognition of these needs must be embodied in Northern Vision (NV) 21, a nascent idea to shape the climate change agenda in the North. NV 21 seeks to ensure that Northern Canada finds the best ways to achieve safe, sustainable communities and to meet national climate change commitments in the 21st century, respectful of the culture and heritage of the North. In close collaboration, the residents, businesses and governments of the North will need to acknowledge that NV 21 strengthens their resolve to integrate climate change actions into their economic, social and environmental agendas for the prosperity and quality of life of all citizens. The Whitehorse Declaration, together with the directions established through the National Climate Change Process begins to give shape to NV 21, which will evolve through discussions with partners throughout the North and elsewhere. As a process, NV 21 will be responsive, flexible and subject to the dynamic forces of change, while also setting firm guidelines and adhering to basic principles. Addressing climate change in the North over the next decade is crucial, and

will require bold action under the well understood and widely accepted banner that NV 21 can provide. Crafting this vision is an urgent priority, to consolidate the efforts of northerners and drive concerted action.

The North in the Canadian and Global Context

Evidence from respected scientific sources (IPCC 1995; 2001) indicates the global climate has warmed significantly since 1850, and that the rate of warming appears to be increasing. The latest climate change scenarios described in IPCC's 3rd Assessment (2001) confirm that the magnitude and rate of climate change will be greatest at high latitudes and least in equatorial and tropical regions. While global mean temperature is expected to rise in the order of 3-5 °C over the next few decades, scenarios of climate change suggest that by the middle of the 21st century northern regions could warm by 5-10 °C in the winter (Maxwell 1997:xiv), and up to 15 °C in the High Arctic. In summer warming is projected to be about 5 °C on the mainland and the central Arctic Islands (Maxwell 1997:xiv). This suggests that biophysical impacts on natural processes such as landforms, slope stability, permafrost, hydrological regimes and cryosphere processes, and biodiversity will be greater in the North than in southern regions. To varying degrees, a changing climate will affect all aspects of economic and social life in the North, especially transportation and other infrastructure, water supply and waste disposal, wildlife, and traditional cultures.

Traditionally, northern climate change research has attempted to segment impacts by: the physical environment; natural ecosystems; and, socio-economic processes. Research on the physical environment and an observed warming of 0.5-1.5 °C over the last 100 years, shows increasing evaporation, unstable snowpacks and alpine glaciers, permafrost thaw, sea-level rise, an increase in landslides, and a shifting of climatic zones. Shifts of precipitation are more difficult to project. However the models indicate increases of up to 25% over much of the North (Maxwell 1997:xiv), spread throughout the year, with heavier concentrations in the Far North. In central regions more rain in the fall and spring is expected that would, in the past, have been snow. The resultant changes in moisture retention and timing and duration of spring runoff as this relates to break-up and the threat of floods, primarily due to ice jams, poses new uncertainties for communities due to protracted snowmelt and less intense runoff (IPCC 2001). Potential impacts may also be felt on natural systems, particularly in wide deltas with perched lakes, such as the Peace-Athabasca and the Mackenzie. Precipitation in Northern Canada is harder to generalise than temperature change and will have a higher degree of variability throughout northern regions.

Natural ecosystems will change, but the rate of natural reestablishment is likely to be outstripped by the speed of the climatic shift, resulting in some

maladaptation. Tundra and taiga are projected to shrink, together with a northward shift in the tree line, increased forest fires and more insects. For northern wildlife the impact of a changing climate will be felt indirectly, with food sources and water availability changing in timing and location first. Impacts on freshwater species are uncertain and on marine animals variable. However, long-term seasonal open-water conditions could lead to the extinction of polar bears, who depend on ice floes for survival. Formal integrated impact studies on the people of the North have been limited by the complexities of the interactions and the uncertainties of adaptive capacity. As part of the Mackenzie Basin Impact Study (1995), some community-level work was done by Lonergan and Woo (1988), Newton (1995) and Aharonian (1996).

