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International Experts Meeting

**Climate Change
and Arctic Sustainable Development :
scientific, social, cultural and educational challenges**

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KEYNOTE: Economic development and social transformations

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I thank the Prince of Monaco, the Secretary-General of UNESCO, and the organisers for inviting me to join this conference. I come as Chair of the U.S. Arctic Research Commission which reports to the President and the Congress on goals for U.S. Arctic Research Policy, and as an explorer, academic, and businessman. I believe the Arctic presents many opportunities to the world, and that expanding knowledge will help us be responsible as we pursue those opportunities.

1. Why the Arctic Matters...

The importance of the Arctic region of the world is often overlooked. It is overlooked, despite its strategic significance in the security of Europe, Asia, and North America. It is often overlooked despite its major contribution to the global economy, through its significant contributions of food and fuel. It is often overlooked, despite its major contribution to biodiversity from the lowest end of the food chain to the highest. It is often overlooked, despite its rich and enduring "ethnosphere" tying us to our past, and the contribution the Bering land bridge made as a venue linking the continents for prehistoric global human migration. It is often overlooked, despite its major role today in global aviation, and its potential role tomorrow in global shipping. It is often overlooked, despite the fact that natural processes in the cryosphere govern sea level, and regulate the climate of the earth itself, as the world's major storehouse of terrestrial carbon, and, with the southern polar region, as the reflector of major solar radiation through the high albedo of the polar ice cap. The Arctic is overlooked even for the contribution it makes to allow life on earth itself to exist...for it is the deflecting power of the magnetosphere, manifested at the North and South magnetic poles, which protects us from deadly solar radiation.

Dramatic change in the Arctic may mean our region is overlooked no more. People of the world increasingly understand that change in the Arctic affects them no matter where they live. With change, the Arctic now matters. People further

understand that without global action, many of the attributes of the Arctic we all hold dear may disappear in our time.

2. Timing of this meeting.

Thus, this meeting is important and timely. Many of the participants here have become good friends in the process of Arctic cooperation. When we work together, it is usually in a regional rather than global setting. We have a chance, in this UNESCO meeting, to stand back and look at the Arctic in the context of global issues. As a global forum, this meeting stands to reinforce responsible actions being taken in the Arctic region, and it could help bring attention and resources to the region. Moreover, the meeting can help us identify which precautions and protections are necessary for sustainable development in the Arctic. This can be achieved best with global action – climate change mitigation and a safe shipping regime come to mind. This meeting will help all of us prepare to take those actions.

In the United States, a Presidential decision document was released January 9, 2009, which revised U.S. comprehensive Arctic policy for the first time since 1994. The policy is focused on international objectives in the Arctic, and gave us a list of major work that needs to be done - from ratification of the U.N. Law of the Sea Treaty to increasing both bilateral and multilateral scientific cooperation. As a result of the policy, the U.S. will seek search and rescue arrangements in the Arctic. A regional fisheries agreement will be discussed. Our nation is now directed to work with others to see that shipping in the Arctic, as it increases, is safe, secure, and reliable. Mandatory ship standards, vessel traffic systems in areas such as the Bering Strait, and other agreements will be sought through the International Maritime Organization. Arctic-wide monitoring, referred to as the “Sustained Arctic Observing Network,” to support a number of scientific research objectives, is another goal adopted by the policy. And access throughout the Arctic Ocean for scientific research – something enjoyed now in Antarctica, but not in the Arctic – is now an official objective.

3. Conclusions and Recommendations for the Conference

In this paper, I want to suggest four major forces of change occurring in the North and two forces now promoting further political cooperation in this region. Second, I offer two sets of recommendations I urge this conference to consider and adopt in its deliberations.

A. Conclusion #1: Four forces of change are giving the world an “accessible Arctic.”

We are witnessing four forces making the Arctic region far more accessible the people of the world. They are:

- Dramatic change in the climate of the Arctic region
- Dramatic changes in transport, satellite communication, navigation and remote sensing technologies
- Increasing global demand for Arctic resources, including food, energy, and the convenience of its location between global population centres. Global demand for experiencing the Arctic’s dramatic landscape and culture is also bringing more tourists to the region.
- The interest of Arctic residents to involve the outside world in improving living conditions in the North.

