



## MEDIA BRIEF

# Polar Regions' Fate Crucial for the Planet, UN Says

*Nairobi, 25 October:* The planet's unique Polar Regions are uniquely threatened, the UN says. They are already feeling the impacts of climate change. The food security and health of their indigenous peoples are threatened by a build-up of toxic chemicals. The ozone layer is expected to take another half-century to recover, and there is increasing development and commercial activity.

And what happens to the Polar Regions has profound implications for millions of people living at lower latitudes.

The warnings come in Global Environment Outlook 4, *GEO-4*, the latest in the series of flagship reports from the Nairobi-based United Nations Environment Programme. *GEO-4* is published 20 years after the World Commission on Environment and Development (the Brundtland Commission) produced its seminal report, *Our Common Future*. It describes the changes since 1987, assesses the current state of global atmosphere, land, water and biodiversity, and identifies priorities for action.

It salutes the world's progress in tackling some relatively straightforward problems, with the environment now much closer to mainstream politics everywhere. But despite these advances, there remain the more persistent issues for which existing measures and institutional arrangements have systematically demonstrated inadequacies and where solutions are still emerging. Failure to address these persistent problems, UNEP says, may undo all the achievements so far on the simpler issues, and it may threaten humanity's survival. The report adds - "There are no major issues raised in *Our Common Future* for which the foreseeable trends are favourable."

But it insists: "The objective is not to present a dark and gloomy scenario, but an urgent call for action."

*GEO-4* says the well-being of billions of people in the developing world is at risk, because of a failure to remedy the relatively simple problems which have been successfully tackled elsewhere.

The world as a whole is living far beyond its means. The human population is now so large that "the amount of resources needed to sustain it exceeds what is available... humanity's footprint [its environmental demand] is 21.9 hectares per person while the Earth's biological capacity is, on average, only 15.7 ha/person...".

The Arctic is home to a unique culture, while the Antarctic is by far the largest wilderness on Earth. They are vitally important to the planet's health, and the rapid changes occurring there are of global significance. They regulate the climate, store fresh water, provide resources such as fish and minerals, store carbon, and support migratory species like birds and whales.

This is the first *GEO* report in which all seven of the world's regions emphasise the potential impacts of climate change, which *GEO-4* says is accentuated in the Polar Regions because of feedback mechanisms related to shrinking ice and snow cover: put simply, the more the ice cover retreats, the faster warming is likely to happen. The land and sea absorb more heat when there is less ice and snow, resulting in further melting.

The threat is urgent and *GEO-4* says climate change is a "global priority", demanding political will and leadership. Yet it finds "a remarkable lack of urgency", and a "woefully inadequate" global response.

[www.unep.org/geo/geo4/](http://www.unep.org/geo/geo4/)



Global impacts of the changes in the Arctic are varied: two key ones are ocean circulation, driven by differences in sea water density which is determined by temperature and salt content, and sea level rise.

Part of this ocean conveyor, the North Atlantic Thermohaline Circulation, warms Europe by 5–10°C. Any breakdown of this circulation could mean large and abrupt changes. There is evidence that it may already have slowed by up to 30 per cent over the last 50 years.

Recent increases in precipitation in the Antarctic have reduced the salinity of the ocean's surface layers, weakening the deep-water formation that drives the southern conveyor belt.

Global sea level has been rising at about three millimetres a year since 1993, compared with less than two millimetres a year over the previous century. The probable cause is due to human-induced climate change, primarily through thermal expansion of the oceans, and fresh water from melting glaciers and ice sheets.

The rate at which the polar ice sheets are contributing to sea level rise is faster than previously predicted. It now appears that increased surface melting is not the only impact of higher temperatures, but that meltwater may be penetrating to the base of the ice, causing it to flow faster.

The Greenland ice sheet is losing mass faster than it is replacing it. If greenhouse gas emissions rise at currently projected rates Greenland's average temperature by 2100 is likely to be above the 3°C tipping point which would ultimately cause the ice sheet to melt, raising global sea levels by seven metres.

The West Antarctic ice sheet is similarly vulnerable, and recent evidence points to instability. Some scientists think its complete collapse this century is conceivable.

Another pervasive Polar problem is the transport there of lead, mercury and persistent organic pollutants (POPs), released at lower latitudes, typically from industry in Europe and Asia. POPs, for example DDT and PCBs, are long-lived and build up through the food chain. Arctic animals are especially vulnerable as they store fat to survive the winter.

The levels found in the Antarctic tend to be lower. POPs still in use and not adequately regulated continue to build up in both Polar regions in birds, seals, whales, and, in Antarctica, in ice and krill.

POPs and mercury threaten traditional food sources and the health of indigenous people. The highest exposures are linked to consumption of marine species. Unborn and young children are most susceptible.

Many of these chemicals remain in widespread and increasing use, and new POPs like brominated flame retardants, not yet controlled internationally, are accumulating in polar ecosystems.

In September 2006 the Antarctic ozone hole was the largest recorded. A reduction in sea ice may allow UV-B (ultra-violet solar radiation) to penetrate in sufficient strength to affect many basic lifeforms. In the Arctic there is ozone thinning, but not a hole, and the winter of 2004–5 saw the thinnest layer on record.

Young people in the Arctic today are likely to receive a lifetime dose of UV-B about 30 per cent higher than any previous generation, with an increased skin cancer risk. The increased UV-B is causing changes to Arctic lakes, forests and marine ecosystems.

