



A Human Development Agenda for the Arctic: Major Findings and Emerging Issues

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In this final chapter, we single out major conclusions drawn from the substantive chapters of the AHDR that merit attention on the part of the Arctic Council and its Sustainable Development Working Group as a matter of priority. The chapter directs attention to some success stories regarding human development in the Arctic and also identifies areas in which there is a need for more and better knowledge. In addition, it presents some reflections regarding the nature of human development as seen from a regional perspective. The chapter reemphasizes the character of the Arctic Human Development Report (AHDR) as a scientific assessment and makes some suggestions regarding appropriate follow-up activities.

The chapter is designed to serve as a self-contained summary of the AHDR's main findings accessible to policymakers and members of the attentive public interested in contemporary Arctic issues. It rests firmly on materials presented in the previous chapters of the report. We urge readers who want to learn more about the nature of the evidence and the analysis underlying specific conclusions to turn to the relevant chapters for more detailed accounts.

Policy-relevant conclusions

This section presents the most striking findings of each of the AHDR's substantive chapters as seen from a policy perspective. This procedure runs the risk of ignoring or glossing over some important points and failing to present a well-rounded account of the full array of concerns pertaining to human development in the Arctic. Yet it does have the virtue of drawing attention to a limited set of issues we believe deserve special attention (1).

Demography

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

In demographic terms, the Arctic is a land of contrasts. Approximately 4 million people live in the Arctic. Almost half of them are residents of the Russian Arctic, despite the exodus of non-indigenous residents from this region in recent years. There are a number of sizable cities (e.g. Murmansk, Norilsk, Reykjavik, Anchorage) coupled with vast sparsely inhabited areas. The density of population in the Arctic varies from 0.025 per square kilometer in Greenland to 4.3 per square kilometer in the northern counties of Norway and 34 per square kilometer in the Faroe Islands.

Relative to the population of the non-Arctic sectors of the Arctic countries, human population in the Arctic is miniscule. But there is considerable variation in these terms as well. Only 0.2% of Americans live in Alaska, 0.4% of Canadians in the Canadian Arctic, and 1.4% of Russians in their country's northern areas. By contrast, 10.2% of Norwegians live in the country's three northern counties, a situation that may account for the fact that Norway devotes more attention to northern issues than many of the other Arctic countries. Even so, population has tended to decline in the northern hinterlands of Finland, Norway, and Sweden, a matter of serious concern to policymakers throughout Fennoscandia where the maintenance of a significant human presence in the North is regarded as a high priority.

Perhaps the most important inference we can draw from these observations of contrasts and diversity in demographic patterns is that it is risky to generalize when it comes to assessing the relative merits of policy options relating to

matters such as health, education, and welfare. A second inference concerns the ease with which it is possible to overlook Arctic issues in the national capitals of the Arctic states. There are exceptions. The American constitution accords Alaska the same representation in the US Senate as it grants to California. Nevertheless, it is a struggle to project the voice of the Arctic into policymaking processes in the Arctic states, even in cases like climate change where the impact on the region is expected to be particularly severe. Because northern issues differ markedly from those of southern regions and often call for Arctic-specific solutions, this tendency to ignore the Arctic at the national level is a matter of genuine concern. It suggests, among other things, that proposals calling for the creation of bodies dedicated to the articulation of Arctic concerns in the national capitals may have merit.

Societies and cultures

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

The Arctic is a melting pot of cultures. The region's indigenous peoples are highly diverse. Perhaps the most fundamental division among these peoples separates those adapted to the tundra and the coastal margins of the Arctic

seas, on the one hand, and the peoples of the subarctic or taiga, on the other. To this mix we must now add several later waves of immigrants, ranging from the agriculturalists who settled Iceland and the Faroe Islands more than 1,000 years ago to the Filipino fishermen who have immigrated to Alaska in recent decades. The growing cultural diversity of the Arctic is apparent to anyone who has travelled in the region over the past few decades. This diversity, to take a single striking illustration, is reflected in the international cuisine now available in Arctic communities, ranging from Thai restaurants in Ísafjörður, Iceland, to pizza parlors in Iqaluit, Nunavut. For the most part, residents of the Arctic celebrate this diversity; the idea of preserving cultures frozen in time as they appear in the dioramas of southern museums belongs to the past.

Arctic societies and cultures – especially those of indigenous peoples – have a long history of resilience based on their ability to adapt quickly to changes in the ecosystems on which they depend and even to profit from changing biophysical and social conditions to improve their circumstances. The ability of these peoples to take advantage of the introduction of modern practices and technologies (e.g. snowmobiles, helicopters, the internet) should be viewed as a sign of cultural vitality rather than as an indicator of cultural decline. Traditions are dynamic. We must not allow nostalgia for social practices of the past to cloud our assessment of the integrity of Arctic cultures today.

