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TESTIMONY OF
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Thank you for this opportunity to comment on the impact of Arctic climate change on the lives and culture of northern peoples.

As an anthropologist with the Smithsonian Institution's Arctic Studies Center and with some 30 years of fieldwork in Arctic communities, I would like to provide a few details on the human and cultural aspects of Arctic climate change. I have been involved in the Arctic Climate Impact Assessment (ACIA) process since its first workshop in February 2000 and served as a contributing author on its chapter discussing the human aspects of Arctic climate change. Normally, we keep hear about the 'warming of the Arctic' in the language of temperature curves, shrinking sea ice, atmospheric fluxes, and ocean circulation. It is the task of scholars to collect such data and to provide information to the public about the impacts and consequences of rapid climate change. The current ACIA report illustrates perfectly this crucial societal mission of polar science.

But as the changes in the Arctic are unfolding, they also have a growing impact upon the daily life of people who live there. In towns and villages across the North, people take notice and speak up about what they see happening in their 'back-yard.' They are usually far more articulate than scientists in presenting their observations. They talk passionately and with first-hand knowledge; they are great public speakers on the issues of Arctic climate change. In fact, I wish there was a person from a northern community to do this job today.

Recently, scientists have begun to pay more attention to the observations, records, and knowledge of Arctic residents. Several projects have been launched to document these observations, to record it in reports and papers, electronic databases, and CD-Roms.¹ The ACIA study made a critical breakthrough in opening this local knowledge to the polar science community and to the general public. Its forthcoming full report will, for the first time, feature a 60-page chapter titled "The Changing Arctic: Indigenous Perspectives."² This chapter reviews the impacts observed in many arctic communities, due to climate change and increased variability in ice, weather, and temperature regimes. It also discusses people's perspectives on future impacts of climate change, such as the effects on their way of life, land and water use, diet, and social and cultural activities.

In all northern communities, knowledge about the environment is regarded as a critical pillar of local culture and identity, as a prized value, and the very foundation of the way of life. Individual scholars, research institutions, and agencies are now actively promoting programs in the documentation of 'local environmental knowledge.' Overall, northern communities are responding to the partnership with scientists with great enthusiasm. But, as the ACIA report illustrates, much more could and should be done.

Arctic residents are very astute observers. They go on the sea ice or to the bush every day, year after year. An impressive amount of data is routinely collected and processed, year after year, in hundreds of Native villages and camps. No wonder Native people are so proud of their knowledge, which is praised highly by many natural and social scientists alike. This knowledge has to be matched to the various records produced by scientists, to become a part of the overall discussion on the impacts of Arctic climate change.

Arctic people are also highly inquisitive monitors. They rarely speak in terms of such common climate indicators as temperature, precipitation, or atmospheric pressure; but they operate with many more signals of change than scientists do. As a result, when local people talk about “unusual things” they can cite change to almost every component of the environment: from sea ice and weather to currents and winds, marine mammals and fishes, plants and berries. This integral view should become the bedrock of any assessment of future climate change.

Arctic residents are not—and have never been—immune to the many agents of change. Through ages of adaptation, they have developed a comprehensive knowledge of their environment, navigation and orientation, weather forecasting, and animal behavior. These days however, such expert knowledge is not bestowed automatically upon everyone who was born or lives in the North. People have to keep going onto the sea ice or to the bush, in order to rely upon familiar observation practices and to use dozens of local terms for various types of ice, snow, winds, weather conditions, plants and animals. Those conditions can hardly be met in many northern communities of today, where kids are normally at school until the age of 16. Today, they hunt with their fathers on weekends or during school vacations. When they become adults, many move to towns and become weekend or part-time hunters, at best.

There are many other agents of change that arrived with technological modernization. As the Global Positioning System, aerial imagery, and radio weather forecasts are now the elements of daily life, the generational knowledge on safety rules, navigation, and weather prediction becomes endangered. High-speed snowmobiles and motorboats have replaced dog-teams and skin boats; but the names and terms for every feature of local environment are fading away.