B. Conclusion #2: An “accessible Arctic” is accompanied by growing local and global political cooperation

In the response to these forces of change, listed above, two forces are helping to knit political cooperation in the North into a fabric which is stronger than ever, and is, in many ways, a model for the world in regional cooperation:

- Circumpolar proximity: the end of the Cold War allowed the governments of the eight Arctic nations, its regional governments, indigenous, business, academic and professional groups to take advantage of their proximity to work on common problems and opportunities. These efforts are resulting in increasingly stronger institutions. Sharing knowledge brings sustainability.
- Other nations, besides the “Arctic 8” are recognising national interests in the Arctic region. The observer list to the Arctic Council is growing. While most of the Arctic region will soon find itself within the sovereign boundaries of Arctic nations, global interest in the high seas region of the north, and in the global contribution of Arctic resources, has brought the question of global cooperation on Arctic issues to the forefront.

C. Overarching Recommendation #1: Keep exploring. Research in the Arctic is vital to understand Arctic change.

Arctic change requires us to keep exploring. New features underwater are being added to the charts, and new territory, uncovered by ice melt, is being added to the map. Understanding Arctic processes is essential to predicting the threats to the planet caused by tundra thaw, methane gas release, sea ice retreat, glacial ice sheet melting, changes to habitat, ocean currents, ocean salinity. I single out ocean acidification as one phenomenon caused by rising greenhouse gases. It is dangerous to shellfish stocks, and perhaps other species. More needs to be understood, and short-term mitigation options appear to be limited.

Within the United States, the Commission I chair will soon publish a report establishing goals for federal agencies conducting Arctic research. Already, detailed research plans are being formed, across the U.S. government, for each of the five research themes the Commission has set out:

- Climate change and understanding of the Bering Sea and Arctic Ocean ecosystems
- Arctic human health
- Arctic civil infrastructure
- Arctic resource assessment and earth science
- Preservation of indigenous languages, identities and cultures.

(On the last theme, the Commission is concerned that in the Arctic, we are losing indigenous languages in the space of a generation. Much human knowledge is lost when a language disappears.)

Each of these research themes I listed above would be better fulfilled with international cooperation.

The U.S. Arctic Research Commission is also putting special attention to several areas. We urge this meeting to address these issues in its own set of recommendations:

- **Shipping:** The Arctic Marine Shipping Assessment, being completed this April by the Protection of the Arctic Marine Environment (PAME), a working group of the Arctic Council, has been funded and directed in large part with resources from our agency. That assessment will show that regular Arctic shipping is not just a “future” thing, but is a “now” thing. Several global action items are included

in the draft recommendations being submitted to Ministers, primarily focused on proposals that would forward through the U.N.'s International Maritime Organisation. Business and government entities from around the Arctic cooperate now on improving oil spill prevention and response in the Arctic through a "Joint Industry Program" being conducted in Norway. We are urging the U.S., which increasingly relies on oil and gas produced and/or shipped in Arctic waters, to expand its contributions to this, and to domestic spill research programmes with similar objectives.

- **Health:** As we work to improve Arctic Human Health research in the U.S., the alarming epidemic of youth suicides in rural Alaska, primarily among indigenous youth, is of great concern. With the U.S. National Institutes of Health, we are cosponsoring a meeting on behavioral and mental health research issues in the Arctic in Anchorage in early June. An Arctic-wide health research conference will be held in Yellowknife, NWT, in July of this year. The potential death rate for Alaska's indigenous peoples is among the highest in the U.S., and we do not face this problem alone. International support for this effort would be welcomed.
- **Fishing:** The United States is finalising a moratorium on almost all commercial fishing inside its 200 mile exclusive economic zone in the Arctic Ocean. It is doing so even as preliminary research tells us that valuable fishing stocks are moving north. The United States will host an international conference this October, in Anchorage, Alaska, to discuss fishing with others interested in the fate of fish stocks and wildlife in the Arctic Ocean. One outcome of this initiative must be a stronger commitment to joint marine science in the Arctic Ocean and Bering Sea region. We have much to do, even with our closest neighbors, Canada and Russia. A second outcome might be a concerted effort toward a regional fisheries regime, recognised under international law. Appropriate proposals for marine protected areas should also be discussed.
- **Climate change mitigation:** As the nations from across the globe convene in Copenhagen in December to again attempt to establish an effective mitigation regime to stem climate change, the Arctic should get special attention. We are a resilient species living on a resilient planet, but it is not well-understood by residents of the temperate zone that a slight change in global average temperature is magnified, greatly, in the Polar Regions. With temperature magnification comes the potential destruction of many Arctic attributes we hold dear, and indeed rely upon. The Commission is urging a special assessment of the timing and level of greenhouse gas targets set on a global scale to understand how the range of options will affect the Arctic region. Some research we've seen suggests one course could return sea ice to a "normal cold" condition, with extensive multi-year ice, and that another course might see that ice gone for centuries. As well, our call for extensive Arctic monitoring comes because the contribution our region makes to the greenhouse gas and heat budget of the globe is not just from tailpipes, but increasingly from a reduced albedo effect resulting from declining sea ice. Warming causes greater carbon dioxide and methane releases from melting permafrost. A successful Copenhagen meeting is vital to a sustainable Arctic.