At the same time, it would be a mistake to assume that Arctic societies and cultures can remain resilient in the face of all biophysical and social changes. Today, Arctic societies face an unusual combination of biophysical and socio-economic stresses. The onset of climate change is not only generating concrete problems (e.g. the impact on infrastructure of increases in the active layer of permafrost). It is also eroding the confidence of local leaders in their judgments about climate-related matters, such as when and where to hunt and when it is safe to travel on sea ice.

Nor is climate change the only threat to Arctic societies and cultures. On the contrary, there is also a growing need to respond effectively to fast changes in economic, legal, and political systems as well as to changes in other biophysical systems. To meet this challenge, Arctic societies will have to balance the retention of long-standing social practices with the introduction



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Whale watching boats in Iceland

of new forms of knowledge and innovative technologies or, in other words, find the right mix of continuity and change.

Economic systems

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

Some observers regard Arctic economic systems as backward, marginal, and unable to cope with the competitiveness of today's world. However, if the Arctic is treated as an integrated region, the "Gross Arctic Product" surpasses the gross domestic product of Sweden, rivals that of Belgium, and amounts to about one-fourth of Canada's gross domestic product.

Transfer payments from national governments are of great importance in many parts of the Arctic. For example, Denmark underwrites about half of the annual budget of the Greenland Home Rule and Canada covers some 85% of the cost of running Nunavut. Yet it is easy to misinterpret the significance of these

observations. Large quantities of profits and rents, arising mostly from the extraction of natural resources on a large scale, flow out of the Arctic, depriving public authorities in the region of potential sources of revenue. A comparison of outflows in the form of profits and rents and inflows in the form of transfer payments shows that the Arctic as a whole is a net exporter of wealth. Of course, there is a great deal of variation across the circumpolar North. Deposits of oil, gas, and minerals are sprinkled here and there across the region. Still, it is time to abandon the fallacious idea that the Arctic is unable to pay its own way in today's world.

What is true is that Arctic economic systems are often narrowly based and therefore highly vulnerable to both market fluctuations and political interventions. In the wake of the emergence of cash economies, many Arctic systems have taken on the character of monocultures, depending on one or a few products, such as lead, zinc, natural gas, oil, shrimp, or marine mammal products. When these resources are exhausted (e.g. hydrocarbons), experience sharp declines (e.g. fish stocks), or are affected by bans

or boycotts (e.g. seal skins), individual communities in the Arctic suffer severely. The affected communities are miniscule in terms of their economic and political power. Outside actors, including NGOs, multinational corporations, and governments, can and often do act with little awareness of or even concern for the impacts of their actions on Arctic communities. Under these circumstances, a major challenge is to devise ways for Arctic economic systems to diversify and to protect themselves from the effects of actions taken in ignorance of their consequences for human development in the Arctic.

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.**

There are exceptions to every generalization. The victory of Alaska's North Slope Borough in its legal battle to win the authority to levy property taxes on the oil development infrastructure at Prudhoe Bay constitutes an exceptional situation in the Arctic. Far more common is the transfer of authority over a wide range of functional concerns (e.g. health, education, and welfare) to newly created Arctic local or regional governments without providing them with independent sources of revenue needed to discharge their responsibilities effectively. The result is a heavy reliance on bloc grants, as in the case of Danish funding of the Greenland Home Rule, or transfer payments, as in the case of funding for a variety of welfare organizations serving the population of rural Alaska. These forms of support are of critical importance. But they are controlled by central governments that can alter or even discontinue them at will.

Are there realistic alternatives to this state of affairs in the Arctic? Two solutions are possible: a return to a more traditional, self-sufficient subsistence life style or changes in the rules of the game to allow Arctic communities to capture a share of the profits derived from the exploitation of the region's natural resources. A strengthening of traditional subsistence practices appeals to some and may prove necessary in parts of Russia hit hard by the impacts of the economic collapse of the post-Soviet era. Still, few are prepared to turn the clock back to an earlier era. The only real alternative to continued dependence on transfer payments, therefore, is

to change the rules of the game to ensure that more of the profits remain in the Arctic.

Similar concerns have arisen in many other parts of the world endowed with an abundance of natural resources. In general, the results have not been encouraging. Many analysts actually talk about the "curse of resource abundance." Yet some effective responses to this conundrum are surely possible. The taxing authority of the North Slope Borough offers an interesting precedent. So does the creation of Community Development Quotas in some fisheries under federal control in Alaska and the income security program under which the government of Canada supports active trappers. Finding ways to address the imbalance of authority and resources is a matter of the utmost importance throughout the Arctic today. In Russia, efforts to address these concerns are complicated by the continuing struggle over the allocation of authority between the central government in Moscow and regional authorities in many parts of the North.

