



MEDIA BRIEF

GEO-4 - Executive Summary for Journalists

Introduction

The United Nations Environment Programme's *Global Environment Outlook 4, GEO-4*, is published 20 years after the World Commission on Environment and Development (the Brundtland Commission) produced its seminal report, *Our Common Future*. *GEO-4*, the latest in UNEP's series of flagship reports on the state of the global environment, assesses the current state of global atmosphere, land, water and biodiversity, and describes what has changed in those two decades. It salutes the real progress made in tackling some of the world's pressing environmental problems.

But, it carries a warning.

While there has been progress on some of the more straightforward problems for which solutions are proven, like the pollution of air and water, there remain what *GEO-4*'s authors call the persistent problems for which solutions are emerging - for example, climate change, deterioration of fisheries, and the extinction of species. On progress towards addressing these issues, the report says: "There are no major issues raised in *Our Common Future* for which the foreseeable trends are favourable." And, this may threaten humanity's very survival as well.

The scale of the challenge is huge.

Worldwide, greenhouse gas emissions, for example, some experts say, will need to fall by up to 50 per cent by 2050, compared with their 1990 levels - this is based on a threshold of a 2°C increase in the global mean temperature above pre-industrial levels, beyond which, some experts say, climate impacts become significantly more severe, and the threat of major, irreversible damage more plausible. This implies emissions cuts of 60-80 per cent by 2050 in developed countries, and significant cuts for developing nations, should they accept emissions reduction commitments. The authors insist: "The objective is not to present a dark and gloomy scenario, but an urgent call for action."

Chapter 1, Environment for Development, explores how environmental damage makes development harder, and threatens present and future human well-being. Gro Harlem Brundtland, the former Norwegian Prime Minister who chaired the 1987 commission, wrote in 1995: "The cost of poverty, in human suffering, in the wasteful use of human resources, and in environmental degradation, has been grossly neglected."

The world has changed radically since 1987, economically, socially and politically.

Population has increased by 34 per cent, trade is almost 3 times greater, and the average income per head has gone up by about 40 per cent.

But change is uneven: debt repayments, for example, continue to be a significant brake on development. The average sub-Saharan African country spends three times more on repaying its debts than it does on providing basic services to its people.

Increasing globalization affects the environment: globalized trade has facilitated the spread of invasive alien species.

Environmental exposure affects health, causing almost one-quarter of all diseases. It contributes to respiratory illness, some types of cancers, vector-borne diseases, emerging animals to human disease transfer, and affects nutrition.

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On energy, the world faces a twin threat: inadequate and insecure energy supplies, and environmental damage from consuming too much energy. Use of cleaner energy sources remains “minimal” overall. A healthy environment is essential for achieving all the Millennium Development Goals (MDGs).

And, development can itself be damaging to the environment. Also, “profound ethical questions are raised when benefits are extracted from the environment by those who do not bear the burdens.”

The *drivers* of environmental change include population growth, economic activity and scientific and technological discoveries. As these intensify, they exert new *pressures* on the environment, which have huge effects on human well-being. Urbanization is one significant pressure: by 2025 coastal populations alone are expected to reach 6 billion. Yet development paths that protect the environment are available.

Chapter 2, Atmosphere, reports on air pollution, ozone loss and climate change. It notes the bright spots achieved in efforts to clean up the atmosphere in the last 20 years. But progress has been patchy, and more than 2 million people worldwide are estimated to die prematurely every year from indoor and outdoor air pollution. Ground-level ozone pollution is increasing throughout the northern hemisphere, affecting human health and crop yields - including staple crops in some developing countries. Acid rain, now much less of a problem in Europe and North America (“one of the success stories of recent decades”), poses a threat in parts of Asia.

Some of the progress achieved in developed countries has been at the expense of the developing world, where the production of goods is now being exported, together with its impacts. Persistent organic pollutants (POPs) and mercury have become important issues since 1987. Despite “impressive” success in phasing out ozone-depleting substances, the “hole”: over the Antarctic is now larger than ever, allowing more harmful ultraviolet solar radiation to reach the Earth. This could damage human health, plants and marine organisms, and reduce food production. A serious problem is the illegal trade in ozone-depleting substances, mostly for servicing air conditioning and refrigeration. But, climate change will affect many more millions of people.