Notwithstanding the greater climate changes in higher latitudes, the consensus that emerges from research on the socio-economic impacts of climate change is that these will be greater in low latitudes where paradoxically the climate is expected to change least. The explanation is that climate impacts are a function of both changes in climate and the capacity of socio-economic systems to cope or adapt to these changes. Since, on a global scale, low-latitude tropical countries are generally less developed—they have less wealth, fewer trained and skilled human resources, less access to technology, and less developed organisational structures—therefore, they have less capacity to adapt. Canada as a whole belongs to that group of nations, that are assumed to have high adaptive capacity. However, to the extent that adaptive capacity is a function of wealth, technology and skills, not all regions of Canada are equally endowed. From a global perspective, Canada's northern communities share some of the dimensions of vulnerability with developing countries and, at the same time, face potentially much greater impacts due to changes in climate.

Therefore, on first principles, it seems likely that the northern regions of Canada face a double jeopardy; that is, climate change is expected to be greatest in that region of the country with the least (local) capacity to respond. In addressing the development of climate change policy for Canada, it should be recognised that northern communities contribute minimally to Canada's national level of emissions, while, at the same time, being among the most vulnerable. While it has been recognised that the impact of policies to reduce greenhouse gas emissions in Canada should not fall inequitably across regions, this principle might also be applied to the costs of adaptation. The implication is that, when policy options for the North are examined, it should be recognised that only a little can be contributed to reducing the national level of emissions and that relatively much more will be required to reduce the vulnerability of northern communities. Discussion is needed in the North and with national partners to find the right balance of equity and cost, today and in the years to come.

Furthermore, of note in the model projections is the unevenness of the impacts across vast land areas. Not all residents and stakeholder groups will be affected equally; some will suffer or gain more than others. If we use disaster situations as an imperfect surrogate, the more vulnerable portions of the population, such as ill, elderly and young people tend to be more sensitive to change. From a different perspective, those groups economically dependent on weather-sensitive sectors (e.g., tourism, wildlife harvesting) might be expected to be influenced to a greater degree, whether for better or worse. The difficulty of assessing the likely impacts of climate change arises both from uncertainty about the magnitude and rate of climate change (it could be either less severe than present models suggest or more severe); and from uncertainty about the future shape of the economy and society of the North. A general rule that has been widely accepted in the international negotiations on climate change response is that the richer and more highly developed the society the greater the capacity to cope with climate change.

How will the North evolve over the next 50 years? Will the dependency of the link to climate weaken or strengthen? Will other market forces exert a stronger influence than climate changes? These are a few of the questions that cloud the lens used to see the future of Northern Canada. They challenge us to think both about the overall development of the North and about the community level where the changes that do occur will be felt, and where people across the North will respond as individuals, families and communities. The question to be grappled with is not if they will respond, but rather how the response will be formulated and over what time frame will it occur. Science will continue to open our eyes, but will require complementary social analyses and policy to understand the implications of climate change for the people of the North, their economies (both traditional and modern) and their lifestyle in cities, communities or on the land.

Core Themes

Canada's National Implementation Strategy on Climate Change has suggested five connected core themes to guide actions during Phase One of this strategy. Given the urgency of the climate change issue, Phase One has been designed as a transitional period to be in force until an effective international agreement, such as the Kyoto Protocol, is ratified (NCCP 2000a). Phase One challenges Canadians from coast to coast to coast to take action now. Two territories have adopted the Phase One framework of core themes and organised current and proposed activities and initiatives accordingly (NWT 2001; Yukon Climate Change Coordinating Committee 2001), though in different orders.⁷

The development of actions, projects and initiatives under the five themes in Table 2 require a dual focus that has been absent from the early

climate change discussion. The reduction of GHG emissions through mitigation and adaptation of populations to changing climatic environments are two approaches requiring better integration. In Northern Canada particularly, GHG reduction efforts will help build commitment and contribute to Canada's global objectives. However, the vast degree of impacts predicted will emanate from international jurisdictions, many of whom are currently resistant to making serious reductions, due to national economic or ideological pressures (Burton 1996; 1998). With this reality and the anthropogenic gasses already in the atmosphere, making adaptation a coherent component of the action plan for the North would be a wise policy. Exploring the means to do so, under each theme, will be one of the next tasks to be jointly addressed by the territories.

