

Project Day Session: Environmental Decision-Making and Sustainable Land Use and Resource Management Initiatives

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The Project Day Session on Environmental Decision-Making and Sustainable Land Use and Resource Management Initiatives was split into two sessions. The first session focused on environmental decision making and the second session focused on sustainable land and resource management initiatives. The sessions covered a wide variety of topics that included quantitative and qualitative research involving participants ranging from local communities to government and industry.

Environmental Decision-Making

During the environmental decision making session presentations were given on the framework for environmental management and assessment in the Northwest Territories (NWT), quantitative analytic methods and modeling for environmental assessment, circumpolar Issues of gender regarding decision-making and women in fisheries management, and geospatial modeling of climate change by examining the changing tree line.

Lorraine Seale of Indian and Northern Affairs Canada presented how the Northwest Territories is assessing and managing the cumulative effects of resource exploration and development in the territory. The cumulative effects assessment and management process (CEAM) developed for the Diavik diamond mine in the Slave Geological Province was discussed. The process, to be successful, will involve many partnerships between stakeholders and other interested parties. The

framework for the process involves nine components: creating a vision and objectives; land use planning, baseline studies and monitoring; research; audit and reporting; project-specific screening, environmental assessment and review; regulation and enforcement; information management; and coordination of the assessment and management of the cumulative effects.

Nikolai Bobylev of Saint Petersburg Polytechnic University presented an analytical method based on a comparative multi-criteria assessment of qualitative and quantitative changes in the environment. Changes in environmental conditions are assessed quantitatively at varying levels by experts. The methodology can be applied to assess urban infrastructure such as public, industrial and oil and gas utilities. The quantitative modeling technique is informed by experts in appropriate disciplines to assess the environmental impact of development options. The presentation failed to discuss the use of local knowledge and expertise and maintained that academic and disciplinary experts are the appropriate means to assess environmental impacts. Qualitative measures were referenced only in the context of being operationalized through quantitative modeling techniques.

Ryan Danby presented research findings on climate change and treeline dynamics in the Kluane region of Canada. The research presented global change from a biological context. The findings indicate treeline is shifting north with climate warming. Spatially specific modeling of treeline changes may be

used to forecast future climate change. By using a binary landscape model land cover was classified into cover above and below treeline. Changes in treeline were used to model climate change. Such models can predict the loss of tree cover over time in conjunction with climate warming scenarios. The framework did not assign a temporal component. Refinements for the model were discussed—the affects of solar insolation and temporal factors on shifts in treeline. The biological impacts of climate change such as habitat fragmentation, forest conversion from trees to shrubs, impacts on wildlife and the forest community were discussed. Managerial and policy implications resulting from the affects of climate change are recognized. Management direction for the area may need to change with the change in the resources. Policies for the area may also need to be reviewed as resource range and availability change. The audience presented the question of what constitutes natural or human induced climate change and how do we manage ecological integrity of the resources if all resources are affected by human induced climate change if it is determined as such? The presentation concluded that the strength of the model is its ability to describe the potential for change.

Anna Karsdottir, Associate Professor of Geography and Tourism Studies at the University of Iceland presented a comparative study on gender perspectives in fisheries management decision-making processes. The study was conducted in several arctic countries and was a result of the United Nations declaration and convention on sustainable development. After conferences in Finland, women, both indigenous and non-indigenous, proposed the need for analysis and documentation of the role of women in arctic fisheries management. The study objectives were to increase the transparency and democracy in fisheries management and promote and establish international co-operation on gender equality in marine resource management. The study report will compare the background of fisheries resources and gender equality based on socio-economic data available and two years of fieldwork for each participating country: Canada, Greenland, Iceland, Norway and the Faeroe Islands and Sweden. Women in many arctic countries are deeply involved in fisheries yet they are very poorly represented in the fisheries management decision-making processes. The study found that the contributions and efforts of women participating in fisheries are often invisible and unrepresented at the decision-making level.