Since 1987, annual global emissions of carbon dioxide (CO₂) from fossil fuels have risen by about a third. Oil and gas are expected to remain the dominant sources of energy over the next two to three decades. The increase in CO₂ is making the oceans more acid, threatening corals and molluscs. Ice cores show levels of CO₂ and methane are now far outside their ranges of natural variability over the last 500 000 years: the Earth’s climate has entered a state unparalleled in recent prehistory.

There is now “visible and unequivocal” evidence of the impacts of climate change, and consensus that human activities have been decisive in the warming observed so far: global average temperatures have risen by about 0.74°C since 1906, and the rise this century is projected to be between 1.8°C and 4°C.

Feedbacks such as permafrost melting and increased water vapour may increase that range. Some scientists believe a 2°C increase would be a threshold beyond which the threat of major and irreversible damage becomes more plausible. Warmer temperatures are likely to exacerbate scourges like diarrhoea and malaria, and reduce global food production. Some greenhouse gases may persist in the atmosphere for up to 50 000 years. The developed world is still the main per capita user of fossil fuels: sharing their benefits more equally by meeting the minimum energy standards set out in the MDGs would make a negligible addition to global energy use. While energy use per unit of wealth created has fallen since Brundtland by an average of 1.3 per cent annually, economic growth has outpaced this improvement. Aviation saw an 80 per cent increase in distances flown between 1990 and 2003, while shipping rose from 4 billion tonnes of goods loaded in 1990 to 7.1 billion tonnes in 2005: each sector makes huge and increasing energy demands. Only “drastic” steps will reduce emissions from energy, transport and land use. Tackling climate change globally will demand political will and leadership, and strong stakeholder engagement. Adaptation to the changes expected “is now a global priority.” Yet the authors note “a remarkable lack of urgency” in tackling anthropogenic greenhouse gas emissions, and a “woefully inadequate” global response. Several highly-emitting countries have refused to ratify the global climate change treaty, the Kyoto Protocol. The authors note: “... some industrial sectors that were unfavourable to the... Protocol managed successfully to undermine the political will to ratify it.” They conclude: “Fundamental changes in social and economic structures, including lifestyle changes, are crucial if rapid progress is to be achieved.”

Chapter 3 covers **Land**. Population growth, economic development and global markets are driving land use change at an unprecedented rate. Since 1987, the expansion of cropland has slackened, but land-use intensity “has increased dramatically.” The average farmer then produced 1 tonne: output is now 1.4 tonnes. A hectare of cropland, which then yielded on average 1.8 tonnes, now produces 2.5 tonnes. Unsustainable land use is causing degradation, a threat as serious as climate change and biodiversity loss. It affects human well-being, through pollution, soil erosion, nutrient depletion, water scarcity, salinity,



and disruption of biological cycles. Poor people suffer disproportionately from the effects of land degradation, especially in the drylands (which support some 2 billion people). Damaged soils release organic carbon: land use change has caused about a third of the increase in atmospheric CO₂ over the last 150 years. Loss of nutrients means less productive soils in many tropical and sub-tropical uplands, endangering food security.

Chemical contamination takes many forms, and is likely to increase: more than 50 000 compounds are used commercially, hundreds more are added annually, and global chemical production is projected to increase by 85 per cent over the next 20 years. The food security of two-thirds of the world's people depends on fertilizers, especially nitrogen. Nutrients running off farmland increasingly cause algal blooms, and sometimes affect whole ecosystems (such as in the Gulf of Mexico and the Baltic Sea) through hypoxia (dead zones without oxygen).

A third of Mediterranean Europe is susceptible to desertification, along with 85 per cent of US rangelands. Degradation and poverty reinforce one another. Dryland developing countries lag in human development terms. For example, their average infant mortality rate (54 per thousand) is 23 per cent above that in other developing countries and 10 times that of industrialized countries. Water scarcity undermines development, health and ecosystems. Irrigation already takes 70-80 per cent of water from streams and groundwater, yet meeting the Millennium Development Goal on hunger will mean doubling food production - and therefore water use by crops - by 2050. One in 10 of the world's major rivers fails to reach the sea for part of each year because of upstream demands for irrigation. There are competing claims for land. Population growth and the continued shift from cereal to meat consumption mean food demand will increase to 2.5-3.5 times the present figure. Yet world cereals production per person peaked in the 1980s and has slowly decreased since. Limits to current ways of growing food may have been reached in mature farming systems, and yields appear to have peaked. Potential tipping points include simultaneous crop failures in different regions, and a possible flip by the Amazon Basin from its present wet phase to a dry one, with profound implications elsewhere as well.