Legal systems

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

Although those working on behalf of indigenous peoples are justifiably frustrated by the time and energy it takes to advance their issues on national policy agendas, the past three decades have witnessed significant gains in the recognition of indigenous rights throughout the Arctic. These gains take a variety of forms, including the entrenchment of aboriginal rights in national constitutions (e.g. Article 35 of the 1982 Canadian constitution and Article 69 of the Constitution of the Russian Federation), the creation of new political bodies (e.g. the Saami Parliaments in Finland, Norway, and Sweden), the transfer of property rights to Native entities (e.g. the corporations set up in Alaska under the terms of the Alaska Native Claims Settlement Act (ANCSA) of 1971), and the strengthening of usufructuary rights (e.g. harvesting rights built into a number of comprehensive land claims settlements in the Canadian Arctic). However, new public governments (e.g. the Greenland Home Rule, Nunavut, the North Slope Borough) have also emerged in the Arctic. They exhibit the natural tendency of such governments to assert authority over all the activities occurring in areas under their jurisdiction, without regard to how these activities relate to indigenous rights.

Are these concomitant trends on a collision course? Dealing with the tensions arising from legal dualism surely presents a challenge, but there are signs of innovative responses arising in the Arctic. In Alaska, there are cases in which public governments, Indian Reorganization Act Councils, and village ANCSA corporations cooperate in the interests of devising mutually supportive divisions of labor. Efforts have also begun to devise an arrangement that will allow the Norwegian Saami Parliament and the county government of Finnmark to exercise concomitant jurisdiction regarding matters of conservation and sustainable development in North Norway, even if the current proposal is a focus of intense controversy. These innovations are far from ideal; there is a need to entertain more far-reaching changes before we can feel satisfied about the interplay between indigenous peoples' desire for self-determination and the natural propensity of public governments to exercise authority within their jurisdictions. But the Arctic could well emerge as a leader in the worldwide effort to accommodate both sides of this growing political dualism.

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.**

A striking development in the Arctic over the past decades is the establishment and implementation of a diverse collection of new resource regimes. What has emerged from this dynamic process is a tendency to pigeonhole arrangements into a few overarching categories (e.g. co-management) and to concentrate on the processes involved in creating these arrangements rather than assessing their performance. Partly, this is a function of the relative newness of most of these arrangements; many of those involved are still investing their energy in getting new environmental and resource regimes up and running in contrast to taking a step back to contemplate how well they are performing. In part, it is attributable to the fact that we do not have well-developed methods for assessing the performance of management regimes.

One highly useful initiative in this context would be to develop a well-defined and unbiased set of criteria of evaluation and then to conduct comparative assessments of arrange-



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Nenets fishing

ments already in place or emerging in various segments of the Arctic. This would make it possible to pose and begin to address the following sorts of questions. What can we say about the relative performance regarding land use and the exploitation of natural resources of the Alaska Native corporations established under the provisions of ANCSA and the various organizations set up under the terms of comprehensive claims settlements in Canada? How effective is the system in place in Greenland in which there is no well-defined concept of private property and decisions about the development of many natural resources are made by a joint Greenlandic and Danish council? Are there lessons to be drawn from North American experiences that are relevant to current efforts in the Russian Arctic to restructure existing practices dealing with land ownership, use, and occupancy? How have various limited entry programs fared when applied to Arctic fisheries? Here, there are opportunities to address issues that are not only critical in the Arctic but also matters of growing concern in other parts of the world.

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.**

There have been undeniable gains in human health in the Arctic over the past several decades. Although life expectancy in the Arctic – especially in Russia – is lower than life expectancy in other parts of the Arctic countries, it is substantially greater today than it was in the years following World War II. In most Arctic areas, tuberculosis is a thing of the past. The introduction of innovative technologies in such

forms as telemedicine has been a striking success. Although diabetes, tooth decay, and other conditions associated with shifting dietary habits and lifestyles are on the rise in some parts of the region, the overall picture of human health in the Arctic is markedly brighter now than it was even two or three decades ago.

Even so, this picture does not justify the inference that everything is fine regarding human health in the circumpolar North. Two sets of problems present particularly serious challenges: One is mental health, alcohol and substance abuse, violence, and accidental death. The other is dietary issues arising from concerns about the contamination of country foods together with increased consumption of fast foods. What is needed to address the two challenges differs dramatically. Suicide, homicide, and other forms of violence are closely tied to rapid social changes that erode a sense of being in control of one's own destiny and of being embedded in an intact culture. Solutions lie in strengthening the viability of Arctic communities and, above all, finding ways to allow the Arctic's residents to play active and effective roles as players in programs designed to improve their own health.