Table 2: National Climate Change Process – Phase One Core Themes⁸

	Theme	Description
1.	Enhance awareness and understanding	Inform, educate and build awareness of climate change for all partners in Northern Canada. Address all aspects from the science and possible impacts to mitigation and adaptation approaches.
2.	Invest in knowledge	Equip decision-makers with the knowledge, capacity and experience to make informed decisions and lay the foundation for future actions.
3.	Encourage action	Actions focus on seven economic sectors to realise GHG savings, while acknowledging the parallel need for adaptive strategies.
4.	Government leads by example	Leadership by government bodies and organisations will send the right signal, to underline the urgency and importance of climate change to all northerners.
5.	Technology development and innovation	Enhance the availability to northerners of advanced technologies that reduce GHG emissions and are effective.

For the overall climate change initiative in the North, monitoring progress at the macro (theme), meso (project), and micro (individual) scales will aid in gauging what is working, what isn't and where the impacts are being felt the most. The role of local monitoring by individuals at the community level where the sensitivity to changes is the greatest should be embraced and encouraged through a variety of climate change projects and as an integral part of any northern climate change programs.

Options for Action

Residents of the Circumpolar North are beginning to witness disturbing and unusual climatic and ecological changes. Furthermore, this interdisciplinary issue requires an unprecedented level of collaboration among a diverse range of partners from all sectors of society. Northern residents need to take stronger measures to reduce their impacts on the environment, including greenhouse gas emissions, and recognise that, regardless of the success of these measures, the Circumpolar North will remain highly reliant upon global actions to reduce greenhouse gas emissions. This reliance, and the uncertainty of international negotiations, coupled with the increasing global emission of GHGs requires that northern residents investigate choices now, and widely communicate the messages that will allow them to understand those choices. The Circumpolar Summit, the special edition of *The Northern Review* and this discussion of possible policy options directions are strong components of this dialogue. Together, northern residents and organisations must explore options for action in the North, and acknowledge the connections between economic prosperity, environmental health and quality of life. Through an awareness of the linkages, and the strategies that reflect that knowledge, the future for northerners can be bright, prosperous and sustainable.

Fortunately, Canadians living in the Canadian North contribute only a small fraction of the world's GHG emissions, though the per capita contribution is one of the highest, in part due to the necessary high use of energy for heating and transportation. The challenge facing the North is to adapt to the impacts of climate change while participating with the federal government in international negotiations to arrive at agreements to reduce global greenhouse gas emissions. It is accepted internationally that reduction in emissions will be made by countries and regions—"according to their common but differentiated responsibilities" (IPCC 2001). Northern regions will have little choice in the short term—5 to 20 years—but to respond, both in reaction and in anticipation of the effects of climate change on wildlife, water and land resources. The scope of responses available, and their effectiveness, will be influenced by the political, lifestyle and economic choices made by government officials, community residents and industry leaders.

In the context of the United Nations Framework Convention on Climate Change, and adopting the language of the convention with respect to the distinction made between mitigation and adaptation measures, a partial list of policy choices and measures is shown in Figure 1. Mitigation refers to those policies and measures designed to stabilise the concentration of greenhouse gases in the atmosphere, such as energy efficiency and carbon sequestration. Adaptation refers to measures and policies that modify existing practices and processes which are designed to reduce the vulnerability of socio-economic systems, as well as innovations to take advantage of any opportunities provi-

ded by climate change. Adaptation measures can be developed on a sector-by-sector basis (e.g., infrastructure, biodiversity); by locality (e.g., coastal zone, migration corridors); and by type of climate hazard (e.g., floods, melting permafrost). In each of these three areas a number of options or approaches (see Figure 1) can be taken now, and in the future, by individuals and communities to reduce their vulnerability to impacts of changes in climate.

