

**Joint EU – Russia - Canada – US Workshop on Collaborative
Technological Research for Arctic Development
Brussels Oct 25-27, 2001**

Interim Report

Introduction

120 participants attended the Workshop: 37 from the Russian Federation; 55 from the EU, Norway and Iceland; 16 from Canada and 12 from the USA. A wide range of scientific and technological expertise was represented.

The main objective was to obtain from this multi-disciplinary environment a clearer understanding of the real problems and needs of the circumpolar Arctic and to discuss/evolve a collaborative approach to addressing these problems and needs from the perspective of scientific and technological support.

The Russian delegation was headed by Dr. Artur Nikolaevich Chilingarov (Deputy Chairman of the Russian State Duma), the European Commission by Directors Timo Summa (representing DG External Relations) and Professor Jean-Marie Martin of the Joint Research Centre (Institute for Environment and Sustainability), Canada by Her Excellency Shirley Serafini (Ambassador to Norway), and the USA by Mr. Walter Parker, US Arctic Commissioner.

The Workshop was planned on the basis of 3 main themes:

- Theme A: Earth Observation and Environment
- Theme B: Natural Resources and Transport
- Theme C: Civil and Research Infrastructures

There were 78 presentations in total, generally supporting improved networking of institutions, scientific/technological support to the issues of sustainable economic development, safety/security of communities, the environment and industrial/commercial operations, and the impacts of climate change.

Outcome of Workshop - Interim Report

1. General agreement to improve networking of institutions concerned with the problems of the North. More specifically:
 - to develop the existing Workshop website into an information source on Arctic research with an emphasis on Arctic-related technologies (for environmental monitoring, transport, energy, telecommunications)

Monday 26 November 2001, JRC(Ispra), European Commission

S. D. Morris

- it was suggested that the Workshop website should evolve into an 'Internet R&D Journal' on the Northern Dimension
 - to create an 'Internet Network' of the Workshop participants that would use and develop the website
 - the website should be linked to the Arctic Council website
 - there should be a section on this website for small-scale projects (there are many going on but are not generally known about)
2. Develop an *Operational circumpolar monitoring framework for environment and sustainable development*. The Internet Network could be very instrumental in this regard.
 3. Earth Observation techniques are certainly very important for environmental monitoring but do not provide all information required. For example, satellite-based monitoring cannot provide the information required on POPs (Persistent Organic Pollutants), heavy metal pollution, radionuclide contamination, flows of rivers, etc. Sensors for measuring/monitoring these aspects should be developed, preferably for use from satellites, if possible.
 4. Establish an *Arctic Technologies Working Group* within the Arctic Council. A similar proposal was made to establish a *New Arctic Task Force*.
 5. Attention to continue on the following technologies for potential future application in the Arctic:
 - Hybrid Airships for cargo-lifting, re-supply and emergency response in remote areas
 - CAPSTONE on-board radar system for traffic control in regions with no ground-based radar. System tested successfully in Alaska. Possible incorporation in future airships.
 - Robotic Aircraft (such as Seascan, CAMCOPTER) for environmental reconnaissance and meteorological data-gathering
 - Greater use of the IceCam system on ships and airborne vehicles for environmental data-gathering in remote regions and harsh climate conditions
 - Submarines as power units for supplying sea-bed drilling platforms
 - Information Technologies to support shipping and offshore operations
 - Development of the international ice information system with view to standardization of the system
 - Development of remote sensing techniques for monitoring of gas/oil pipelines, in particular to detect at early stage any deformations due to permafrost thaw/freeze cycles.
 6. On environmental issues, to address the poor information base that is available on permafrost and establish measurement and monitoring procedures (could be included in 2 above)
 7. To address the potential for integrating science and traditional knowledge of Indigenous Peoples (see project proposed in Session A4 – Impacts of Climate Change). To consider also the problem of providing Information Technologies for the Indigenous Peoples.
 8. University of the Arctic:

