Shaping a Sustainability Strategy for the Arctic

Juan Azcarate (azcarate@kth.se), Berit Balfors (balfors@kth.se), Georgia Destouni (georgia.destouni@natgeo.su.se), and Arvid Bring (arvid.bring@natgeo.su.se), Royal Institute of Technology and Stockholm University, Stockholm, Sweden

Abstract

The development of the Arctic is shaped by the opportunities and constraints brought by climate change and technological advances. In the Arctic, warmer climate is expected to affect ecosystems, local communities and infrastructure due to a combination of effects like reduced sea ice and glaciers, thawing permafrost and increased frequency of floods. Less ice and new technologies mean openings to exploit natural resources in the Arctic. Fishing, mining, hydrocarbon extraction and vessel transport activities are likely to increase together with supporting infrastructures. An escalation of economic activities in the Arctic is expected to generate employment opportunities and migration, lead to increasing urbanization and affect the socio-economic structures of indigenous cultures. To address these issues, there is a need for strategic dialogues on the development of the Arctic. Establishment and foci of such dialogues can be facilitated and formalized through a transboundary strategic environmental assessment, which brings together different visions, objectives and projected development scenarios. Visions and objectives set the scope of environmental policy, management and related human activities, while scenarios outline future development options, and assessments of the scenarios allow for relevant governance, adaptation and monitoring measures. This paper argues for the need of a transboundary strategic environmental assessment process to identify and link critical development issues, enhance participation and capacity among stakeholders, address transboundary concerns, and project and assess relevant development scenarios to reach consensus on a sustainability strategy for the Arctic.

Key words: Arctic, climate change, sustainable development, strategic environmental assessment, participation and capacity development.

Introduction

The Arctic raises great interest and curiosity due to its isolated location, its magnificent landscapes and exotic fauna, its extreme climate, and its vast natural resources. At the same time as these unique characteristics need to be preserved for future generations, climate change and new development claims may compromise the future viability of the Arctic.

Mechanisms like the Arctic Environmental Protection Strategy (AEPS), the Arctic Council and legal frameworks for environmental assessment (EA) have been implemented to support a balanced development in the region. Despite this, in the Arctic there are still gaps in legislation, limitations to EAs and deficient collaboration.

The aim of this paper is to address these gaps, limitations and deficiencies, arguing in particular for the need to design and implement an overarching, participatory and transboundary strategic environmental assessment (SEA) process in support of the strategic decisions and measures that need to be taken for a sustainable Arctic future.

Ecosystems, climate change and human activities in the Arctic

The Arctic circumpolar region is comprised of the Arctic seas and its coastal areas, and it can be delimited using various types of approaches (Hall and Saarinen, 2010) (Fig. 1). Arctic ecosystems, considered to be very productive and the largest and least fragmented of inhabited ecosystems, include unique physical environments such as fjords, tundra, frozen seas, glaciers and icebergs (Arctic Council, 2011; WWF, 2011). The Arctic is home to various endangered species and to approximately four million people, including indigenous communities that have adapted to the region's extreme conditions using traditional knowledge (AHDR, 2004; Magga and Mathiesen, 2010; WWF, 2011).

Polar Regions are more sensitive to climate change than other regions (ACIA, 2005). In the Arctic, warming rates are twice as high as the world average, reducing sea ice and glaciers and thawing permafrost (UNEP, 2007). Ice reduction impacts Arctic ecosystems and threatens endangered species and the lifestyles of indigenous peoples (ACIA, 2005). Moreover, potential massive melting of ice in the Arctic will cause feedbacks to the global climate and raise sea levels (UNEP, 2007).

A potentially ice-free Arctic, coupled with the introduction of new technologies, will encourage a rapid increase of human activities. The Arctic's untapped oil and gas reserves will be explored and possibly exploited, vessel transportation will increase as will mining, fishing, timber and other resource extracting activities, all of which will raise the risk of contaminating marine and land ecosystems and exacerbating the health related problems of indigenous populations (UNEP, 2007; Casper, 2009).