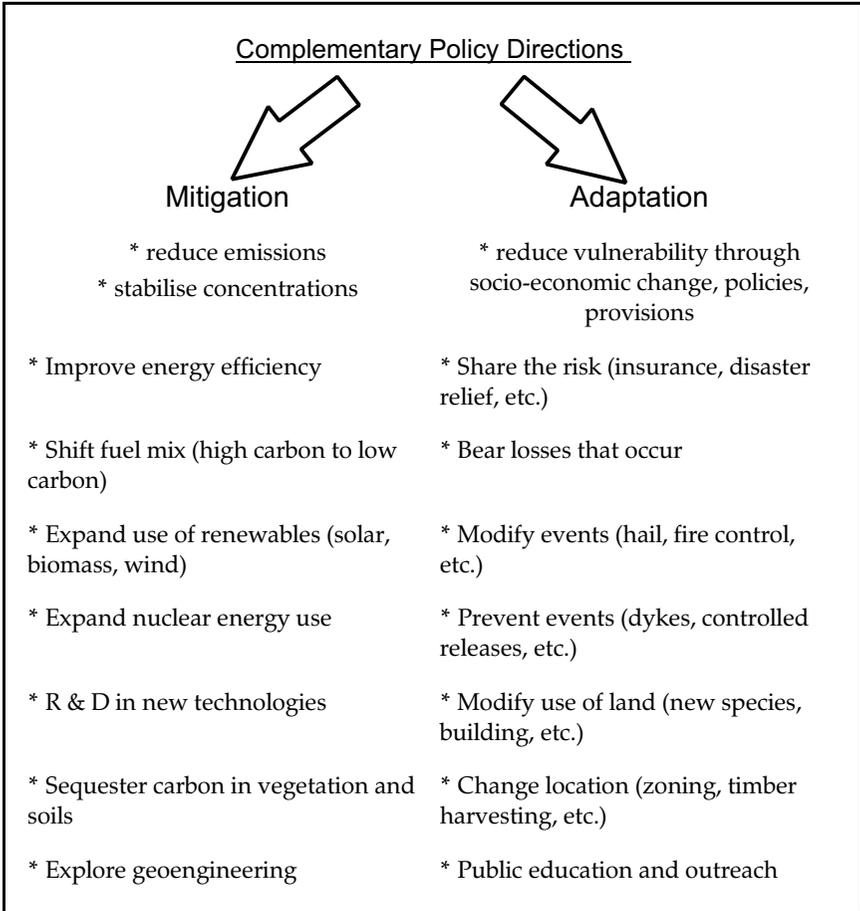


Figure 1: Potential climate change policy directions and measures

As previously discussed, some aspects of national climate change planning are easily transferred and applicable throughout the country, while others require modification to respect regional and cultural conditions. In the North, traditional lifestyles, oil and gas development, severe cold, and vast distances are all integral parts of northerner’s lives that influence the crafting

of policy. In these and other ways, the North differs from the southern provinces, though it shares some commonality with the northern regions of provinces. Nonetheless, a generally accepted approach to climate change in the North needs a singular, coherent strategic framework on which partners can design, develop and implement appropriate policies at all jurisdictional levels and throughout northern organisations and agencies. Such a framework could take different focuses, singly or in combination. In the formulation and implementation of climate change policies for Northern Canada, two broad strategic considerations are important: integrative and community-based approaches.

For each of the two primary policy directions—mitigation and adaptation—the list of actual measures needs expanding and elaborating into a framework of applied options, including guidelines and criteria for selection. Lists of existing activities and initiatives, in varying degrees of completeness, have been prepared for northern jurisdictions (NWT 2001; Yukon Climate Change Coordinating Committee 2001) and at a national level (NCCP2001b). Such lists begin the task, but lack a comprehensive view as they tend to focus on existing or planned measures, rather than on the potential scope of actions needed to spur innovation and new approaches.