- **Monitoring and research platforms:** Last Wednesday, a ceremony in Geneva marked the completion of the International Polar Year, 2007-2009, where the world's science community came together to dramatically improve our knowledge of the polar regions. The Commission is working to ensure that whatever the scientific legacy is of this IPY, the first in 50 years, that we leave the Arctic "wired for sound" with an extensive monitoring system. The pan-Arctic science community is addressing this with plans for SAON: the Sustainable Arctic Observing Network. It is tied to global observing initiatives, such as the Global Earth Observing System of Systems (GEOSS). We face the problem of better "scaling" in climate prediction. Local observations must be used to support global decisions, and vice-versa. I appeal to this meeting to give strong support to this observing initiative. We also need support for other individual and mutual investments nations are making in Arctic research infrastructure – icebreaking ships, satellites, laboratories, cabled observatories, ocean buoys, and training for researchers to work with these assets.
- **Access to the Arctic Ocean for research:** there is a contrast between the access enjoyed by scientists in the Arctic and the Antarctic: The Antarctic continent and adjacent seas are open for research while access to the continental shelf of Arctic Ocean is not guaranteed. Ocean science cannot deliver results the world expects of it if national rules bar access to science. This shortcoming of the Law of the Sea needs to be addressed.
- **Energy:** Hydrocarbon production is a major source of revenue to several countries in the Arctic. Nations outside the Arctic depend on this energy, and all should work to ensure its safe development. We are working to expand renewable energy research and demonstration projects in the Arctic region. Hundreds, if not thousands, of Arctic settlements and villages are off national road systems and power grids, and energy is thus much more expensive. There is no better place to test newer, more costly technologies than where people are spending more money already for power and propulsion. An Arctic Energy Summit held in 2007 showed this is true across the Arctic region. Alaska is rich in tidal energy, hydrothermal, wind, and hydro potential, and has plans to use these sources for power generation, transportation fuels, and ultimately, export.

D. Overarching Recommendation #2: Keep cooperating: Global support for Arctic sustainability, with accompanying investment, is necessary.

The world should recognise and help strengthen the work of the many cooperative arrangements that focus on the Arctic. The Arctic Council convenes nations, and brings indigenous representatives as permanent participants to sit at the table. The Northern Forum convenes governors, and helps regional leaders find solutions to common problems. International cooperation in science and research is carried out by a number of bilateral and multilateral efforts, notably the International Arctic Science Committee, the International Union of Circumpolar Health, the Northern Research Forum, and the Pacific Arctic Group.

The fascinating situation of the Arctic is this: nations can dictate what happens inside their borders. Soon, those borders will expand with extended continental shelf claims allowed by the Law of the Sea (UNCLOS). Article 234 of UNCLOS allows other rules to be made in traditional ice-covered waters outside national boundaries. Nations in the region can act in concert, and issue harmonious rules or make joint investments,

as the U.S. and Canada have in the St. Lawrence Seaway/Great Lakes region to facilitate safe shipping. Even then, some parts of the Arctic Ocean will be extra-jurisdictional to any nation. In such a case, if rules are needed, they can be set only at the global level.

The United Nations has important work ahead on sustaining the Arctic. When it comes to protecting the Arctic from further abrupt climate change that we cause, or allowing rules to ensure safety of Arctic shipping, or reducing trans-boundary contaminants, sustaining trans-boundary populations of wildlife, or establishing extraterritorial marine protected areas, it is to the world diplomatic community that we have to turn to get the best results.

In the last year, the five Arctic Ocean nations have rejected the need for an Arctic treaty. Arctic treaty or not, our rulemaking must be comprehensive. Our common investments – in research and monitoring, in aids to navigation, in technologies and techniques to reduce greenhouse gas emissions – must also be robust. Thank you.