Ways to tackle some of the challenges mentioned above include precision farming, landscapes used for several purposes, and crop breeding - including the new technology of marker-assisted selection - to produce, for example, herbicide-tolerant and pest-resistant plants. (Insects are judged to consume about 14 per cent of global farm production.) But, genetically modified crops remain controversial in many countries, and when used, cross-fertilization would mean that in time there would be no non-GM crops. Urbanization continues apace: 2007 is the first year in human history when most people live in cities. Other pressure points include forests, threatened globally by increasing human demands, although there are regional variations (where plantations and semi-natural forests continue to grow); harmful and persistent pollutants; and newly industrializing countries' inability sometimes to protect the environment, human health and safety. Global emissions of sulphur dioxide, which damages health and is a constituent of acid rain, are rising again, driven by newly industrialized countries.

The focus of **Chapter 4 is Water**. Climate change, human use of water and aquatic ecosystems, and persistent overfishing are all influencing the world's water and aquatic resources. The oceans are the main regulator of the climate and absorb massive quantities of greenhouse gases. But, the changes they are now undergoing are affecting Arctic temperatures and ice (the temperature rise there is 2.5 times the global average), ocean salinity, precipitation (rain, sleet and snow) and extreme weather, including droughts, floods and cyclones.

More intense and longer periods of droughts have been observed in the Mediterranean, Southern Africa and parts of Southern Asia. The reduced rainfall in the Sahel has been attributed to ocean surface temperature changes. For several decades the Greenland ice sheet has been melting faster than new ice is being formed, permafrost is thawing faster and Arctic rivers freeze for shorter periods in winter. Sea-level rise caused by climate warming will continue for the foreseeable future, with potentially huge consequences for humans. Over 60 per cent of people worldwide live within 100 kilometres of the coast, and millions will have to move elsewhere. Ocean acidification from rising carbon dioxide levels will probably alter marine food webs and affect global food security. Available freshwater resources are declining: by 2025, 1.8 billion people will live in countries with absolute water scarcity. By then water withdrawals are predicted to have risen by 50 per cent in developing countries and by 18 per cent in the developed world. *GEO-4* comments: "The escalating burden of water demand will become intolerable in water-scarce countries." Aquatic ecosystems are losing their capacity to provide fresh water, food and other services. Human activities mean water quality is declining too, polluted by microbial pathogens and excessive nutrients. There is rising concern about the potential impacts, on aquatic ecosystems, of personal care products and pharmaceuticals like painkillers and antibiotics. In developing countries three million people die annually from water-borne diseases, most of them under five years old. An estimated 2.6 billion people today lack improved sanitation facilities. Globally, contaminated water remains the greatest single cause of human disease and death. Controlling sediments, pesticides and endocrine disruptors is proving increasingly difficult. Populations of freshwater vertebrates declined on average by nearly 50 per cent from 1987 to 2003, much faster than terrestrial or marine species. Suggested measures include integrated water resources management, ecosystem restoration, and "watershed markets" (where downstream users pay upstream landowners to maintain water quality



or quantity). Marine fish catches are being maintained only by fishing ever further offshore and at deeper levels (devastating some species very quickly), and increasingly further down the food chain.

The demand for fish, to meet population growth, is expected to increase by about 1.5 per cent annually in the coming decade. Subsidies have created excess fishing capacity, estimated at 250 per cent more than is needed to catch the oceans' sustainable production. Exploitation of West Africa's fish by Russian, Asian and European Union fleets increased sixfold from the 1960s to the 1990s. The license fees paid to the countries concerned is only 7.5 per cent of the value of their fish once it has been processed. Due to this over-exploitation, which affects livelihoods, many coastal West African artisanal fishers are now migrating to some of the regions that are exploiting their resources.

