

A sustainable future for the polar regions

An IIED Briefing

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The spectre of change is galvanising debate about the future of the poles. Climatic shifts look set to affect both profoundly. As the ice melts, new marine transport routes will open up. The exploitation of natural resources could expand significantly. Further risks include marine acidification, the migration of commercial fish species and coastal erosion. In the Arctic, traditional livelihoods could suffer. Meanwhile, national claims of sovereignty over areas of ocean floor are fuelling fears of a new 'cold war' over access to mineral resources in sensitive environments. Clearly, science alone cannot address the challenges facing the poles: a coherent strategy for sustainable development is urgently needed.

KEY MESSAGES:

- In the Arctic and Antarctic, significant shifts driven by climate change are opening up more opportunities and pressures for development. These challenges demand holistic, integrated responses.
- Strategic planning has failed in the past, but the need to find approaches that work, involving industry, government and civil society, is clear.
- Experiences from countries around the world offer crucial lessons for planning and supporting the development of sustainable development strategies for the polar regions – and particularly the establishment of effective governance frameworks.
- Tools such as strategic environmental assessment can support these framework processes.
- Industry and government should join forces to organise and fund independent scientific research and industrial impact assessments, and to develop standardised approaches to strategic planning.
- Transparency and broad stakeholder involvement should be key principles in any decision-making about development in the polar regions.

Facing the challenge

The Arctic and Antarctic are separated by more than geographic distance. The Arctic — made up of the Arctic Ocean and its pack ice, ringed by various landmasses — supports indigenous and local populations, even cities. Antarctica is a continent covered by icy desert, its only human population a shifting one of scientists and tourists.

These basic differences have a particular impact on how the environmental and development issues facing the two regions are governed.

Both poles stand at a crossroads, however. Human pressure — either through climate change or proposed industrial expansion — is set to take a heavy toll on each. Territorial claims could even pose a threat to global security. It is clear that to address these challenges, holistic approaches to sustainable development are urgently needed at regional, national and local levels.

Taking the strategic route A multi-level strategic approach is the way forward. One possible avenue is to adapt the framework and methodologies of National Sustainable Development Strategies (NSDSs). Inspired by Agenda 21, the NSDS approach aims to ensure environmentally and socially responsible development by building on and harmonizing a country's sectoral economic, social and environmental policies and plans. The NSDS framework and methodologies provide a sound basis for a multi-level strategy that addresses the key challenges. The NSDS framework can also be followed at the regional level. It promotes the integration of economic, social and environmental objectives (or seeks tradeoffs where this is not possible). It employs analysis of issues and trends, and debate about appropriate responses and how to strengthen capacities, plan and invest. Multi-stakeholder dialogue and consensus-building are fundamental to this process,¹ while genuine political leadership and the right governance structures will be key to its success.

Science and sustainable development The time is ripe for such an initiative. The International Polar Year (IPY), a major scientific programme launched in 2007, will run until March 2009. The IPY is coordinated by the International Council for Science and the World Meteorological Organization. Its

research themes include the environmental status of the poles, the links between the polar regions and the rest of the world, and the cultural, historical and social processes that have shaped sustainable circumpolar human societies.

As the IPY shows, science continues to play a fundamental role in underpinning sustainable development: it boosts understanding of species and ecosystems, addresses the complexity of interactions, and aids the development of green technologies.

A holistic strategic approach could enable the findings of the IPY to contribute to sustainable development of the polar regions. The scientific networks emerging or strengthened by the IPY might provide forums for discussion of these issues. The Arctic Council working groups, Arctic indigenous peoples' networks and Antarctic Treaty Consultative Meetings provide other arenas for debate.

The Antarctic

Antarctica is unique among the world's continents in having no native population. As such, it is administered by international agreement. The Antarctic Treaty System or ATS includes, among related agreements, the Antarctic Treaty, which entered into force in 1961. This set Antarctica aside as a scientific preserve where military activity is banned, sovereignty claims over territory are frozen, and no new claims are recognised. Under the ATS, Antarctica is defined as all land and ice shelves south of the 60th parallel.