The problem of contaminated food is entirely different. It arises from industrial activities occurring far beyond the confines of the Arctic and can only be alleviated through effective initiatives on the part of distant policy makers. Over time, it may be possible to educate southern policy makers about the seriousness of this issue. In the immediate future, however, Arctic residents need advice about the risks of consuming contaminated food firmly grounded in the best available science and traditional knowledge. The work of the Arctic Council's Arctic Monitoring and Assessment Programme (AMAP) has been particularly helpful in this respect.

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.

Traditionally, education in the Arctic featured the transmission of useful skills and values through experiential learning and the passing on of oral traditions from one generation to the next. The onset of western colonization in the

North led to profound changes in the educational systems. Missionaries seized opportunities to spread the gospel of Christianity. Trading companies found it expedient to teach local people to hunt and trap for commercial purposes rather than to fulfill subsistence needs. Eventually, the state assumed responsibility for educating the residents of most areas in the Arctic. But given the great distances and sparse populations characteristic of the Arctic, this often led to the use of curricular materials developed for communities located far to the south and to the gathering of students in boarding schools far from their home communities. Frequently, this process included active efforts to suppress distinctive cultural practices (e.g. use of native languages, the passing on of oral traditions) in the interests of equipping students with the skills and overall perspectives needed to live successfully in mainstream societies.

Today, the mindset underlying these practices has changed. But there is much to do to create education systems that are sensitive to Arctic conditions and that are designed to provide students with the knowledge and skills required to thrive in the Arctic. Partly, this is a matter of providing instruction in native languages, developing curricular materials designed for use in the Arctic, and training Arctic residents themselves to become teachers in local schools. In part, it is a matter of taking advantage of new technologies that make it possible to deliver distance education of a quality good enough to make it unnecessary for students to leave their home communities for long periods of time. Above all, it is a matter of sorting out cross-pressures affecting school attendance on the part of young people and finding appropriate mechanisms to enhance local control of schools, without compromising the quality of the instruction and the discipline needed to ensure that graduates will be able to perform well in the kinds of jobs likely to be available in northern communities during the foreseeable future.

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.

Viable communities are places where people find it attractive to spend their lives and build a

future for themselves and their families. Such communities provide not only economic opportunities but also a meaningful cultural and social existence for their residents. Although some Arctic communities have suffered from a drain of talented people who have moved to the cities in search of better employment opportunities, others have found a variety of ways to provide sustainable livelihoods to their inhabitants.

Part of the variance in these terms is a function of ensured access to natural resources, sustainable markets for these resources, and the development of effective local governments. But it also depends critically on the emergence of entrepreneurship at the local level, the presence of political leadership, and the ability of individual residents to form appropriate partnerships with outsiders. Proper infrastructure and effective public services, including the development of information and communications technologies, are important in this regard. A recurrent theme among viable communities is the coupling of local, regional, and even global systems. There is a need for local businesses and governments not only to adapt to the conditions arising from these linkages but also to find ways to use them to their advantage.

Gender issues

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

Traditional Arctic social systems exhibited sharp differences in the roles assigned to men and women but relatively few conflicts framed in terms of gender issues. Survival in the Arctic required a partnership between men and women; severe friction in this realm could lower the prospects of surviving in this environment. Yet the Arctic today features most of the concerns about gender that have arisen in more mainstream societies. These range from problems involving the physical security of women to questions about opportunities for women to hold public office and to rise to positions of leadership in the private sector. Some of these concerns, such as spouse abuse, child abuse, and parent abuse, have become particularly prominent in certain parts of the Arctic.

At the same time, the Arctic has given rise to a number of issues relating to gender roles that are specific to the region. These include the lack of satisfying employment opportunities for women in small Arctic communities as well as a

loss of efficacy on the part of men. On average, Arctic women acquire more education than men, experience frustration at the lack of opportunities at the local level, and often migrate out of their communities of origin and even out the Arctic altogether. Faced with the changing nature and lowered status of subsistence hunting, Arctic men often experience a declining sense of self-worth, a condition that is implicated in some of the health issues discussed in Chapter 9.

The result for many men and women is an erosion of important elements of human development, especially when it comes to matters of fate control, cultural identity, and a sense of place. There is no comprehensive solution to this set of problems. Rather, a piecemeal approach emphasizing the maintenance of cultural integrity and community viability and requiring a common effort on the part of both men and women will be needed to make headway in addressing these issues.

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.**

There is a sense in which the ongoing emergence of the Arctic as a distinct region is counterintuitive. Not only is the region composed in large part of sparsely inhabited sectors of states whose centers of economic and political gravity lie far to the south, but also the various components of the region differ substantially in terms of factors ranging from their biophysical environments to their historical experiences. Still, there is no denying that region building in the form of efforts to forge a sense of regional identity in the circumpolar North and to devise a common policy agenda for this region has proven remarkably effective during the past two decades. Notwithstanding their obvious limitations, both the Arctic Council and the Northern Forum have struck responsive chords. And the rise of solidarity among indigenous peoples organizations in the region is surely a development to be reckoned with by all those interested in policy issues in the Arctic.