Integrative Strategies

Adaptation and mitigation measures should not be approached in isolation from other environmental and socio-economic changes, such as pollution abatement and economic and social development. Moreover, building on the sound foundation of current policy frameworks in these areas is essential to the integration of climate change initiatives within established and complementary processes. A stronger and more complete appreciation and understanding of existing policy frameworks and their linkage to climate change policy directions in Canada, and particularly Northern Canada would result from a thorough process-mapping exercise. In many instances, both mitigation and adaptation to climate change are likely to bring co-benefits, beyond their primary focus of climate change, to other policy domains for communities and residents of the North. Understanding gained through mapping these linkages will enhance our appreciation of the scope and nature of the co-benefits, creating opportunities for marketing through public outreach. Consequently, attention to the perceptions of individual northerners, and whether they will decide to take action or not, is prudent and crucial to an effective integrative approach.

People respond more to immediate needs or threats. Long-term potential impacts generally fail to capture the attention of either civil society or the community of technical decision-makers and political leaders. Consequently, understanding how people modify or shift their perspectives will assist in

identifying the actions people value now, that have the co-benefit of reducing greenhouse gases and/or increasing the coping capacity of residents and organisations. The focus becomes clean air, quality of life, or reduced costs and the co-benefit is the desired result. Following the comments at the final Plenary of the Summit by Jose Kusugak, the President of Inuit Tapirisat of Canada (see page 116), this might be labelled the “Acupuncture Approach.” In the plenary Kusugak used the acupuncture analogy to underscore the separation between cause and effect that characterises climate change impacts in the North. Such an approach is not without issues, one of which is the climate change funding structure that can make it difficult to fund activities that will, indirectly, have the highest likelihood of achieving the desired GHG reductions. Innovative thinking is required.

An integrative approach builds on convergent societal trends, where independent policy initiatives are seen to seek complementary goals through different, though similar, strategic processes. For example, translating the concept of sustainable development into applied actions can support natural hazards loss reduction initiatives aimed at creating safer communities. Similarly, efforts to achieve sustainability at a local level integrate both of the abovenoted policy areas, together with issues of environmental integrity, such as watershed management and control of contaminants. Taking such areas, and others yet to be identified, into consideration in the development of climate change policy for Northern Canada provides the opportunity to improve weak horizontal policy linkages. Inspired thinking is needed to identify such linkages, build policy bridges and drive truly integrative strategies.

Community-Based Strategies

The successful implementation of adaptation and mitigation measures requires cooperation and ownership at the community level. This involves melding the desire for local sustainability and, reduced climate change impacts (and their dynamic relationship) to produce strong community-based initiatives that become embedded within the life and future of each community. One such avenue of action encourages the community to identify local threats and to seek means to reduce the potential for loss to create safer communities, due to a decreased vulnerability to extreme climatic events. These events are projected to increase in the North, posing a threat to unprepared communities, and a potential for increases in GHGs from evacuation and, where necessary, repair and reconstruction. Community-level efforts to cope with changes and threats will need simple, easy-to-use tools. Such tools are seen as seeds placed in fertile soils to grow and evolve differently as appropriate for each community’s context.

Community-based strategies require local partnerships to address common issues such as permafrost thaw, storm surge or changes in migration

patterns. In each community, the issues will be multiple and different, reflecting the uniqueness of northern communities. So, too, must the strategies be unique, though following a similar, collective approach once common threats are identified. For example, changes in the distribution and intensity of the annual water budget in a community requires the participation and contribution of all residents, local organisations and governing bodies to address the threats such changes might generate. Looking at this issue from a local perspective enhances ownership, encourages innovation, and ensures that solutions will be accepted and implemented.

Conclusion

The evolution of policy options for climate change in the North will be driven by the strength of the collective perception of need, and a political willingness to take deliberate actions now, in the face of an uncertain future. It is apparent that climate change requires consideration and understanding at different scales, and within different organisational frameworks. No one action or initiative is sufficient; everyone shares responsibility. In the Canadian North, no less than in the global arena, it is recognized that everyone shares this responsibility, and that these responsibilities are highly differentiated, by sector, by locality and by capacity.