Forty-six countries have now signed the ATS, 28 of which have the right to participate in decision-making at consultative meetings, while the other 18 attend as observers.² In addition to the 12 original signatories, the decision-making countries (known as Consultative Parties) include 16 that have carried out substantial scientific activity on the continent.³ Two hundred other agreements and recommendations have been adopted at consultative meetings and ratified by governments (see Box 1 for a sample).

The restrictions imposed on Antarctica by the Treaty preclude development there by signatories. So, the notion of 'sustainable development' may not seem immediately relevant — at least, not at present. The main focus to date has been on protection, conservation and scientific research. Indeed, scientists dominate discussions in ATS institutional structures. The lack of a permanent Antarctic population also means that stakeholder dialogue around sustainable development issues — which would normally include local community representatives or national or local governments — involves solely interested parties from outside the region.

People and pressure However, human activity in the Antarctic is becoming a source of growing concern. Tourism, the main commercial activity in the region, could have serious impacts on Antarctic ecosystems via pollution by cruise ships and onshore disturbance. A key concern is the introduction of alien species to Antarctic waters by these ships. The International Association of Antarctic Tour Operators (IAATO) says the number of tourists visiting the region has risen over the past decade from 7400 to 33,000, while

Box 1 Regulating Antarctica: some conventions and agreements

The aims of the Antarctic Treaty System are protection, conservation and scientific research, as this sampling of conventions and agreements shows.

- The Agreed Measures for the Conservation of Antarctic Fauna and Flora (1964; entered into force 1982) prohibits the disturbance, killing, importing and transportation of native birds and mammals without a permit (with stricter provisions for Specially Protected Areas), and prohibits import of non-native species. (There is a 1972 convention specifically aimed at Antarctic seal conservation.)
- The Convention for the Conservation of Antarctic Marine Living Resources (1980) addresses the issue of unsustainable harvesting of krill, which could have serious knock-on effects for marine species dependent on it.
- The Convention on the Regulation of Antarctic Mineral Resource Activities (signed in 1988; unratified). Opponents of this convention believed there should be a complete ban on mineral resource development. The following protocol supersedes it.
- Protocol on Environmental Protection to the Antarctic Treaty (signed in 1991; entered into force 1998). This has five annexes on marine pollution, fauna and flora, environmental impact assessments, waste management, and protected areas. It prohibits all activities relating to mineral resources except scientific research.

retreating sea ice is opening up new routes for the cruise companies. In 2007, Antarctic Treaty members failed to vote unanimously on introducing legally binding tourism regulations. Meanwhile, search and rescue in the tourism context is becoming an important issue: in November 2007, for instance, the *M/S Explorer* hit a submerged iceberg off Antarctica and sank.

If oil, gas and mineral extraction were allowed in Antarctica, human pressure on the continent would be significantly stepped up. A number of countries claim territory at the South Pole, and the first signs of a race for natural resources are now emerging. This is spurred by advances in extraction technology and increased concerns about energy security.

A UN convention has helped to fuel this race. UNCLOS, the 1982 UN Convention on the Law of the Sea, permits states to extract oil, gas and minerals from the seabed up to and even beyond 350 nautical miles from their territorial shores if they can show the continental shelf extends that far. A country can claim to extend its currently allocated 200 nautical mile zone if it does so within 10 years of ratifying UNCLOS.

For the 50 or so countries that originally ratified the convention, the deadline for presenting submissions to the UN Commission on the Limits of the Continental Shelf (CLCS) is May 2009.

Contrary to the spirit of the Antarctic Treaty, Australia and New Zealand have already applied to register claims over Antarctic sub-sea territory. The UK is also gathering data for a submission, claiming sovereignty rights over more than 1 million square kilometres of Antarctic seabed, which could extend their oil, gas and mineral exploitation rights up to the allowed limit. The UK is working on other sub-sea claims around South Georgia and the Falkland Islands. Meanwhile, Argentina and Chile have already declared their intentions of expanding their own claims to the Antarctic seabed.⁴

Expansion of mineral resource extraction into Antarctic waters is inherently unsustainable, and would increase threats to vulnerable ecosystems. Climate change also demands significant reductions in carbon emissions and the development of alternatives that reduce the need to expand extraction into such areas.