Sustainable Land Use and Resource Management Initiatives

The sustainable land and resource management initiatives session focused on case studies examining how development and the environment are viewed by local and state governments in the South Eastern Komi region in Russia; how co-management has been used as a tool to manage snowmobile use in Sweden; issues regarding the creation and management of protected areas for bird species on the Yamal Peninsula in Russia; and the use of predictive modeling for environmental decision-making in the Northwest Territories, Canada.

Veli-Pekka Tynkkynen presented research that examined varying perspectives of local and state government on the future of the Komi region and resource planning in the area. Thematic interviews were conducted with District Authorities, Forest Service staff and Nature Reserve staff. Several environmental frameworks were identified among the participants and compared to differentiate environmental attitudes.

Anna Zachrisson presented research she conducted in Sweden about snowmobiling regulations, local interest groups and resource management. Natural resource management is traditionally centralized with the federal government having centralized overall responsibility and regional governments having operational responsibilities. Snowmobiling is allowed almost everywhere there is snow in Sweden. National Park and reindeer herding areas are the exception. Snowmobilers pay fees based on predetermined destinations. Monitoring snowmobile activity is difficult and the affects from an ecological, social and economic perspective are being questioned. Groups have formed to represent local interests and developed strategies at the sub-municipal level to address the concerns associated with snowmobile use. Municipalities then adopted these strategies but insufficient local authority has been granted to effectively monitor snowmobile use. Community conflict persists as local communities attempt to encourage tourism and find tourists are not in favor of the snowmobiling this leaves communities with the option of limiting snowmobile use or tourism.

Alexander Sokolov discussed protected areas and national parks on the Yamal Peninsula in

Russia and the effects of land use boundaries and resource development on rare bird species. The conflict between protected land use areas (International Bird Areas) and the subsistence activities of local people was discussed. Hunters using more efficient methods not limiting the number of birds harvested are negatively impacting the bird species. Sokolov called for the need to implement an efficient system of resource game management that would control the harvesting in the International Bird Areas. He proposes professional ornithologists, working in cooperation with local scientists, implement and monitor harvest restrictions. Monitoring results should be published and data recorded. Comparative data on local use of bird resources as compared to use by people immigrating to the area as a result of oil and gas development for example is needed. Additional information on traditional hunting practices is needed.

Shelagh Montgomery of the Canadian Arctic Resources Committee presented "Plan for the Land: Charting a Course for Sustainability in the Canadian Far North." The program started in 2002 as a result of concern about the cumulative effects of non-renewable resource development, oil and gas and diamond extraction, in the Northwest Territories and Nunavut. The project focuses on the Slave Geological Province diamond extraction activity. The project will, in conjunction with resource management agencies, indigenous groups and local peoples, develop predictive modeling techniques to provide information for evaluative decision making for local communities and decision makers. The program explores how much development the land and the communities can support and whether the area is truly benefiting from the current development boom it is experiencing. There are currently no approved land use plans for the region. The project is mapping the cumulative effects of development on the landscape to produce development scenarios to estimate the footprint of current development and the potential future impact of development. The program anticipates developing a common language to discuss development and allow people to make informed decisions by creating visual information. The modeling techniques being developed will allow communities, government and industry to evaluate the social, economic and ecological impacts of development. The project realizes the need for local knowledge and involvement as well as input from industry and government entities.

The program is looking at development from a holistic long term sustainability perspective to help aboriginal communities make informed decisions about resource development on their lands.

The day's sessions exemplified the various methods and participants involved throughout the arctic in environmental decision-making and sustainable land use and resource management initiatives. It is important to recognize the value of all methodologies both quantitative and qualitative to inform decision-making and manage for sustainable resource development. All levels of participation from indigenous and non-indigenous alike are imperative for success - local communities, local, regional, state and federal governments, industries, non-local interest groups, scientists and ethnic and gender minorities. Questions should be asked such as "who is participating and being recognized in the environmental decision-making and management process?" A common means of communicating that is flexible, innovative and respectful and takes advantage of the resources available from local knowledge, western science and technology to foster open dialogue and make informed decisions is necessary. Environmental management and decision making circumstances vary by place and community, but local involvement, authority, dialogue and participation will be key to building support for environmental decision-making and sustainable land use and resource development.