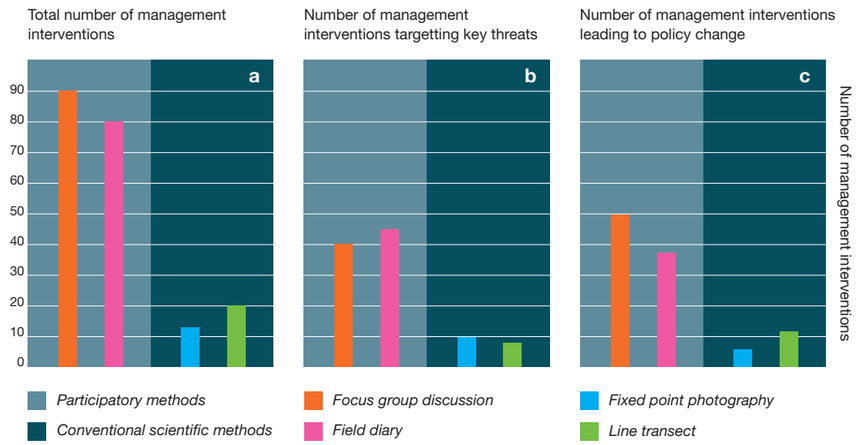

We believe Arctic resource management could benefit from the experiences from other parts of the world. This graph shows the cost efficiency of participatory and conventional scientific natural resource monitoring methods in generating natural resource management interventions in eight protected areas of the Philippines. (a) shows the total number of interventions generated by each method for the same recurrent investment, (b) shows the number of interventions that targeted the three most serious threats to the natural resources of each site, and (c) shows the number of interventions that led to policy change within local government and community institutions (Ambio 36: 566-570, 2007). These findings suggest that participatory monitoring is an unexpectedly powerful complementary approach that is capable of generating a much higher level of natural resource management intervention than conventional monitoring, even where conventional monitoring is already taking place.

> Locally-based monitoring of natural resources… 'appears effective in incorporating evidence-based assessments into decision-making at the local level…thus having considerable potential to influence on-the-ground management activities.'
> Science, 2007 (www.sciencemag.org/cgi/eletters/315/5818/1518)

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NINA
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Photos by E. Topp-Jørgensen, M. R. Nielsen, F. Danielsen. Etcetera Design

PARTICIPATORY RESOURCE MONITORING: INVOLVING LOCAL STAKEHOLDERS IN MONITORING CLIMATE CHANGE AND NATURAL RESOURCES IN THE ARCTIC

Why locally-based resource monitoring may be useful for Arctic resource management

A new generation of approaches to monitoring trends and changes in natural resources uses locally-based, participatory monitoring methods. Locally-based monitoring of natural resources is the monitoring of resources and resource use by local people. This approach appears to be one of the most powerful tools for land and resource monitoring, yet it does not seem to have been fully included in the discussions on low-carbon sustainable development and adaptation of the Arctic communities to climate change.

Introduction

Global climate changes are forcing the human societies of the Arctic to rapidly adapt to changing conditions affecting their all important hunting and fishing activities. At the same time, the use of some living resources beyond sustainable limits is continuing to constitute a threat to the livelihoods of the people, as well as to some Arctic wildlife species.

Arctic hunters and fishermen often have in-depth knowledge of the natural resources. It has long been a priority of several governments and the Arctic Council to strengthen community-based approaches to monitoring and management of natural resources, yet progress on the ground has been limited.

In North America, there are several brilliant examples of documentation of traditional ecological knowledge. There are, however, only few examples where local knowledge is systematically collected and used in a forward-looking manner to strengthen Arctic resource management.

Local knowledge and engagement: the key to success

Most efforts to monitor living resources in the Arctic have focused on scientist-executed methods and 'externally driven' approaches. In these approaches, professional researchers from outside the area set up, run and analyse the results from a natural resource monitoring scheme.

Scientist-executed monitoring is often technically and logistically demanding. As a result, scientists often stay in the area only a short time, typically when the game species are breeding, whereas hunters and fishermen live in and experience the area all year round. Moreover, scientist-executed monitoring is sometimes costly and, as a consequence, the geographical extent of scientist-executed monitoring is often limited.

'Externally-driven' monitoring is, moreover, sometimes seen as paying inadequate attention to the objectives of other key stakeholders, besides professional natural resource managers – especially local communities whose livelihoods are often closely impacted by the resources concerned.

We are therefore proposing a supplementary approach whereby local people or local government staff are directly involved in data collection and interpretation, and in which monitoring is linked to the decisions of local people, using methods that are simple, cheap and require few resources.

When local stakeholders keep sight of trends in resources and resource use, they increase their capacity to adapt resource management to changes in the environment caused, for example, by global climate changes. Experiences from several countries suggest that locally-based monitoring can build local capacity and relations between local people and the authorities, thereby stimulating local action and resulting in a dynamic and adaptive resource management (Cons. Biol. 23: 31-42, 2009).

Locally-based monitoring can be a powerful supplementary approach to scientist-executed monitoring, can generate social capital and can contribute to local accountability. Locally-based methods are already being used on a pilot basis in a number of countries, mostly in Asia and Africa, but there is also a long history of involving volunteers in biodiversity monitoring in Europe and North America. An international research program is currently comparing the accuracy of locally- and scientist-based natural resource monitoring methods in five developing countries (the MOMA program; see www.monitoringmatters.org).

Greenland pilot

In Greenland, we are pilot testing the use of locally-based monitoring of living resources as a tool for improving Arctic resource management. With funds from the Nordic Ministerial Council and the Government of Greenland, we are establishing and testing locally-based monitoring of resources in four communities in Disko Bay and Uummannaq, Qaasuitsup Municipality in North West Greenland (see www.monitoringmatters.org). We expect the activities to improve the capacity and opportunities of the communities in terms of monitoring and managing resources within sustainable limits. Moreover, we expect it to improve communication and understanding between users and natural resource managers at a higher level. Experiences from this pilot project will be analysed and disseminated amongst Arctic decision-makers, scientists and managers. The initiative benefits from valuable lessons from involving local hunters in monitoring the populations of eider and caribou. The project is contributing to the implementation of the Arctic Council's strategy on community-based resource monitoring (CAFF/2008).

The way forward

Three factors make locally-based monitoring techniques particularly relevant. First, they appear to be effective in incorporating evidence-based assessments into decision-making at the local level. By their very nature, locally-based methods tend to focus on the issues that are of greatest concern to local stakeholders, and they thus have considerable potential to influence on-the-ground management activities. Second, they can contribute to building local capability to cope with - and adapt to - environmental changes, and they can generate ownership of conservation and sustainable development efforts. Third, locally-based methods can track the delivery of goods and services from natural ecosystems, something that is a prime focus of several international environmental agreements and yet extremely hard to monitor using a top-down approach. Without proper monitoring of ecosystem benefits, the success of these international agreements cannot be evaluated, exposing them to criticism or abandonment.

We therefore propose that locally-based approaches to environmental assessment should be an important component of Arctic assessments of natural resources and resource use.

We are also proposing demonstration initiatives to further explore the potential of locally-based approaches in order to assist Arctic communities in managing resources and adapting their use of fish and game to climate change.

Locally-based approaches are, however, like other monitoring methods, vulnerable to various sources of bias. Problems include a risk, in the absence of careful documentation, of methods drifting over time or of results reflecting long-term perceptions rather than current trends. Thorough comparison of data collected by Arctic hunters and fishermen and scientists is therefore an important avenue for further research.