But expansion could happen — a possibility that underlines why systems and safeguards must be in place before pressures to expand development become so great they override other concerns. Mechanisms for transparency and broad participation by stakeholders are particularly important for any decision-making of this kind that are likely to take place. Box 2 outlines a proposed strategic approach.

The Arctic

In contrast to the Antarctic, the Arctic is not managed by treaty. Land and coastal waters within the Arctic Circle are owned by

specific nations, while the North Pole and surrounding areas of the Arctic Ocean are international waters.

The jurisdiction of the five states within the Arctic Circle — Canada, Denmark (Greenland), Norway, Russia and the United States — is limited to a 200-mile zone around their coastlines, although Russia and Norway have already submitted claims to the CLCS, in 2001 and 2006 respectively. The Russian claim was rejected, but in 2007 a Russian expedition planted a flag on the Arctic Ocean seabed, claiming they had proved that the Lomonosov Ridge — an underwater shelf in the ocean — was linked to Russian territory. The United States, Canada and Denmark are all also interested in making claims.

There is a high-level forum for cooperation, coordination and interaction between the Arctic states, indigenous communities and other residents of the region: the Arctic Council. Members of the council include Finland, Iceland and Sweden as well as all Arctic states. The chair rotates every two years, with Norway holding it until the end of 2008, followed by Denmark and Sweden. These three countries have agreed a set of common priorities: climate change, integrated resource management, the International Polar Year programme, indigenous peoples and local living conditions, as well as management issues.

The Arctic Council conducts its scientific work through five working groups (Box 3).

Box 2 A sustainable South Pole: modelling a strategy

The goals

- **Securing global public goods** provided by Antarctica. Among other things, the region is a barometer for climate change, used globally to monitor its impacts.
- **Focusing on the external footprint of national domestic policies and actions on the Antarctic.** This would demand that countries look at the impact of their actions beyond their own territorial borders.
- **Ensuring other international processes address Antarctic vulnerabilities.** An example is submissions to the UN Commission on the Limits of the Continental Shelf.
- **Ensuring any future industrial development in Antarctica is carried out sustainably, or not at all.** This would include broad stakeholder participation in related decision-making, and include the option to block industrial development.

The tools and approaches

- Sustainable development-focused review and monitoring processes for the Antarctic Treaty System
- Coordination of international research efforts from a sustainable development perspective
- International payments to sustain global public goods and services
- Use of National Sustainable Development Strategies (NSDS) to address the impact of national policies and actions
- International multi-stakeholder decision-making forums and transparent processes to make decisions on any future industrial development
- Development of principles and sustainability safeguard policies in relation to possible future pressures/plans for industrial development
- Tools and safeguard instruments such as environmental impact assessment, strategic environmental assessment and sustainability appraisal.

Box 3 The Arctic Council Working Groups

- Sustainable Development Working Group (SDWG) focuses on cooperation on economic, social and cultural issues, using a strategic framework document approved by a ministerial meeting of the Arctic Council in 2000. Current projects focus on children and youth, health, telemedicine, resource management, cultural and ecological tourism, and living conditions in the Arctic.
- Arctic Monitoring and Assessment Programme (AMAP) identifies pollution risks to Arctic ecosystems and assesses the effectiveness of international agreements on pollution control. Major assessments have focused on sources, levels and trends of pollution.
- Protection of the Arctic Marine Environment (PAME) addresses policy and non-emergency pollution prevention and control measures related to the protection of the Arctic marine environment from land and sea-based activities, including marine shipping, offshore oil and gas development, and waste disposal at sea.
- Conservation of Arctic Flora and Fauna (CAFF) promotes the conservation of biodiversity and sustainable use of living resources.
- Emergency, Prevention, Preparedness and Response (EPPR) exchanges information on best practices for preventing, preparing to respond to, and responding to oil and other spills.

Source: www.arctic-council.org.

