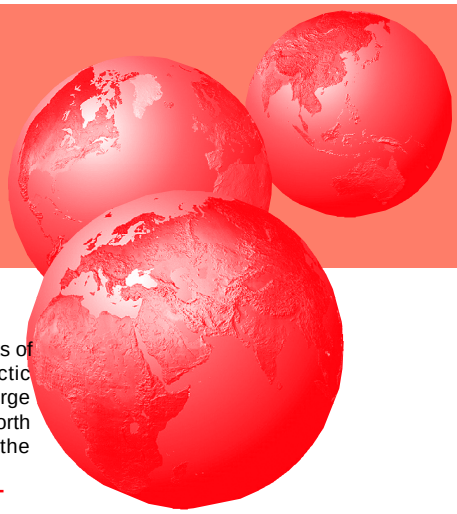
fact sheet

Global Environment Outlook - 3



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The Polar regions

The polar regions include the Antarctic and Arctic. The Antarctic consists of the mainly ice covered continent and its surrounding seas. The Arctic consists of the Arctic Sea which is covered by drifting sea ice with a large seasonal variation. The Arctic also includes the northern territories of North America, Greenland, Iceland, the northern part of Scandinavia and the northern part of the Russian Federation.

PAST AND PRESENT: 1972 TO 2002

Land — Economic activities such as mining, oil and gas extraction, infrastructural development, tourism, forest fires, air pollution and conversion of land for agriculture are the major forces driving environmental change in the Arctic sub-region. The Antarctic sub-region is threatened by various human activities, especially in the ice-free areas. Both polar regions are showing the effects of global climate change.

In recent years, approximately 70 million ha of tundra have been degraded through destruction of soil and vegetative cover, resulting from prospecting, mineral development, vehicular movement, construction and, at certain locations, overgrazing by reindeer.

Ice covers 98 per cent of the Antarctic sub-region. The ice shelves in the Antarctic Peninsula continue to disintegrate because of regional warming. A total area loss of 6 300 km^2 was observed for the Larsen ice shelf between 1975 and 1998 and an additional 1 714 km^2 was lost during the 1998-99 season.

Arctic country governments have taken some action to protect their land base. Approximately 15 per cent of the Arctic land mass is protected, although nearly 50 per cent of the protected area is classified as Arctic desert or glacier.

Freshwater — The overall warming trend in the Arctic sub-region plus increased recreational use and commercial fisheries have put pressure on fish populations. Accidental introduction of alien species and increased fish farming are other sources of concern.

Eutrophication is a recent problem in several lakes in Scandinavia where human settlements have raised nutrient levels. In the Antarctic, freshwater lakes are also exposed to potential contamination from human activities.

To safeguard their freshwater resources, the Arctic countries have designated important wetland sites under the Ramsar Convention and nearly half of the Arctic protected area is the Greenland ice cap and glaciers, a vast store of freshwater.

It is expected that the Protocol on Environmental Protection to the Antarctic Treaty will minimize the impacts of human activities on Antarctic lakes.

Forests and Biodiversity — Major threats to the northern boreal forest include fragmentation, forest fires and insect outbreaks. Spruce bark beetles have killed a significant portion of the spruce forests in Alaska, and decadal outbreaks of the autumn moth in Fennoscandia have caused large-scale defoliation.

Some of the Arctic countries have long-established legislation to address the problems associated with forest degradation. For example, the Russian Federation adopted the Russian Forest Code in 1997, which established 35 national parks on forest lands, totalling 6.9 million ha.

The boreal forest cover has expanded by more than 560 000 ha since 1990 due to reforestation, afforestation and improved forestry management practices.

Biodiversity in the polar regions is threatened by climate change, ozone depletion, altered land use and the unsustainable use of natural resources. The ocean areas include some of the largest marine ecosystems on Earth and are threatened by commercial fisheries and the harvesting of marine mammals.