The biggest and fastest-growing Arctic development of the past 20 years is the expansion of the oil and gas industry. Mining is widespread in the Arctic, but Antarctic mineral exploitation is forbidden.

Commercial fishing is a significant pressure in both Polar regions, including the problem of illegal, unregulated and unreported fishing. Increased Arctic shipping means more disturbance for wildlife, and the growth of scientific activity and tourism in Antarctica have the same effect.

The future will be largely determined by the decisions individuals and society make now, *GEO-4* says: "Our common future depends on our actions today, not tomorrow or some time in the future." A narrow definition of security for some is likely to mean increasing vulnerabilities for all.



For some of the world's persistent problems the damage may already be irreversible. *GEO-4* warns that tackling the underlying causes of environmental pressures often affects the vested interests of powerful groups able to influence policy decisions. The only way to address these harder problems requires moving the environment from the periphery to the core of decision-making: environment *for* development, not development to the detriment of environment.

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## Notes to Editors

*GEO-4* is produced and published by the Division of Early Warning and Assessment of the United Nations Environment Programme. It is available from [www.unep.org/geo/geo4/](http://www.unep.org/geo/geo4/)

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## Regional Highlights

The Polar Regions influence major environmental processes, and have direct impacts on global biodiversity and human well-being.

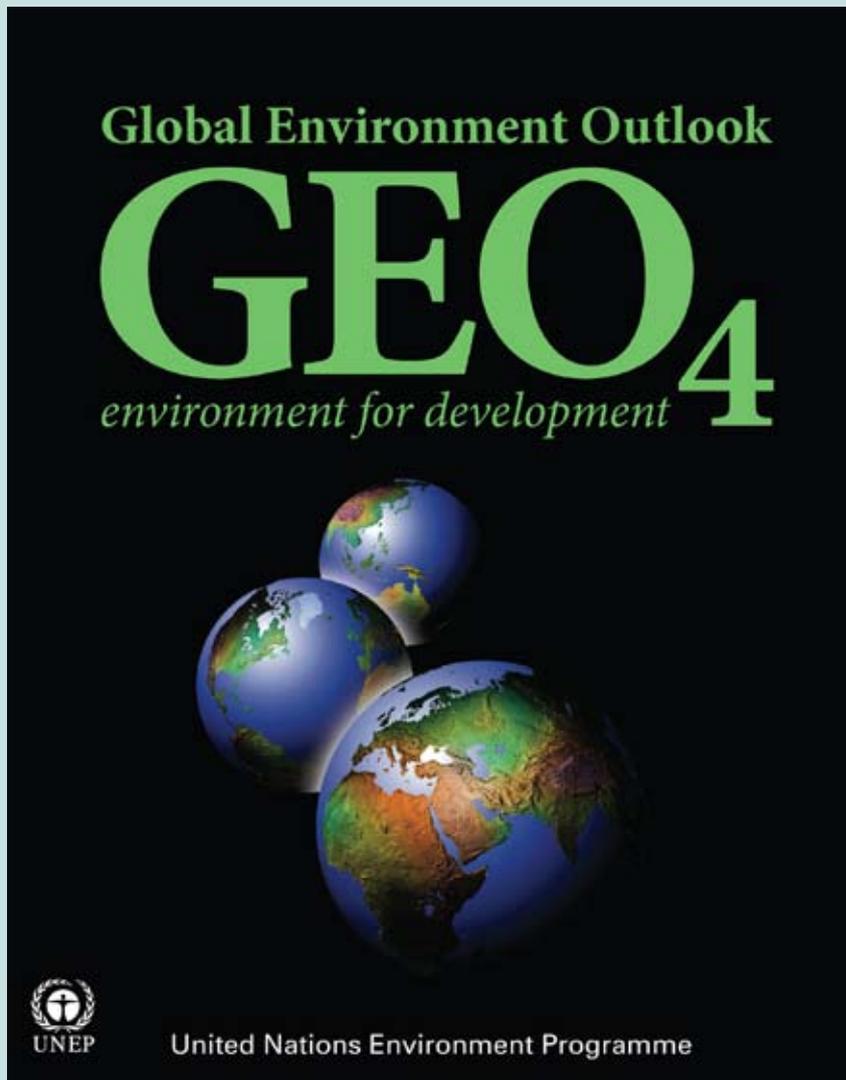
Evidence shows that circulation of the deep, cold water of the North Atlantic conveyor belt may have slowed. This could precipitate an abrupt change in global climate regimes.

The Arctic is warming twice as fast as the world average, causing shrinking sea ice, melting glaciers and changes in vegetation. The Greenland and Antarctic ice sheets are the largest contributors to the sea level rise from melting land ice.

Although the manufacture and use of many persistent organic pollutants (POPs) have been banned in most industrialized countries, they persist in the environment and accumulate in cold regions where they enter marine and terrestrial ecosystems, and build up in food chains.

Despite "impressive" success in phasing out ozone-depleting substances, the hole over the Antarctic is now larger than ever, allowing harmful ultraviolet solar radiation to reach the Earth.





The Global Environment Outlook (GEO) is UNEP's flagship assessment process and report series. The fourth report in the series, GEO-4 provides an overview of the global and regional environmental, social and economic state-and-trends over the past two decades. It highlights the interlinkages, challenges and opportunities which the environment provides for development and human well-being. The report also presents an outlook, using four scenarios to explore plausible futures to the year 2050, as well as policy options to address present and emerging environmental issues.

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