Monday 26 November 2001, JRC(Ispra), European Commission

S. D. Morris

- addressing the funding concerns, maybe a 'Foundation' could be formed to attract funding from various sources, public and private
 - the Internet portal at Athabasca University, Alberta, is available for use as a support instrument for distance education.
9. *impacts* of climate change: requires much greater attention by researchers. It is very important to consider impacts 20-30 years ahead from now and not be concerned only about climate change up to the present. Earth observation techniques must be combined with ground-based studies.
 10. *Sustainable forests – network of forestry institutes*. Fire, floods, insect outbreaks, snow, wind all contribute to annual natural forest losses. Anthropological activities cause additional losses (air pollution, clearance for oil/gas and mining operations). There is a need for a dedicated circumpolar forest monitoring system but there are global monitoring systems which provide some coverage of the boreal forests. The pilot project Sib-TREES, a collaborative project of the Joint Research Centre of the European Commission and the International Forest Institute, Moscow, is aimed at creating an operational forest information service for Siberia. This has the potential to be developed on a wider geographic scale (to include NW Russia and northern Europe, for example) and, in view of the need to provide a carbon accounting system as required by the Kyoto Protocol, it was proposed to establish a network of forestry institutes in the EU and the Russian Federation....with possible extension to the circumpolar dimension.
 11. Creation of a unified Arctic network of seismic stations
 12. **3rd International Polar Year**. Dr. Artur Chilingarov (Deputy Chairman, Russian State Duma) recommended this. The 1st Polar Year was held in 1882/83, the 2nd Polar Year was held 50 years later in 1932/33. The 3rd Polar Year was not held in 1982/83 but this international event should be revived. Considerable support was expressed by Workshop participants. There was a suggestion to make this event coincide with the year of EXPO 2005 (to be held in Japan).
 13. Offer from Gazprom. A number of companies participated, one of which was Yamburggazdobycha, the Yamburg Gas Development arm of Gazprom. The Yamburg gas field (largest in the World) is located in north-west Siberia between the Ob and Taz Estuaries (68N, 75E, approximately) in the Yamalo-Nenets Autonomous Okrug.

During discussions by Yamburggazdobycha, AARI (Arctic and Antarctic Research Institute, St. Petersburg) and the Joint Research Centre, Yamburggazdobycha stated its clear interest in developing research collaboration and that, as a first practical measure, it was ready to make available its guest house facilities in Yamburg, its transportation and telecommunications infrastructures and its research facilities (laboratories, equipment) for joint EU-Russia field studies in north-west Siberia. This offer was made in the interests of developing research collaboration in a number of areas, including:

- Environmental monitoring
- Technological safety (pipelines, marine operations)
- Ice and permafrost studies

The region around Yamburg with its huge energy-related developments and the Ob, Taz and Pur rivers in the vicinity combine to form one of the top environmental impact zones in the Russian Arctic. There are also many technological challenges to sustainable economic developments including the enhancement of safety and security of energy production and transport (pipelines, tankers), management of forests and pollution reduction. All of Russia's gas exports to Europe come from this region and these exports will significantly increase in the coming years.

The point was made that development of close contacts with local authorities would be part of the collaboration process.

This offer could be viewed as a first practical step towards the possible realization of a joint *Russia-EU Arctic Research Base*, should the necessary support for this be demonstrated in the future by the appropriate political levels.

The above information was announced to Workshop participants and they asked to be kept informed of any further developments.

11. Opportunities for international Arctic expeditions on Swedish icebreaker Oden. During the next four Summer seasons, the Swedish polar Secretariat has an agreement with the Swedish Maritime Administration to use the icebreaker Oden for research expeditions to the Arctic. In May-June 2002, the Oden will operate north-west of Greenland, in August 2004 it will operate in the region of the Lomonosov Ridge and, hopefully, in the Summer of 2005 it will make a journey to the Bering Strait, returning to Scandinavia possibly via the North Pole. Suggestions for scientific collaboration during these voyages and/or charter of the Oden are most welcome and should be directed to Professor Anders Karlqvist, Director, Swedish Polar Secretariat (anders.karlqvist@polar.se).

12. The Polar Continental Shelf Project (PCSP) of Natural Resources Canada operates two bases for field studies: one at Resolute which can accommodate more than 60 people at a time, the other at Tuktoyaktuk which can accommodate about 30 people at a time. The Resolute base is located on the southern shore of Cornwallis Island (75N, 95W) while Tuktoyaktuk is located on the Mackenzie Delta (69N, 133W). The PCSP co-ordinates aircraft support for groups working outside of communities in isolated areas and issues, repairs, maintains and stores field equipment as well as maintaining radio and satellite phone communications with field camps. More information can be found at the website <http://polar.nrcan.gc.ca> These bases, and support services, could be made available to international research teams.

The PCSP system of Natural Resources Canada for supporting field research in the Arctic should be compared with the Russian system (Arctic and Antarctic Research Institute) to see if common experiences could lead to improvements on either side.

13. In the southeastern part of the Lena Delta 'Zapovednik' (State Nature Reserve) of the Sakha Republic there is located the *Lena-Nordenskiöld International Biological Station* (72N, 128E). This was officially opened in 1995 as a joint venture between the Sakha Republic and the WWF-Sweden. The Station is operated by the Academy of Sciences in Yakutsk and it is hoped to develop the Station as a site of active

Monday 26 November 2001, JRC(Ispra), European Commission
S. D. Morris

international scientific co-operation in Arctic nature conservation, and within a much-enlarged nature reserve from the current 61,320 square kilometers.