As valuable local expertise becomes endangered, due to modernization, rapid environmental change brings other concerns. Normally, we hear about ‘human costs’ of rapid Arctic climate change in terms of the damaged roads and buildings, thawing permafrost, increased storms, and beach erosion. The most publicized case includes some Native towns in Alaska, like Shishmaref or Kivalina, that soon could be washed away by storm waves. Those towns will have to be relocated, at a price of many hundred million dollars. However, there are other ‘human costs’ associated with the current climate change that are revealed in the ACIA report, particularly in the many case-studies attached to its full version.³

Much like polar scientists, northern residents face the same basic challenge, namely, whether the changes on their watch are unique and, thus, worrisome, or the scope of change is within the range of personal experience and community memory. Unlike scientists, however, local residents are extremely frustrated by their limitations to grasp the scope of change. As the weather ‘goes wild’ and the Arctic becomes a ‘friend acting strangely,’

invaluable old knowledge no longer works and may soon become irrelevant. This feeling of loss and uncertainty is now a common theme in many northern communities affected by climate change. Local reports illustrate a growing uneasiness among elders in forecasting the weather, enforcing traditional safety rules, and teaching younger people. Stories are told of expert hunters being confused and lost on ice or in rough waters; of young hunters who stopped listening to the elders, because the old wisdom does not 'fit' anymore.

Of course, people are experimental and industrious in exploring new strategies and they try new approaches eagerly. Eventually, new economic opportunities will emerge and other resources will thrive, because of the changed conditions. Better transportation conditions, particularly in the summer time, may be the first and the most obvious benefit of the warming Arctic. But the readjustment will come with a price and with certain losses. As we recognize that, we may become more attentive to what people discuss today in northern towns and villages about the weather going 'wild,' and the Earth being 'faster' now. I believe that such a perspective on the human cost of arctic adaptations should be added to every story of change told by temperature curves and climate computer models.

With this in mind, I want to cite four basic conclusions that come from the data presented in the ACIA report.

First, environmental knowledge of Arctic residents and their observations of current climate change provide highly useful and reliable data to scholars, policy-makers, and general public. Further documentation of knowledge and observations of Arctic residents would be of great value, so that scientists and respective agencies can make more use of it. This is critically important to future efforts in global environment research, including the forthcoming International Polar Year 2007-2008, and other major interdisciplinary programs.

Second, rapid climate change is endangering traditional ecological knowledge of arctic residents with respect to the local environment and subsistence practices. The weakening of this knowledge will be a great loss to local communities and to future scientific inquiries regarding global environmental change. Programs to counter this trend include local education, publication activities, and community-based initiatives in the preservation of cultural heritage.

Third, many northern communities are going through a stressful transition, as a result of rapid environmental change, but also due to many economic factors and other agents. Activities that address this challenge include local job training, education, health and social services as well as communal programs that deal with social stress, safety regulations, youth problems, and community management.

Fourth, established subsistence activities, local safety, and food practices are basic aspects of daily life to be the most affected by Arctic climate change. Re-adjustment may be long and it will take a toll on arctic communities that have limited resources. This re-adjustment will likely result in proposals for various co-management arrangements, innovative land- and game-use practices, and increased collaboration with local institutions that represent arctic residents.

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¹ Some of these projects are summarized in a recent collection, “*The Earth Is Faster Now. Indigenous Observations of Arctic Environmental Change*” (Igor Krupnik and Dyanna Jolly, eds. 2002. ARCUS), with its title originating from a saying of a Yupik Eskimo elder from Alaska.

² Henry Huntington and Shari Fox Gearheard, lead authors; Fikret Berkes and Igor Krupnik, contributing authors – see http://www.acia.uaf.edu/PDFs/All-Author_List_Nov04.pdf

³ The ACIA case studies on indigenous perspectives include: The Town of Kotzebue, Alaska; the village of Nelson Lagoon, Aleutian Islands, and the Pribilof Islands, Alaska; the Yukon Territory, Canada - Arctic Athabaskan Council; Denendeh: the Dene Nation, Northwest Territory, Canada; the Inuit communities of Clyde River and Baker Lake, Nunavut Territory, Canada; the Town of Qaanaaq, Northwest Greenland; the Saami communities of Purnumukka, Ochejohka, and Nuorgam, Finnish Lapland, Finland; the Kola Saami community of Lovozero, Kola Peninsula, Arctic Russia.