Chapter 5 reports on the planet's **Biodiversity**, the variety of life on Earth. Not only does biodiversity provide food, fibres and medicines, it maintains vital services, from the bacteria and microbes that transform waste into usable products and filter pollutants from air and water to the insects that pollinate plants and the coral reefs and mangrove forests which protect coastlines, just as vegetation protects against shallow landslides by binding the soil together. Human life, and all other species depend on healthy ecosystems. But current biodiversity changes, the fastest in human history, mean losses are restricting future development options. About 60 per cent of the ecosystem services that have been previously assessed are degraded or used unsustainably. Species are becoming extinct at rates which are a 100 times faster than the rate shown in the fossil record, because of land-use changes, habitat loss, overexploitation of resources, pollution, and the spread of invasive alien species. Of the major vertebrate groups that have been comprehensively assessed, over 30 per cent of amphibians, 23 per cent of mammals and 12 per cent of birds are threatened. The Congo Basin's bushmeat trade is thought to be six times the sustainable rate. A sixth major extinction is under way, this time caused not by natural disasters but by human population growth and consumption patterns. Wildlife populations are falling, and genetic diversity is believed to be declining. The introduction of alien or exotic species is a growing problem. The comb jellyfish, accidentally introduced in 1982 by ships from the US Atlantic coast, has taken over the entire marine ecosystem of the Black Sea, and had destroyed 26 commercial fisheries by 1992. Reducing the rate of loss and ensuring that decision-makers acknowledge biodiversity's full value to human well-being will go far towards achieving sustainable development. Agriculture everywhere depends on biodiversity – but it is also the largest driver of genetic erosion, species loss, and the conversion of natural habitats, especially in tropical forests. Coastal and marine ecosystems are also likely to suffer further damage, and the biological riches of the deep oceans are vulnerable, especially to bottom trawling. To meet the growing global food demand will mean either intensified agriculture (using more inputs like chemicals, energy and water, and more efficient breeds and crops) or cultivating more land. Either way, biodiversity suffers. By 2030, developing countries are expected to need a further 120 million hectares to feed their people.

The loss of genetic diversity may threaten food security: just 14 animal species account for 90 per cent of all livestock production, and 30 crops dominate global agriculture, providing an estimated 90 per cent of the world's calories. People's search for energy - even biofuels - and their use of it (demand is projected to grow at least 53 per cent by 2030) are key factors in the accelerating loss of biodiversity, which in turn affects human health by altering disease patterns and susceptibility to disease outbreaks. One sign of progress towards the goal of the Convention on Biological Diversity of significantly reducing biodiversity loss by 2010 is the steady increase in protected areas. But to realize their benefits, they must be effectively managed, with proper enforcement. And biodiversity (of all sorts, not just the "charismatic megafauna" like tigers and elephants) will increasingly need conserving outside protected areas. With biological diversity, cultural diversity is rapidly being lost, mainly for the same reasons. Over half the world's 6 000 languages are endangered, and some believe up to 90 per cent of all languages may not survive this century. Areas with a higher concentration of distinct cultures - for example, Meso-America, the Andes, West Africa, the Himalayas, South Asia and the Pacific - tend to be areas of high biodiversity. Only when society incorporates the values of biodiversity in political or market systems, internalizing environmental costs into prices, ending perverse subsidies - for instance, for energy, agriculture and fisheries - and properly valuing biological resources, will biodiversity loss really be slowed. "Increased understanding of how people relate to biodiversity, and how to move towards greater stewardship of biodiversity, may be the biggest question the world still must answer," the authors say.

Chapter 6, Regional Perspectives, identifies the environmental priorities for each of the world's seven GEO regions. This is the first GEO report in which all seven emphasize the potential impacts of climate change. To limit the impacts of climate change to a manageable level, the EU has proposed that the global temperature should not exceed an average of 2°C above pre-industrial levels. This implies emission reductions of 60–80 per cent by 2050 in developed countries and a significant reduction for developing countries if they accept emissions reduction commitments.