Some 4 million people are estimated to live in the Arctic,⁵ with significant populations of indigenous and non-indigenous people in the regions' towns and cities. Some, such as nomadic reindeer herders, live traditionally on the land. The indigenous peoples of the Arctic have forged strong links through various networks, including the Inuit Circumpolar Council and the International Working Group on Indigenous Affairs.

Threats to the Arctic The Arctic now faces an array of well-documented challenges and competing interests.

- **Direct impacts of climate change.** The environment and livelihoods are already disrupted by climatic shifts. Dramatic images of melting pack ice and polar bears struggling to survive in a warming environment abound in the media. But similar challenges face a range of Arctic species, from plankton and algae to whales, seals and marine birds. Meanwhile, for the Inuit and other people living in the far north, changes to snow cover and sea ice affect their ability to maintain traditional links and routes between communities, disrupt harvesting rhythms, and hinder access to reindeer pastures. Many coastal communities are at risk from rising sea levels, erosion and melting permafrost. New insect and animal species have moved into the region,

upsetting ecosystems and potentially displacing species that local people rely on.

- **Expanding industrial development.** Concerns over energy security are driving some countries to seek oil and gas under Arctic waters, despite the lack of technology to handle the combined environmental challenges. Onshore oil, gas and mining operations are also expanding, disrupting traditional, natural resource based livelihoods. In 2007, the US federal court denied global oil giant Shell's appeal to lift an order blocking drilling in the Beaufort Sea after challenges from indigenous groups and environmentalists concerned about water pollution and impacts on whales. However, the Shtokmann project, a major offshore gas development in the Barents Sea, is moving ahead, after Russian natural gas company Gazprom granted a share of the project to French and Norwegian oil companies Total and StatoilHydro.
- **Increased fishing.** Arctic waters support domestic and international fishing industries. With the opening up of the Arctic Ocean as warming progresses (see below) and migration of fisheries, the intensity and impact of fishing is likely to increase.
- **New transport routes.** Climate change is likely to open up both the Northwest Passage and Russia's Northern Sea Route — both of which link the Atlantic to the Pacific — as major trading routes, and break up sea ice across the North Pole. New economic opportunities for some communities could arise, along with new environmental and social problems. Disruption to pack ice in these areas could also trigger tension over access. Canada has already indicated it will assert its sovereignty over some waterways of the Northwest Passage.

These issues need to be dealt with on a regional basis. Further scientific research is also needed, to provide clear guidance on how to tackle the potential changes. In any case, the changes clearly point to a need to develop a sustainable development strategy for the Arctic as a whole.

Responses from the rim The Arctic rim countries have diverse sectoral policies, strategies and plans. Several already have some form of national strategy addressing sustainable development – although their scope and quality, and the processes by which they were developed, vary considerably. Denmark, Finland, Iceland, Norway and Sweden have joined forces to produce a revised Nordic Strategy on Sustainable Development. This came into force in 2005⁶ and covers the Nordic countries' long-term goals for sustainable development to 2020.

A key issue is how well these and other domestic and intergovernmental instruments tackle the Arctic's evolving challenges, and in particular how concerns of indigenous and other communities are addressed. It is also vital that domestic policies, plans and strategies act synergistically, on an Arctic-wide basis, to support sustainable development. And it will be important to identify gaps in knowledge, policy or action.

Business and science Oil and gas companies are assessing the potential implications of expanding exploration and production in the Arctic. Efforts should be made to integrate or harmonise approaches led by government with those of industry through international multi-stakeholder dialogue.

Research projects such as the ENSINOR, based at the University of Lapland's Arctic Centre, which looks at the environmental and social impacts of industrial development in northern Russia, have demonstrated the value of independent science in this arena, and the need to develop standard approaches to design and implementation of such assessments. Companies and governments could fund this kind of research by contributing to an independently managed fund.

Towards sustainability at the poles

Existing tools and approaches Environmental impact assessment (EIA), a proven tool for the past 35 years, has a good track record in evaluating the environmental risks and opportunities of project proposals and improving the quality of outcomes. But leaving environmental assessment until the project stage, the level of focus of most EIAs, severely limits opportunities to identify the strategic choices that might lead to more sustainable outcomes. So the need for a similar assessment process at the level of strategic decision-making (policies, plans, programmes) has long been recognised.