Nevertheless, the forces of global change – social as well as biophysical – are powerful determinants of the course of Arctic affairs. As the report of the Arctic Climate Impact

Assessment (ACIA) documents, climate change and variability are already producing huge challenges for Arctic communities, including growing pressure to relocate entire communities in extreme cases. Market fluctuations affecting the price of natural resources – from oil to salmon – produce a kind of roller-coaster effect in communities that have narrow economic bases. The efforts of environmental and animal welfare groups seeking to preserve wildlife can seriously harm communities dependent on outside markets for living resources. And there is always the prospect that public policies adopted in national capitals for reasons having little to do with the Arctic (e.g. decisions about the procurement and deployment of military weapons systems) can sideswipe Arctic communities in dramatic ways.

There are no simple ways to avoid these dangers. But part of the solution, in almost every case, is to find and exploit opportunities to coordinate and amplify the voice of the Arctic in broader policy arenas. The role of the Arctic in the process of negotiating the 2001 Stockholm Convention on persistent organic pollutants exemplifies this strategy. More generally, bodies like the Arctic Council and the Northern Forum have achieved significant results in this realm, especially considering the fact that the region's population is small, highly dispersed, and poorly endowed with most conventional sources of influence.

Arctic success stories

There is a tendency to adopt a tone of gloom and doom in discussions of human development in the Arctic. Rates of suicide, homicide, and accidental death are abnormally high throughout region. Family structures are crumbling in some communities. Language loss is a severe problem in certain parts of the Arctic. Out-migration, especially among settlers and better-educated indigenous women, is a common occurrence.

Our analysis confirms that these problems are real and not to be dismissed lightly. But they do not tell the whole story regarding human development in the Arctic. Many individual Arctic residents are highly successful. There are sharp differences among the communities of the region with respect to any number of measures of viability. The Arctic's residents have a long history of successful adaptations, even in the face of rapid and far-reaching changes of the sort that are impacting them today. Iceland, the only country located wholly in the region, has literally transformed itself since achieving independence in 1944. Although it shares many Arctic characteristics, Iceland today ranks near the top with regard to indicators like the UN Human Development Index and has been remarkably successful in the area of language protection.



Inuksuk in Igloodik,
Nunavut, Canada

To provide a proper balance between the identification of problems and the recognition of more positive developments, this section comments on three distinct areas in which remarkable success stories have emerged in the Arctic: the maintenance of cultural integrity in the face of a variety of external pressures, the adoption of technologies in such forms as telemedicine and distance education, and the development of innovative systems of governance.

Cultural integrity

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

In the years since the close of World War II, the residents of Arctic communities have experienced cascades of social changes affecting most aspects of their daily lives. Cash economies have emerged throughout the region. New forms of land ownership have arisen. Popular culture emanating from the southern metropolises has made itself felt everywhere in the North. Indigenous languages have come under increasing pressure in many sectors of the Arctic. But as Chapter 3 makes clear, “traditional” cultures in the Arctic have survived, adapting continuously but retaining the features that make them distinctive. They continue to constitute a significant force in the lives of those who belong to them. Of course, the picture is not uniform across the Arctic. Some groups, such as the Nenets of Russia’s Yamal Peninsula, have proven remarkably successful in protecting their cultures, while others are encountering more or less severe cultural erosion. But generally, indigenous cultures are not on the way out. Many are resilient and well-equipped to integrate change and to embrace beneficial aspects of modernity without losing their essential core or behavioral compass. Those located in other regions may be able to learn from the experience of Arctic cultures, as the need to come to terms with rapid social change intensifies.

Technological advances

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

Because the Arctic is so sparsely populated, many support systems (e.g. hospitals, colleges and universities, various types of nongovernmental

organizations) that are taken for granted in other parts of the industrialized world are not available within close geographical proximity. As a consequence, Arctic residents have developed a noticeable ability to solve problems and to get along on their own. But the lack of such services in the past also has often led to sending Arctic residents far away - even outside the region - to address issues of health, education, and welfare at high costs both in material terms and in human terms. Under these circumstances, success in the development of telemedicine as described in Chapter 9 and distance education of the sort referred to in Chapter 10 looms large in the Arctic. With respect to the application and adaptation of these emerging technologies to local circumstances, the Arctic is today a global leader. The result is not only a significant contribution to human development in the Arctic but also a source of important insights about the use of these technologies that are relevant throughout the world.