For most regions land degradation is a priority, with desertification a particular threat in **Africa**, where per capita food production has declined by 12 per cent since 1981. Land degradation is exacerbated by drought and climate change, and affects rivers and forests. Unfair agricultural subsidies in developed regions continue to hinder progress towards increasing yields. Priorities for **Asia and the Pacific** include urban air quality, fresh water stress, degraded ecosystems, agricultural



land use and increased waste. Drinking water provision has made remarkable progress in the last decade, but the illegal traffic in electronic and hazardous waste is a new challenge affecting human health and the environment. **Europe's** rising incomes and growing numbers of households are leading to unsustainable production and consumption, higher energy use, poor urban air quality, and transport problems. The other priorities are biodiversity loss, land-use change, freshwater stresses and a recent rise in greenhouse gas emissions as a result of rising natural gas prices that have helped to restore coal's importance. Priorities for **Latin America and the Caribbean** are urban growth, biodiversity threats, coastal damage and marine pollution, and vulnerability to climate change. However, protected areas (both marine and terrestrial as classified by IUCN) now cover 10.5 per cent of the territory, and integrated prevention and control programmes are helping decrease annual deforestation rates in the Amazon. **North America** is struggling to address climate change, to which energy use, urban sprawl and freshwater stresses are all linked. Energy efficiency gains have been countered by the use of larger vehicles, low fuel economy standards, and increases in car numbers and distances travelled. For **West Asia** the priorities are freshwater stresses, degradation of land, coasts and marine ecosystems, urban management, and peace and security. Water-borne diseases are a concern in some areas, along with the sharing of international water resources. The **Polar Regions** are part of a cycle of global climate change impacts. The Arctic is warming twice as fast as the world average. The food security and health of indigenous peoples are jeopardized by the increase in the environment of mercury and of persistent organic pollutants. The ozone layer, which is most reduced over the Polar areas, is expected to take more than another half-century to recover.

Many of the world's regions are finding that population growth, consumption, and urban and suburban growth are worsening transport challenges and undermining progress on air, water and waste problems. Biodiversity loss and climate change have irreversible consequences that income growth cannot address. Both consumption and poverty harm the environment. Some developed regions have incurred "ecological debts." They have achieved environmental progress at the expense of other regions by simply exporting production and impacts to them, and by their own patterns of consumption. Per capita emissions of greenhouse gases are a clear example. Freshwater and marine stresses have increased, with reefs at growing risk and urban, tourism and energy projects damaging coasts. Different regions offer examples of good environmental governance and technological investments, and some have achieved "an encouraging decoupling" of environmental pressures from economic growth in some areas. Some recognize that economic growth, environmental protection and poverty alleviation are compatible, and are showing interest in accounting for the economic cost of environmental problems such as air pollution. Conversely, environmental inequities continue to grow, affecting especially the poor (who are also disproportionately affected by natural hazards), women, and indigenous peoples, and threatening future generations. A "Northern" development model still prevails, with, for instance, growing urban development based on car dependency. There is too much evidence of development to the detriment of environment, and too few signs of environment for development. But, it is that latter concept that needs fostering in the developing world, while consumption in the developed world simultaneously needs to be slowed. Common to all regions is the fact that "the world's population has reached a stage where the amount of resources needed to sustain it exceeds what is available...humanity's footprint is 21.9 hectares/person, while the Earth's biological capacity is, on average, only 15.7 ha/person... On a regional level the differences in footprint are profound... ."

Chapter 7 deals with the **Vulnerability of People and the Environment**. It identifies both challenges to and opportunities for improving human well-being. It shows how different groups of people face unequal risks; how vulnerability is exported by some states to be imported by others; the potential for conflict or cooperation; and the impacts of natural hazards. Investing in technology can reduce vulnerability, but there is sometimes a need "to correct the technology-centred development paradigm." Poverty alleviation is central to reducing vulnerability, and equitable access to global markets, secure tenure and protection of livelihoods as some of the ways to achieve it. Improved monitoring, enforcement of control measures and empowerment of the most vulnerable by providing information and facilitating participation in decision making are all essential. And reducing vulnerability does not depend only on environmental policy. Vulnerable people can be helped to cope in a variety of ways, including:

- integrating governance from the local to the global level by supporting governance measures at all levels;
- integrating development, health and environment policies;
- making gender-sensitive poverty alleviation central to policy;
- making environment and equity central elements of global trade systems;
- strengthening financial and technical support and access to learning;
- improving relevant technology transfer;
- assessing the impacts of suggested policies first on the most vulnerable, and improving equity in terms of access to resources, capital and knowledge.

The theme of **Chapter 8** is **Interlinkages: Governance for Sustainability**. It recalls the Brundtland Commission's statement that the world does not face separate global crises ... the "environmental crisis", "development crisis", and the "energy crisis" are all one.