For centuries the Arctic has attracted hunters of mammals such as whales, seals, walruses, polar bears and otters. Many species have been repeatedly driven to near extinction.

The Arctic countries have begun a major project to assess the impact of climate change in the Arctic. They have also taken several steps to reduce habitat loss and prevent fragmentation. The number of protected areas has been increased from 280 in 1994 to 405 in 2001 and overall coverage expanded from 2 million km² to 2.5 million km².

In the Antarctic**,** sealing and whaling activities in the Southern Ocean have in the past threatened extinction of some species.

Today, strict international agreements govern the harvesting of Antarctic seals (Convention for the Conservation of Antarctic Seals) and whales (International Whaling Convention. Large areas of the Southern Ocean are now designated as a whale sanctuary).

Coastal and marine areas — Overexploitation of fisheries and pollution are major concerns in the Arctic. There have been spectacular crashes of populations of commercially important species such as the cod and Atlantic salmon off the coasts of Canada and Greenland, and herring in Norwegian and Icelandic waters.

Most of the major changes observed in the Arctic marine environment are believed to be attributable to global warming. For example, the Arctic pack ice is showing noticeable thinning from an average thickness of 3.12 m in the 1960s to 1.8 m in the 1990s.

Since the late 1980s, the Arctic countries have increasingly cooperated in protecting the marine environment through fora such as the International Arctic Science Committee and the intergovernmental Arctic Council.

In the Antarctic, the current fisheries activities constitute the single greatest environmental problem in the Southern Ocean. Fin fish catches declined in the 1980s but the development of longlining for toothfish has caused a resurgence of exploitation.

The 1982 Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) promotes the conservation and rational use of marine living resources south of the Antarctic Convergence.

Atmosphere — The depletion of the stratospheric ozone layer, the long-range transport of air pollutants and warming associated with global climate change are worrying trends for both polar regions. These problems are mainly due to human activities in other parts of the world.

The area of the Antarctic ozone hole reached an all-time high of around 29 million km² in September 2000.

The recovery of the stratospheric ozone layer in the polar regions depends primarily on the implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer.

2032: CHOICES FOR THE FUTURE

We are at a cross roads with the future in our hands. The decisions taken today and tomorrow will define the kind of environment this and future generations will enjoy. GEO-3 in its Outlook Chapter outlines four policy approaches leading to different outcomes for the next 30 years. Here we highlight two of the most contrasting scenarios: *Markets First* and *Sustainability First*. One envisions a future driven by market forces; the other by far reaching changes in values and life styles, firm policies and cooperation between all sectors of society

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Land - Land-claim agreements are reached with all indigenous Arctic peoples in the early 21st century under a ***Markets First*** future, granting varying degrees of ownership and rights to Arctic resources. Multinational companies negotiate agreements with communities for the right to exploit the resources in exchange for cash and the promise of long-term employment.

Under the *Sustainability First* scenario, an overall conservation and development plan is agreed and partly implemented by the Arctic states. In the Arctic, a rise of around 1.5^{0} C is expected every 10 years.

Atmosphere - Chemical pollutants originating from outside the polar regions increase significantly under ***Markets First*** due to higher economic growth elsewhere in the world.

Large increases in polar temperatures happen under both scenarios.

Coastal and Marine areas – In the ***Markets First*** scenarios commercial harvesting of fish increases massively in both the Antarctic and Arctic areas leading to fish stocks crashes .

Fish and marine mammals are rigorously defended against overexploitation under a *Sustainability First* future. Penalties are severe and robustly enforced. In the Antarctic, rights to fisheries are incrementally transferred from developed to developing world fish fleets.

Biodiversity — Habitats of Arctic mammal species such as the caribou, reindeer, grizzly bear, and musk ox are severely fragmented and encroached upon in ***Markets First***. Excessive hunting further reduces populations.

Under *Sustainability First*, large areas are set aside as national parks or nature reserves to help wildlife cope with climate change.

For more information contact

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