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.**

Some new political and legal arrangements address desires for local control and self-determination. Examples include home rule systems, such as in the Faroe Islands and Greenland, and other decentralized political arrangements, such as the North Slope Borough and the Northwest Arctic Borough in Alaska, Nunavut in Canada, and even the self-governing townships in Russia. Success in political and legal arrangements has also taken the form of governance systems addressing human uses of living resources in ways that are well-adapted to the biophysical and socioeconomic settings in which they operate. The Arctic has been in the forefront in the development of various forms of co-management that allow for meaningful participation of a variety of stakeholders in formulating the rules and implementing them effectively. There are many specific types of co-management, and not all of them have proven successful. Nonetheless, it is undeniable that the Arctic has provided an arena for institutional experimentation and emerged as a leading source of innovative approaches to governing human-environment interactions.

Gaps in knowledge

This scientific assessment has made us aware of numerous gaps in our understanding of human development at the regional level. As Chapters 10 and 11 point out, our efforts to come to grips with issues of education and gender were constrained by the lack of well-developed bodies of research that take a circumpolar perspective. There is clearly more to be done in addressing these subjects.

It would be easy to point to a long list of specific matters that should be examined systematically in an ideal world. Some of them are discussed in the individual chapters. In this section, we direct attention to a five specific gaps that cut across many subjects and that need to be addressed with high priority: Arctic demography; the determinants of cultural and social integrity in the Arctic; the experiences of settler populations; modern industrial development, and the performance of new institutions in the Arctic.

Demography

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

The AHDR's demographers have struggled long and hard to produce a relatively straightforward demographic profile of the Arctic as a distinct region. As a reading of Chapter 2 makes clear, they have had considerable success. But the results are still rather limited, and they have become available late in the process of assembling this report. The simple fact is that the Arctic is not a distinctive region in terms of the collection and integration of demographic data; individual Arctic states collect data regarding their northern regions on the basis of data protocols they have developed and refined for use in areas outside the Arctic.

One immediate consequence of this fact is that it would have been impossible for the authors of the AHDR to compute the UN Human Development Index for the Arctic as an integrated region, even if the Report Steering Committee had called for such an effort as a high priority. We are convinced that it would be desirable to make the effort to compute an Arctic or circumpolar version of the Human Development Index and to compare the results to the scores of each of the eight Arctic countries by itself. The Sustainable Development Working

Group may wish to identify this task as a matter of some priority. But no one should be under any illusions about the time, energy, and material resources needed to carry out this task.

Cultures and Societies

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

The cultures and social systems of the Arctic have experienced rapid and profound changes throughout the period since the close of World War II. Residence in fixed, year-around settlements has become the norm rather than the exception. Individuals must cope with mixed economies that affect traditional subsistence practices in a variety of ways. Many Arctic residents are now shareholders in corporations and voting citizens of new political systems (e.g. the North Slope Borough, the Greenland Home Rule, Nunavut). The erosion – in some cases amounting to a severe loss – of Arctic languages has proceeded throughout this period. Yet, as Chapter 3 argues forcefully, there is a sense in which many of the cultures of the Arctic remain vigorous and continue to exercise a strong influence in people's lives. The argument here is that cultures are deeply rooted and capable of persisting, even in the face of changes that outside observers are apt to see as destructive of local or regional cultures. How is this possible?

The challenge is to find ways to assess the impact of cumulative changes and to identify conditions that are conducive to the survival of the Arctic's cultures and societies under these conditions. Can we identify conditions that are either necessary or sufficient to ensure that cultures remain viable? If the answer to this question is negative, can we nonetheless find conditions or combinations of conditions that can account for a considerable portion of the variance in the ability of cultures and societies to tolerate change? Equally important, can we deepen our understanding of the processes that allow cultures to adjust to both biophysical and social changes while remaining whole? Because language retention is both a major component and a key indicator of cultural diversity, we recommend that the Sustainable Development Working Group focus attention and resources on the status of the languages of the Arctic and the prospects for their survival and, in some cases, revival.

Settlers

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

There is merit to comments offered by some reviewers of drafts of the AHDR concerning the need for a better understanding of the experiences of settlers in the Arctic. Chapter 3 on Arctic cultures and societies directs attention primarily to indigenous peoples. Chapter 9 on human health emphasizes the growing importance of telemedicine in remote areas, because the delivery of health services to people living in Anchorage or Reykjavík poses no special problems. Chapter 8 on community viability in the Arctic focuses on relatively small communities in which indigenous peoples make up a sizable fraction of the population in contrast to larger settlements or cities, a fact that skews the emphasis of the report somewhat.

We agree that there is a need in the future to devote more attention to human development among the non-indigenous residents of the Arctic, as well as to the complex interactions that occur between indigenous and non-indigenous inhabitants throughout the circumpolar North. There is a significant, though scattered, literature on this subject. Although it would require a considerable effort, this literature could be tracked down and synthesized as a follow-up to this report.