The interconnectedness of the environment and human society “is fundamental to the *GEO* conceptual framework.” The world is shrinking, and there are fewer resources to share: the amount of land per capita is about one-quarter of what it was a century ago, and is expected to fall to about one-fifth of the 1900 level by 2050. Consumption has been growing faster than population, but unequally: the total annual income of nearly 1 billion people in the richest countries, is almost 15 times that of the 2.3 billion people in the poorest countries. Of the ecosystem services examined by the Millennium Ecosystem Assessment, 60 per cent are being degraded or used unsustainably. Natural interlinkages include the feedback mechanisms intensifying climate change (for example, the way the disappearance of reflective Arctic ice and its replacement by heat-absorbent darker water is speeding warming).

Land degradation makes the impacts of extreme weather more difficult to cope with. Environmental degradation, it is deduced, helped to trigger the collapse of past societies such as Mesopotamia, and the scale of today’s changes is far greater. International environmental governance has increased greatly since 1987, but too often its practice (as with development governance) remains isolated and fragmented. Complexity bedevils cooperation: biodiversity, for instance, falls under the Convention on Biological Diversity, the Convention on International Trade in Endangered Species, the Ramsar Convention, the Convention to Combat Desertification, the Convention on the Conservation of Migratory Species of Wild Animals and the World Heritage Convention. The United Nations itself has not been as effective as it could be. More sustainable patterns of consumption and production are becoming a global priority for poverty reduction.

Chapter 9, The Future Today, explores how current trends may unfold. It presents four scenarios to the year 2050:

- *Markets First*, where government supports the private sector in pursuing maximum economic growth as the best way towards the goal of improving the environment and human well-being for all;
- *Policy First*, in which government implements strong policies directed at the goal, while still emphasizing economic development;
- *Security First*: this entails government and the private sector competing for control, mainly to improve or maintain human well-being for the rich and powerful. It “could also be described as *Me First*;”
- *Sustainability First*, which involves collaboration by government, civil society and the private sector to improve the environment and human well-being for all, with a strong emphasis on equity.

For many indicators, the rate of global environmental change slows or even reverses towards mid-century. But there is an increasing risk that change will still exceed thresholds in the Earth system, leading to abrupt or accelerating changes, which could be irreversible. Reliance on markets alone is unlikely to achieve key environmental and human well-being goals, while investing in environmental and social sustainability does not harm economic development. Global population continues to grow under all scenarios, as does economic activity and world energy use (dominated in all cases by fossil fuel use). *Sustainability First* is the only scenario where the concentration of greenhouse gases approaches stabilization, but even there the global average temperature is expected to reach about 1.7°C above pre-industrial levels, with sea-level rising about 30 centimetres. On land and water the scenarios diverge markedly, but biodiversity losses occur in all. All foresee increasing environmental pressures, but a fairly consistent pattern of improvements to human well-being. The risks of crossing thresholds - including fisheries collapse, large-scale crop failures and changes in climate - are high in all scenarios. Significant inequities will persist. The future will be largely determined by the decisions that individuals and society make now: “Our common future depends on our actions today, not tomorrow or some time in the future.” While there are costs and risks in each scenario, *Security First*’s narrow definition of security for some is likely to mean increasing vulnerabilities for all.

Chapter 10 is devoted to **Placing the Environment at the Core of Decision Making – Options for Action.**

Environmental problems range along a continuum from those where “proven solutions are available to those where both the understanding of the problem and its solution are still emerging. Policy success (especially where marketable technical solutions are available) needs to be continually extended, adapted and reassessed. For some of the persistent problems the damage may be irreversible, and failure to tackle them effectively may not only negate gains in meeting the simpler challenges but may threaten humanity’s very survival. Environmental policy responses have typically concentrated on reducing pressures or coping with impacts; the focus is now changing to ways of transforming the drivers that create the pressures, including population and economic growth, resource consumption, and social values. But, changing these drivers often affects the vested interests of powerful groups able to influence policy decisions. Tackling the more persistent problems requires moving the environment from the periphery to the core of decision making. Structural changes in governmental and intergovernmental organizations, giving priority to the environment in sectoral plans, and a more holistic approach to development planning can all play a part. Improved monitoring is needed, and it is urgent to enhance our scientific understanding of the potential tipping points beyond which reversibility is not assured. Determined action now will be cheaper than waiting for better solutions ahead, especially with climate change. There is a need for better environmental education and awareness campaigns, and for much more attention to involving different stakeholders.