Strategic environmental assessment SEA has emerged over the past decade and is now used increasingly around the world.⁷ Many countries are introducing legislation requiring its use, and there are also several international instruments such as the European Directive on SEA, which came into force in 2004 across the European Union.

In 2000, the Antarctic and Southern Ocean Coalition (ASOC) — a global network of environmental NGOs — proposed that the Antarctic Treaty Consultative Meeting adopt a procedure for SEA as a complement to existing instruments in the Protocol on Environmental Protection to the Antarctic Treaty.⁸ The proposal focuses on the potential application of SEA to tourism and points out that the concept of a strategic approach is already evident within the Protocol and wider ATS — for example, in the prohibition of mineral extraction activities under Article 7, and the concept of Specially Protected Species under Annex II. The proposal also notes that in the Antarctic, bodies such as the Committee for Environmental Protection and existing EIA procedures could be adapted to SEA to support initiatives at the regional level.

Several Arctic countries have applied SEA. There are also cases where several countries have undertaken SEAs collaboratively. The EU's Kolarctic ENPI CBC is one example. The programme promotes cross-border cooperation in an area covering parts of Finland, Norway and Sweden and a large tract of northwestern Russia. Through the programme, organisations can develop their own activities with cross-border partners. The Arctic Council's 2006 assessment of oil and gas activities in the Arctic, carried out by the Arctic Monitoring and Assessment Programme (AMAP), could be considered

to be a kind of SEA, covering environmental as well as socio-economic issues.⁹ A number of Arctic countries are also signatories and parties to the SEA Protocol to the UN Economic Commission for Europe (UNECE) Convention on EIA in a Transboundary Context. Parts of this protocol could usefully be applied in the Arctic.

Given the rapidity of change in the polar regions, particularly from climatic shifts, it is essential to address sustainability issues at the level of policies, plans and programmes. Efforts are needed to encourage the routine and widespread use of tools such as SEA in the development and assessment of policies, plans and development programmes.

Development on a piecemeal, project-by-project basis usually leads to problems. It would make far more sense to develop a sustainable development strategy for the region and implement this through plans assessed by SEA, using the principles of the UNECE protocol, or perhaps by a more holistic tool such as sustainability appraisal (see below).

Sustainability appraisal/assessment An SA is essentially an analysis of the economic, environmental and social aspects of development actions, and an evaluation of their effects on agreed aims, principles or criteria of sustainable development.¹⁰

A few countries have developed tools specifically labelled as sustainability appraisal/assessment. The European Commission launched sustainability impact assessment in 1999 as an instrument to implement the EU sustainable development strategy; in 2002, the approach was merged into its integrated impact assessment procedure. In the UK, sustainability appraisal is mandatory for land use planning. But, in reality, these and a wide array of experimental approaches to addressing sustainability still do not effectively integrate the three pillars of sustainability — environmental, social and economic. This remains a real challenge.

Sustainable development strategies Experience from around the world in developing and implementing sustainable development strategies has been very useful in showing ways forward.

This experience has revealed that the emphasis needs to be on multi-stakeholder processes, continuous learning and improvement, and effective governance structures with mechanisms for coordinating strategic planning. International work led by the Organisation for Economic Co-operation and Development (OECD) and the UN has led to agreement on a set of principles and characteristics for guiding sustainable development strategies. These include:

- the integration of economic, environmental and social objectives
- coordination and balance between sector and thematic strategies and decentralised levels, and across generations
- broad participation, effective partnerships, transparency and accountability
- country ownership, shared vision with a clear timeframe on which stakeholders agree, commitment and continuous improvement

- developing capacity and an enabling environment, building on existing knowledge and processes
- focus on priorities, outcomes and coherent means of implementation
- linkage with budget and investment processes
- continuous monitoring and evaluation.