At the same time, it would be a mistake to carry this critique too far. The distinction between indigenous residents and settlers is not as sharp in reality as it may seem on paper. Many Arctic residents are of mixed ancestry. Under the Alaska Native Claims Settlement Act, for instance, individuals are eligible to enroll as Natives if they are one-quarter indigenous. Other arrangements do not make use of any quantitative measures to determine who can qualify as indigenous. What is more, some of the most interesting chapters of the AHDR (e.g. the chapters on political and legal systems and on resource regimes) focus explicitly on issues involving the interface between indigenous and non-indigenous residents of the circumpolar North.

Industry

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

The Arctic today is the site of world-class industrial activities. Typically, these activities involve the extraction of non-renewable resources or industrial harvesting of living resources. The Prudhoe Bay oil field is the largest ever discovered in North America. The super giant gas fields of northwestern Siberia are critical to Russia's efforts to reconstruct the country's economy. Nickel and lead/zinc mines located in the Arctic are among the largest in the world. The industrial fisheries of the Bering, Norwegian, and Barents Seas figure prominently in the world harvest of marine living resources. Diamonds from Siberia and Canada's Northwest Territories now account for a sizable share of the world market.



PHOTO: TERO MUSTONEN/NOVACHANGE PROJECT 2004

Smelter in the town of Nickel, Murmansk Region, Russia

Taken together, these enterprises have become prominent symbols of the new North. They provide employment opportunities for Arctic residents, tax revenues for local governments like the North Slope Borough, and sources of income for regional governments like the State of Alaska and the Sakha Republic. At the same time, these industrial activities introduce more or less severe instabilities in many parts of the region. Non-renewable resources like oil and gas are not only exhaustible, but the income they produce is also subject to the volatility of world markets. Extractive industries are generally controlled by multinational corporations that are more responsive to global forces than to local concerns. The activities of industrial fishers can conflict with the needs of subsistence harvesters. We need to learn more about feasible responses to these sources of instability. Innovative arrangements like Alaska's Permanent Fund created by diverting a percentage of oil revenues as well as various programs to protect the interests of local fishers (e.g. community development quotas) are worthy of more systematic evaluation in this context.

Governance

- We 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.

As we have stressed throughout this report, the Arctic has emerged in recent years as an arena for experiments with institutional innovations ranging from the development of new forms of public government to more specialized regimes dealing with specific issues (e.g. the Porcupine caribou herd that migrates annually across the Alaska/Yukon border). Efforts are underway in certain areas (e.g. the Commission on Self-Governance in Greenland) to evaluate the performance of these arrangements and to arrive at carefully crafted recommendations calling for adjustments and, in some cases, more substantial changes in existing institutions.

Still, these efforts merely scratch the surface of a much larger issue domain focused on the performance of governance systems. Analysis of these arrangements requires a willingness to set aside conventional wisdom, such as the idea that what is needed in the Arctic is a region-wide and legally binding regime of the sort operating in the south polar region under the terms of the Antarctic Treaty System. Unlike the challenge of computing an Arctic Human Development Index, efforts to evaluate the performance of institutions can be approached on a piecemeal or more incremental basis. This may make this topic appealing as a theme for future work under the auspices of the Sustainable Development Working Group.

Human development in perspective

The preparation of this report has brought to our attention some broader observations pertaining to the nature of human development. This section presents some reflections on the idea of human development as seen from a regional perspective and draws some inferences from our study of the Arctic that may prove useful to those concerned with human development in other regions of the world.

Nothing in this report should detract from the proposition that the UN's Human Development Index (HDI), with its emphasis on longevity, education, and material success, constitutes a

major advance over gross domestic product per capita alone as a measure of human development. However, as the United Nations's annual *Human Development Report* itself suggests, there is much more to human development than the factors included in the HDI. For instance, the 2004 volume in this series draws attention to cultural diversity and calls for "... multicultural policies that recognize differences, champion diversity and promote cultural freedoms." (2) In this spirit, we offer the following observations about the meaning of human development drawn from our study of the Arctic.

Residents of the Arctic – settlers as well as indigenous peoples – regularly emphasize the importance of at least three dimensions of human development over and above those included in the HDI:

- Controlling one's own destiny
- Maintaining cultural identity
- Living close to nature.

The evidence regarding the importance of fate control is both negative and positive. Those who feel unable to control their own destiny are commonly afflicted by feelings of helplessness and dependence. In some, this leads to passivity and a sense of lassitude that result in an inability to participate actively in social activities. In others, it generates anger and leads to various forms of violence, including self-destruction as well as the abuse of others. Those who feel empowered to control their own destinies, by contrast, are energized to take the initiative and acquire the skills needed for a successful life. Both conditions are present in the Arctic. But the erosion of a sense of fate control is widespread and severe, especially among young adult males living in remote communities.

