

## **3rd World Water Forum**

**Kyoto, Japan, 20 March 2003**

### **Statement on freshwater on behalf of the Chair of Senior Arctic Officials**

I have asked for the floor on behalf of the Chairman of Senior Arctic Officials of the Arctic Council to make a few remarks on freshwater and the Arctic. The Arctic Council is a forum of co-operation, mainly on sustainable development, among the five Nordic countries, Canada, the United States and Russia, as well as a number of indigenous peoples organizations that are recognized as permanent participants. Iceland holds the Chair of the Arctic Council during the period 2002 - 2004.

A substantial portion of the world's freshwater is found in the glaciers and ice caps of the Arctic region. Nearly ten percent of this reservoir is contained in the Greenland ice cap alone. Four major Arctic rivers drain large regions of the Russian Federation (the Yenesei, Ob and Lena Rivers) and Canada (the Mackenzie River) and provide nearly 10 percent of all river discharge into all the oceans of the world. A better understanding of the effects of climate change on global water cycles in the Arctic is vital not only for the people in this region, but for the rest of the world as well.

Arctic freshwater ecosystems go through drastic cycles every year. Rapid warming in the spring results in a surge of melt water that can lead to substantial erosion. In addition, melt water and sediments carry not only nutrients but also contaminants.

Freshwater ecosystems in the Arctic support an array of flora and fauna. In addition to resident fish species, freshwater is essential for the life cycles of anadromous fish, which spawn in freshwater, but live part of their lives in the ocean. Atlantic salmon and Pacific salmon are best known, but a number of other species follow a similar pattern. The sustainable use of freshwater resources is a major feature of communities in the Arctic, whether the use be subsistence fishing, sport fishing or commercial fishing. In many instances, the use of freshwater resources has deep cultural roots, especially in indigenous communities. Today, both communities and remote industrial sites use freshwater for drinking and other domestic purposes. With access to medical services being difficult, good water quality remains of the utmost importance to residents in the Arctic.

Sustainable electricity production and harnessing of geothermal energy is another important aspect of freshwater utilization, which can help alleviate poverty and raise general standards of living. Freshwater resources are also being used for eco-tourism, another excellent example of sustainable use.

The relationship between freshwater and marine ecosystems is inextricable, particularly as it relates to pollution. Globally, it has been estimated that 80% of marine pollution is from land-based activities, this proportion may be higher in the Arctic. It is critical to note that improving the quality of freshwater and freshwater

environments will profoundly improve the coastal and marine environments that so many people depend on directly for food, income and social and cultural identity.

With your permission, I would like to mention some Arctic Council activities related to the oceans. The Council recognizes that existing and emerging activities in the Arctic warrant a more coordinated and integrated strategic approaches such as ecosystem approaches to address the challenges of the Arctic coastal and marine environment and have agreed to develop a strategic plan for the protection of the Arctic marine environment to ensure that appropriate attention be given to ocean issues.

The Arctic Council contributes to both the regional and national implementation of the UNEP/Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA). The GPA aims to prevent the degradation of the marine environment from land-based activities by assisting States to take actions individually and jointly. The Arctic Council, through its Regional Programme of Action (RPA), has focused on strategies and measures to address this issue.

Permit me also to offer some comments on freshwater and climate change. An ongoing Arctic Council project on the assessment of the consequences of climate variability and change, called the Arctic Climate Impact Assessment, will examine present status and possible future impacts of climate change on the environment and its living resources, on human health and social and economic activities, as well as possible adaptations and responses.

The Arctic region is already being affected by global climate change. According to scientists, considerable change in ocean water pathways in the Arctic Ocean has occurred. This is partly due to changes in the distribution of freshwater runoff in the Arctic Ocean, which has altered the stratification in the water column. The transitional zone of increasing salinity serves as a barrier for the transfer of heat and contaminants. This barrier has moved. This affects the transport of persistent organic pollutants, which, instead of being transported out of the Arctic Ocean, are now entering the Canadian Basin.

Warming in the Arctic will release water from the soil where it is typically griped in the permafrost. Permafrost melting will lead to more nutrients and sediments reaching lakes and rivers. Furthermore, the flow of organically bound mercury may also increase.

Climate variability and change will indeed affect the whole hydrological system. It affects glaciers, snow cover and vegetation and, in turn, these elements affect the climate change. Changes in the hydrological cycle will lead to changes in the mean conditions of hydrological variables, including riverflow and can thus lead to higher floods and more severe droughts. This development could drastically affect the living conditions of the people in the Arctic and elsewhere and it will influence many economic sectors, such as the energy sector. It is not too early, therefore, that we begin to prepare ourselves to respond with new strategies on different levels.

Allow me finally to congratulate the Government of Japan for organizing the 3rd World Water Forum and express our appreciation for being given this opportunity to contribute to the discussion.