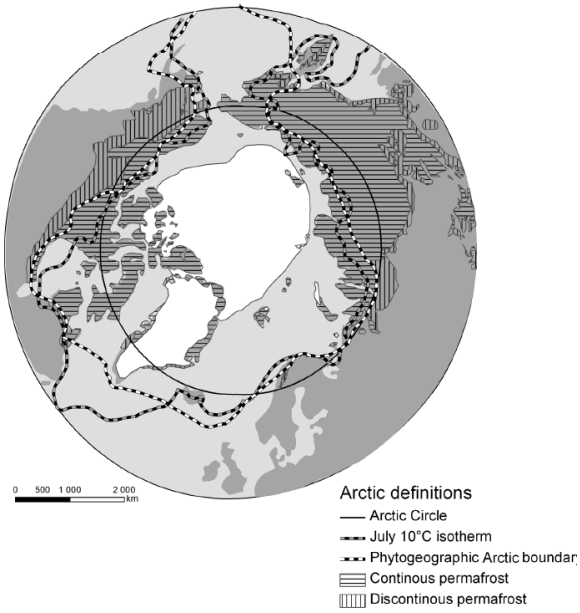

***Figure 1*:** Delimitation of the Arctic. Source: Hall and Saarinen (2010).

Governance and EA in the Arctic

Actions in the Arctic are governed by the national legislation of the Arctic states, by international, multilateral and bilateral treaties, and by the Arctic Council that was established to

guide the programs of the AEPS (UNEP, 2007; Koivurova, 2008; Casper, 2009). The Arctic states of Finland, Sweden, Norway, Denmark, Iceland, Canada, USA, and Russia are members in the Arctic Council where indigenous peoples are permanent participants (Koivurova, 2008).

With respect to EAs, the Arctic states have adopted environmental impact assessment (EIA) and SEA provisions in their national legislation, and they have committed themselves to consider transboundary issues in project level EAs by signing the Espoo Convention and in plan and program EAs through the SEA Protocol (Koivurova, 2008; UNECE, 1991; UNECE, 2011). Moreover, the Guidelines for EA in the Arctic (AEPS, 1997) were developed to address the uniqueness of Arctic conditions and consider cumulative impacts, transboundary issues, and the participation of indigenous peoples in Arctic EAs. However, despite their existence, the Arctic EA guidelines have been rarely used (Koivurova, 2008). There also seems to be a lack of capacity on EA in the region, challenges with public consultations when dealing with transboundary issues, and a considerable variation and lack of EA application (Albrecht, 2008; Bruch et al., 2008; Koivurova, 2008).

Developing a transboundary SEA process for the Arctic

In light of the low application and limitations with EAs in the Arctic, research is needed to identify the essential components and outputs of an overarching and transboundary SEA process for the Arctic. One such essential component of the SEA process should be the facilitation of strategic dialogues on Arctic development. Some key questions that could be answered with such strategic dialogues could be: What activities should take place? How should these be carried out and for how long? How to best deal with possible new future activities that we may not currently even be aware of? What mitigation and monitoring measures should be considered? Strategic dialogues for the Arctic could also facilitate participation and the creation of equitable and sustainable solutions for the Arctic's development.

A network approach is further envisioned so that strategic dialogues on the Arctic are carried out across various types of borders and between different actors. With such an approach, sharing of ideas and knowledge will be encouraged and the capacities of Arctic actors positively developed. Moreover, visions, objectives and possible development scenarios and projections will be brought together for the Arctic. Such visions, objectives and scenario projections can set the scope of strategic environmental policy and of related management and human activities in the Arctic. Different scenarios will outline different future development options and should contribute in formulating and applying operable strategies and relevant governance, adaptation and monitoring measures for actual development toward desirable scenarios.

In particular, monitoring is seen as an essential part of the SEA process, serving to evaluate the policy, plan or program against environmental targets. To achieve this, SEA monitoring must make use of the broader environmental monitoring systems that serve other information goals. Hence, SEA monitoring will be partly faced with the same challenges of the currently operating monitoring systems in the Arctic. Recent research has revealed large gaps in Arctic water monitoring (Lammers et al., 2001, Shiklomanov et al., 2002), and in particular regarding the monitoring of inland water chemistry (Bring and Destouni, 2009) and ecosystem regime shifts (Mård Karlsson et al., 2011). Furthermore, Arctic hydrological monitoring is found to be declining the most, and being most deficient in regions where projected climate changes are the greatest (Bring and Destouni, in press).

Monitoring in the Arctic is complicated by harsh conditions and large distances. However, the present increased interest in the Arctic region may create opportunities to address the declining monitoring capacity in the area. A process for securing commitment to Sustaining Arctic Observation Networks (SAON) has recently been initiated under the umbrella of the Arctic Council and the International Arctic Science Committee (IASC). Further linking of a transboundary SEA process to development priorities for environmental monitoring could help ensure that important monitoring goals from the SEA perspective are addressed in the SAON process.

Ultimately, using the experiences that can be gained from developing a transboundary SEA process for the Arctic will facilitate, in the future, the application of transboundary SEAs in other vulnerable regions, where complex and diverse issues must be addressed in order to identify, formulate and apply relevant strategies and measures to reach a sustainable long-term balance between the natural environment and human development.

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