Notes to Editors

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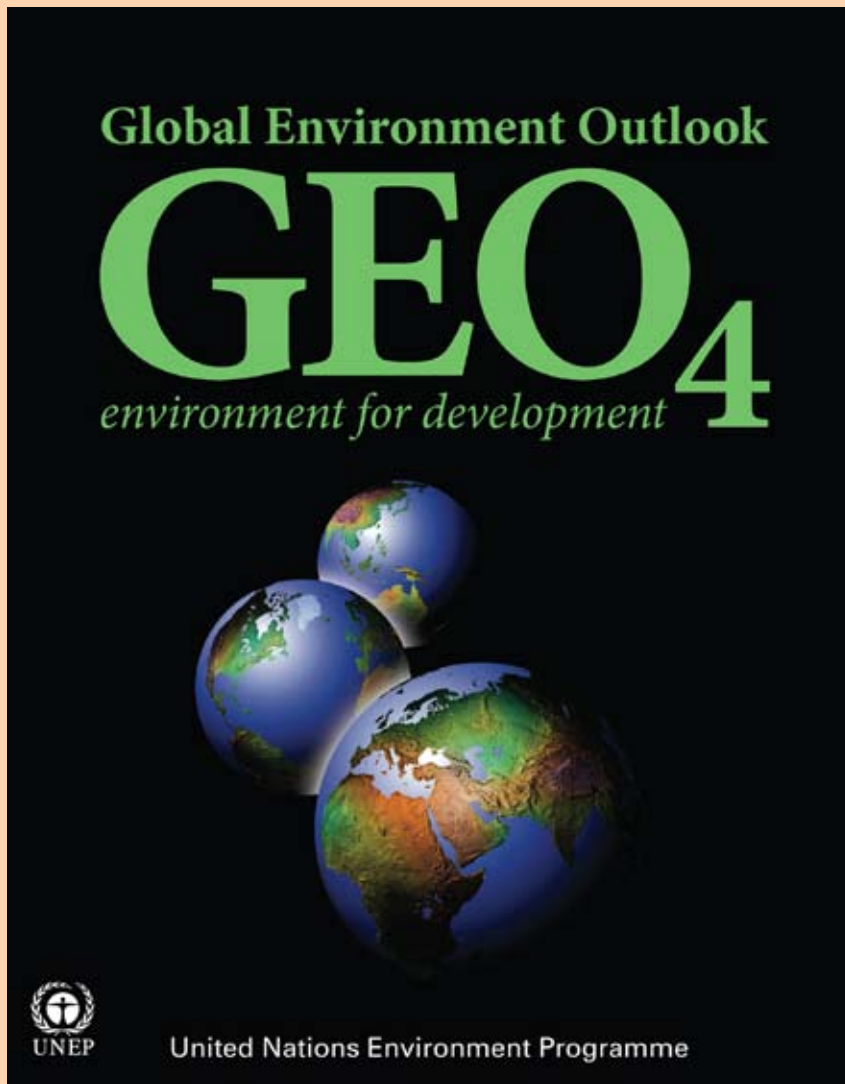
Global Environment Outlook (GEO) Section
Division of Early Warning and Assessment (DEWA)
United Nations Environment Programme (UNEP)
P.O. Box 30552 Nairobi, 00100, Kenya
Tel: +254-20-7623491 • Fax: +254-20-7623944
Email: geo.head@unep.org • Internet: www.unep.org/geo

Available on-line as well as details to get copies:

EarthPrint Limited,
P.O. Box 119, Stevenage
Hertfordshire SG14TP, U.K.
Fax: +44 1438 748 844 • Tel: +44 1438 748 111
Email: unep@earthprint.com

www.earthprint.com





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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For media enquiries please contact Nick Nuttall, Spokesperson UNEP, on
Tel: +254 733 632755, Mobile when travelling + 41 79 596 57 37, E-mail: nick.nuttall@unep.org

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Global Environment Outlook (GEO) Section
Division of Early Warning and Assessment (DEWA)
United Nations Environment Programme (UNEP)
P.O. Box 30552 Nairobi, 00100, Kenya
Tel: +254-20-7623491
Fax: +254-20-7623944
Email: geo.head@unep.org
Internet: www.unep.org/geo