Over the coming decades, changes to the current climate of Northern Canada will affect the environment and the people who live and work there. The development of appropriate, targeted policy instruments will need to consider environmental conditions as they influence the lives of residents, and address more directly the ongoing safety, security and prosperity of northern communities and residents. When establishing a common NV21, it is important to remember the reason for action is to maintain and enhance the quality of life of northern Canadians. NV21 represents one of the cornerstones of a northern policy foundation. Within this Vision, the question of regional equity, whether for mitigation or adaptation, will be an important and necessary consideration. Not only must northerners cope with some of the largest climatic changes predicted; they also inhabit the region of the country with the least (local) capacity to respond. Consequently, there may be, as is often prevalent where inequities exist, the desire to lob accusations at others prior to taking constructive local action. While emotionally attractive, such actions are generally counterproductive, escalating differences rather than cooperatively building solutions. In light of the global and national circumstances that surround climate change northerners need to build on their historic strengths to deal with adversity, to seek partnerships and to avoid conflict.

We offer two strategic frameworks for further consideration and debate as northerners and other interested parties seek a policy direction for climate

change action in Northern Canada. The frameworks differ in their scales of application, and should not be considered mutually exclusive. Both integrative and community-based strategic approaches can work in harmony, though the agents and processes to develop and realise each strategy will be different. Managing the on-going evolution of both strategic directions in a cooperative and supportive manner will be a sign of the overall maturity of the issue management process. The challenge is a large one, for the issue and the northern context are both elusive and multi-faceted, requiring strong horizontal linkages among disciplines and equally robust connections throughout established and emerging governance structures. Moreover, in conjunction with the ever-present uncertainty, and, at times, conflicting information, the challenge of climate change in northern Canada warrants the keen attention of all parties to discuss common policy options and arrive at complementary plans of action.

The United Nations Framework Convention on Climate Change refers to common but differentiated responsibilities. In Northern Canada, different communities and different sectors will develop their responses in various ways. The same applies to Northern Canada in the Canada-wide context. On a global scale, what happens next in Northern Canada from a policy perspective may well be a precursor or a demonstration of how the issue of climate change will evolve elsewhere in the coming decades. The challenge for climate change policy development in the Canadian North is to develop a way forward in which each contributes based on needs and capabilities while recognising the necessity to harmonise the overall impacts and our collective responsibilities. The overview concepts and ideas presented here are meant to engage partners in discussion, prod thinking to move beyond the normal zone of comfort, and encourage a search for ways and means to effectively integrate the converging agendas of climate change, sustainability and safer communities. In the final analysis, our quality of life depends on the actions we each take.

Notes

1. This document was prepared with support from the Department of External Affairs for the Northern Climate ExChange at Yukon College. It is a research document and does not necessarily reflect the policy point of view of the federal or territorial governments and organisations involved.
2. John Newton, a professional engineer and Member of the Natural Hazards Society is the Principal of John Newton Associates that provides consulting and research services to government and the private sector in the areas of Crisis and Risk Management.
3. Ian Burton is an independent scholar and consultant who has been an active contributor to the literature on natural hazards, environmental management and climate change for over 30 years at national and international levels.

4. A discussion of “policy,” what it is, who is involved and how it is developed has been included in the Background Document to this paper. Please contact the Northern Climate ExChange of Yukon College for more information.
5. For the purposes of this document “Northern Canada” is defined as the combined jurisdictional boundaries of the Yukon, the Northwest Territories and Nunavut, the Hudson-James Bay lowlands of Ontario and Manitoba, northern Québec, and Labrador. It is, however, recognised that other perspectives of “the North” exist based on geophysical, ecological and cultural characteristics.
6. During the Whitehorse Summit in March 2001 attendees were asked to indicate the three most important actions required to address climate change in the circumpolar region. A summary of over 300 comments was discussed and resulted in the Whitehorse Declaration (see page 120).
7. Even NCCP documents order the five themes differently leading to the view that order is flexible to meet the needs of different jurisdictions and the focus is on content. However, a common order is suggested for the three territories to simplify reporting, reference and notation of common activities. Therefore it is suggested that the order used by the Yukon Climate Change Coordinating Committee be followed as an appropriate sequence, subject to discussions with the appropriate NWT and Nunavut organisations.
8. See (NCCP 2000a:9).

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