A sustainable development strategy should therefore be seen as a set of coordinated mechanisms and processes to implement these principles and to help society work towards sustainable development. They should not be devised as 'master plans', which will soon date. This approach will help improve convergence between existing strategies, and will avoid duplication, confusion and any strain on countries' capacity and resources. Indeed, a sustainable development strategy may best be viewed as a system comprising various components (Box 4).

Box 4 Key components of a sustainable development strategy

- regular, linked multi-stakeholder fora and means for negotiation at national and decentralised levels
- a shared vision, developed through such fora, incorporating broad strategic objectives
- mechanisms to pursue these objectives in ways that can adapt to change, including an information system with key sustainable development indicators, communication capabilities, analytical processes, international engagement and coordinated means for policy coherence, budgeting, monitoring and accountability
- strategic principles and locality- or sector-specific criteria, indicators and standards adopted by sectors and stakeholders, through legislation, voluntary action, market-based instruments and so on
- pilot activities to generate learning and commitment
- a secretariat or other facility, with clear authority and powers, to coordinate these mechanisms
- a mandate for all these activities from a high-level, central authority such as the prime minister's office and, to the extent possible, from citizens' and business organisations.

Developing regional sustainable development strategies for the Arctic and the Antarctic is timely, and vital if the difficult interconnected challenges these regions face are to be met. Countries round the world have much to offer in this context by showing what works well and less well.

In the 21 years since the release of the Brundtland Report, *Our Common Future*, most governments, many international organisations and more and more major companies and civil society groups have made sustainable development their goal. But these intentions — supported by intergovernmental summits and an ever-growing array of plans, tools and

business models — have not generated the pace, scale, scope and depth of institutional and behavioural change that is needed to make development sustainable. The underlying causes of unsustainable development remain largely undisturbed. As a result, most environmental and welfare measures continue to decline in almost all countries and regions.

We need to refocus our efforts in new ways and to enter a new era for sustainable development.¹¹ This means opening up debate and gathering ideas and leadership from a far richer vein of experience than formal international endeavours have so far embraced — particularly for the poles.

Notes

¹ See Dalal-Clayton, D.B. and Bass, S. (2002) *Sustainable Development Strategies: A resource book*. Earthscan, London.

² In addition, organisations such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the Council of Managers of National Antarctic Programs (COMNAP), and the Scientific Committee on Antarctic Research (SCAR) also participate as observers and experts.

³ The 12 original signatories are Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, Russia, South Africa, the United Kingdom and the United States. The 16 other consultative parties are Brazil, Bulgaria, China, Ecuador, Finland, Germany, India, Italy, the Republic of Korea, the Netherlands, Peru, Poland, Spain, Sweden, Ukraine and Uruguay.

⁴ Bowcott, O. Britain to claim more than 1m sq km of Antarctica. Guardian Unlimited, 17 October 2007 (www.guardian.co.uk/news/2007/oct/17/antarctica.sciencenews). See also: Chile repeats own Antarctic claim. BBC News, 19 October 2007 (<http://news.bbc.co.uk/1/hi/world/Americas/7052297.stm>).

⁵ See www.arcticcentre.org/?depid=24486.

⁶ See www.norden.org.

⁷ See Dalal-Clayton, D.B. and Sadler, B. (2005) *Strategic Environmental Assessment: A sourcebook and reference guide to international experience*. Earthscan, London.

⁸ ASOC (2000) *Antarctic Strategic Environmental Assessment: Application to the growing Antarctic tourism industry*. ASOC Information Paper, Antarctic Treaty Consultative Meeting XXIV.

⁹ See www.ipieca.org/activities/biodiversity/downloads/workshops/june_06/5_-_Salve_Dahle_1_719.7431640625KB.pdf

¹⁰ Dalal-Clayton, D.B. and Sadler, B. (2008, in press) *Sustainability Appraisal: A sourcebook and reference guide to international experience*. IIED and Earthscan, London.

¹¹ Bass, S. (2007) *A New Era in Sustainable Development*. IIED, London.

See also:

Antarctic Treaty System: www.ats.aq

Arctic Council: www.arctic-council.org

ENSINOR: www.arcticcentre.org/ensinor

International Polar Year: www.ipy.org/

National Strategies for Sustainable Development: www.nssd.net