Related to this is the importance of cultural identity. Those who suffer from a loss of cultural identity regularly experience feelings of anomie or, in more familiar terms, a lack of social norms that serve to channel behavior into socially acceptable outlets and give meaning to life. The challenges facing Arctic residents – and especially indigenous peoples – in this realm today involve rapid transformations in subsistence practices (e.g. the introduction of snowmobiles and helicopters in reindeer herding) and the survival and preservation of distinct languages. Our findings indicate that a significant measure of cultural integrity can survive these changes. But there can be no doubt about the



PHOTO: HUGH BEACH

Saami girl with dog,
spring 1975

stress and strain such rapid changes engender for residents of the Arctic.

Arctic societies are place-based systems; they feature human adaptations that are closely tied to local environments. It is no accident that Arctic residents – including settlers as well as indigenous peoples – regularly say that “our land is our life” and that “we belong to the land” rather than claiming the land as belonging to them. A failure to stay close to nature results in a loss of roots and various forms of alienation from the natural world. Separation from productive contact with nature also gives rise to a detached view of the natural world in which humans are perceived as alien and unwanted intruders in a pristine wilderness. Such attitudes pose severe problems for those whose livelihood is based on harvesting living resources in a manner that is important both culturally and economically. In the resource-based cultures of the Arctic, we find beliefs and values essential to sustainability, including respect for the natural world and the animals that inhabit it as well as an approach to life based on spirituality and limited material needs.

More generally, our study has directed attention to a distinction between two fundamentally different perspectives on human development. One approach – we may call it the western approach – starts with the individual and

asks how individuals are faring in terms of any number of criteria like life expectancy, education, material well-being, and so forth. An alternative approach – reflected in many indigenous cultures – starts with the community or the social group and views human development through the lens of community viability. Successful individuals are those who make major contributions to the well-being of their communities. This is not to say that standard indices, such as the HDI or even gross domestic product per capita, are of no value as measures of human development. But it would be a mistake to ignore other perspectives on human development, especially in areas of the world like the Arctic where distinctive cultures remain influential.

Conclusion: The AHDR and the future

As we have emphasized throughout this report, the AHDR is a scientific assessment. Unlike projects featuring original research (e.g. the Survey of Living Conditions in the Arctic (SLiCA)), our project has had neither the mandate nor the resources to generate new data concerning the wide range of topics addressed in the individual chapters. Rather, we have sought to synthesize existing knowledge, draw inferences



Eyjafjörður, Iceland

from this knowledge regarding many aspects of human development in the Arctic, and identify areas where we need to know more.

An important function of an assessment is to document the state of play regarding matters of interest at a particular point in time. This is one of the central objectives of the AHDR. Particularly with regard to crosscutting themes that are seldom looked at from a regional perspective (resource governance, community viability, human health, education, gender, and international relations), the report breaks new ground. The results are not only interesting in their own right; they also provide a starting point for future comparisons.

What concrete recommendations regarding follow-up activities can we offer in closing? Based on the efforts of all those who have contributed to the report as well as initial responses to its major findings, we can offer a number of suggestions:

- *Dissemination* – The AHDR should be translated into other languages – Russian first and foremost – and made available electronically to members of the attentive public and to students,
- *Monitoring* – The Sustainable Development Working Group should organize a workshop to begin the process of devising a small number of tractable indicators to be used in tracking changes in key elements of human development in the Arctic over time,
- *Gaps in knowledge* – The Sustainable Development Working Group should organ-

ize an off-the-record brainstorming seminar or workshop to set priorities and to identify practical procedures for addressing the gaps in knowledge described in the AHDR,

- *International Polar Year input* – The findings of the AHDR should be used in developing research plans and setting priorities for the 2007-2008 polar year,
- *Arctic Human Development posters and pamphlets* – The Sustainable Development Working Group should arrange for the production of one or more posters and pamphlets that would encapsulate the major findings of the AHDR and be available for display and distribution in a variety of forums.

Many of the concerns addressed in the AHDR resonate with the thinking of those who are dealing with other resource rich but socially and politically peripheral regions of the world. As a result, the insights of this report regarding both basic systems and crosscutting themes will not only help to shape the policy agenda of the Arctic itself; they will also be of intense interest to many whose areas of interest extend far beyond the confines of the circumpolar North.

Notes

1. Because Iceland lies wholly within the Arctic region, some issues discussed in this section do not apply to that country. Iceland is also the only Arctic nation that has no indigenous population.
2. *United Nations Human Development Report 2004* (UNDP, New York, 2004), cover quote.