

INFORMATION FOR DECISION MAKING

One of UNEP's main functions is keeping the world's environmental situation under review so that emerging environmental problems of wide international significance receive appropriate and adequate consideration by governments. Perhaps the main assessment highlight of 2005 was the completion of the Millennium Ecosystem Assessment (MA), launched in June 2001 by the UN Secretary-General to meet the needs of decision makers and the public for scientific information concerning the consequences of ecosystem change for human well-being and to provide options for responding to those changes.

The MA differs from other assessments in that it defines ecosystems in terms of the benefits that people get from them. It makes the case that ecosystems and the services they provide are financially significant and that damaging them is tantamount to economic suicide. Among the

MA's findings are that 60 per cent of the world's ecosystems are in decline or even degraded to an extent that society can no longer rely on their services. The statistics are sobering. Global fish stocks are down by 90 per cent since the dawn of industrialized fishing, and a third of all amphibians, more than a fifth of mammals and a quarter of the world's coniferous trees are threatened with extinction.

UNEP was a major partner in the MA, providing both financial support and coordination. More than 1,300 authors from 95 countries were involved in preparing the global assessment, which synthesizes information from scientific literature, datasets and models, and includes knowledge held by the private sector, local communities and indigenous peoples. Under the title *Ecosystems and Human Well-being*, the first set of products presenting the MA's findings include an over-arching synthesis and reports, such as *Biodiversity Synthesis*, *Desertification Synthesis* and *Opportunities and Challenges for Business and Industry*, which interpret the findings for specific audiences. Work continues on more than 20 sub-global assessments.

UNEP's quarterly *Our Planet* magazine features articles by the world's most influential authorities on a range of environmental issues.



ASSESSING THE ENVIRONMENT

Another assessment that promises to have major impact is the International Assessment on Agricultural Science and Technology for Development (IAASTD). This global assessment, along with five sub-global assessments, will look at the role of agricultural knowledge, science and technology in reducing hunger and poverty, improving rural livelihoods and facilitating equitable and environmentally, socially and economically sustainable development. Between January and April 2005, meetings of the global and sub-global design teams were held and annotated outlines for each assessment were developed. The outlines were approved by the IAASTD Advisory Bureau, which met in Montpellier, France, in May 2005. Authors have been chosen and author meetings scheduled for the period November 2005 to January 2006, during which the development of the first draft of each assessment will be initiated.



A post-moult female elephant seal equipped with a satellite relay logger which collects at-sea information, including water temperature, salinity and depth. The units, which provide valuable data on seal habits and survival, weigh 0.7 kilogrammes, and are attached for up to five months, after which they are removed under anaesthesia. An adult female seal weighs between 400 and 600 kilogrammes. © Clive McMahon

The year also saw the conclusion of the Global International Waters Assessment (GIWA). The GIWA project collected data and information in 66 sub-regions on the state of international waters, including freshwater basins, transboundary rivers, coastal marine waters, and large marine ecosystems. Fourteen reports were printed and a further thirteen published on the Internet. Eleven other reports have been reviewed and await publication. The final report from the project *Challenges to International Waters: Regional Assessments in a Global Perspective* is also being reviewed for publication.

GIWA outputs have already been used by some Global Environment Facility projects, including the development of new projects such as the Lake Chad Basin Commission and the Pan African

START (Global Change System for Analysis, Research and Training) secretariat. GIWA also provided significant input to intergovernmental processes such as the Small Island Developing States ministerial conference, in January 2005, and the ROPME/UNEP High-level Meeting on the Restoration of the Mesopotamian Marshlands, in February 2005.

Extensive multi-stakeholder consultations to strengthen UNEP's scientific base are also continuing. Known as the Science Initiative, the process entered its fifth phase in 2005 after the 23rd UNEP Governing Council/Global Ministerial Environment Forum considered a proposal for a coherent system for keeping the environment under review entitled Environment Watch. The Governing Council recommended a second global consultation with all stakeholders, after which

the proposal was updated and disseminated to environment ministers for discussion at the ninth Special Session of the Governing Council, in February 2006. The proposal was also widely distributed among UNEP's partners, including members of the Global Civil Society Forum, other UN organizations, scientific institutions, multilateral environmental agreements and various non-governmental organizations. In addition, UNEP conducted a review to determine which elements of Environment Watch are already in place worldwide and to identify where capacity building needs to be strengthened.

GLOBAL ENVIRONMENT OUTLOOK

UNEP's flagship assessment is the Global Environment Outlook. The GEO process facilitates the interaction between science and policy making. Its outputs include: a global environmental assessment, now being published on a five-year cycle, with *GEO-4* scheduled for 2007; an annual *GEO Year Book* highlighting important emerging issues, as well as the significant environmental events and achievements of the year; and a growing number of regional, national and sectoral assessments. Preparation for *GEO-4* was a key activity in 2005. A Global Intergovernmental and Multi-stakeholder Consultation on the orientation of the *GEO-4*, held in Nairobi in February 2005, agreed on the scope, content, key questions and process of the assessment, which will focus on the role of environment for development in relation to environmental and social changes that have taken place since the publication of the Brundtland Commission Report *Our Common Future* in 1987.

The GEO Collaborating Centre network, which has been the backbone of the assessment since its inception in 1995, continues to play a critical part in the process, providing inputs for both regional and global sections. More than 200 scientists around the world have been invited to research and draft the 10 chapters of *GEO-4*. In June, more than 150 leading experts met in Nairobi to outline the more detailed content and roadmap for the assessment. They agreed to build on the findings and conceptual developments in other assessments, such as the Millennium

Ecosystem Assessment. A new feature of *GEO-4* is the establishment of strong links between GEO and institutions of the multilateral environmental agreements to facilitate enhanced policy analyses across the *GEO-4* chapters.

The year also saw the publication of the second *GEO Year Book*, which contained a special feature focus on the links between gender, poverty and environment, and highlighted both the challenges of emerging and re-emerging infectious diseases due to environmental change and the potential threat of abrupt climate change due to alterations in ocean salinity and circulation. The *GEO Year Book* also carries a set of year-on-year indicators, giving a compact, illustrated overview of global trends in major

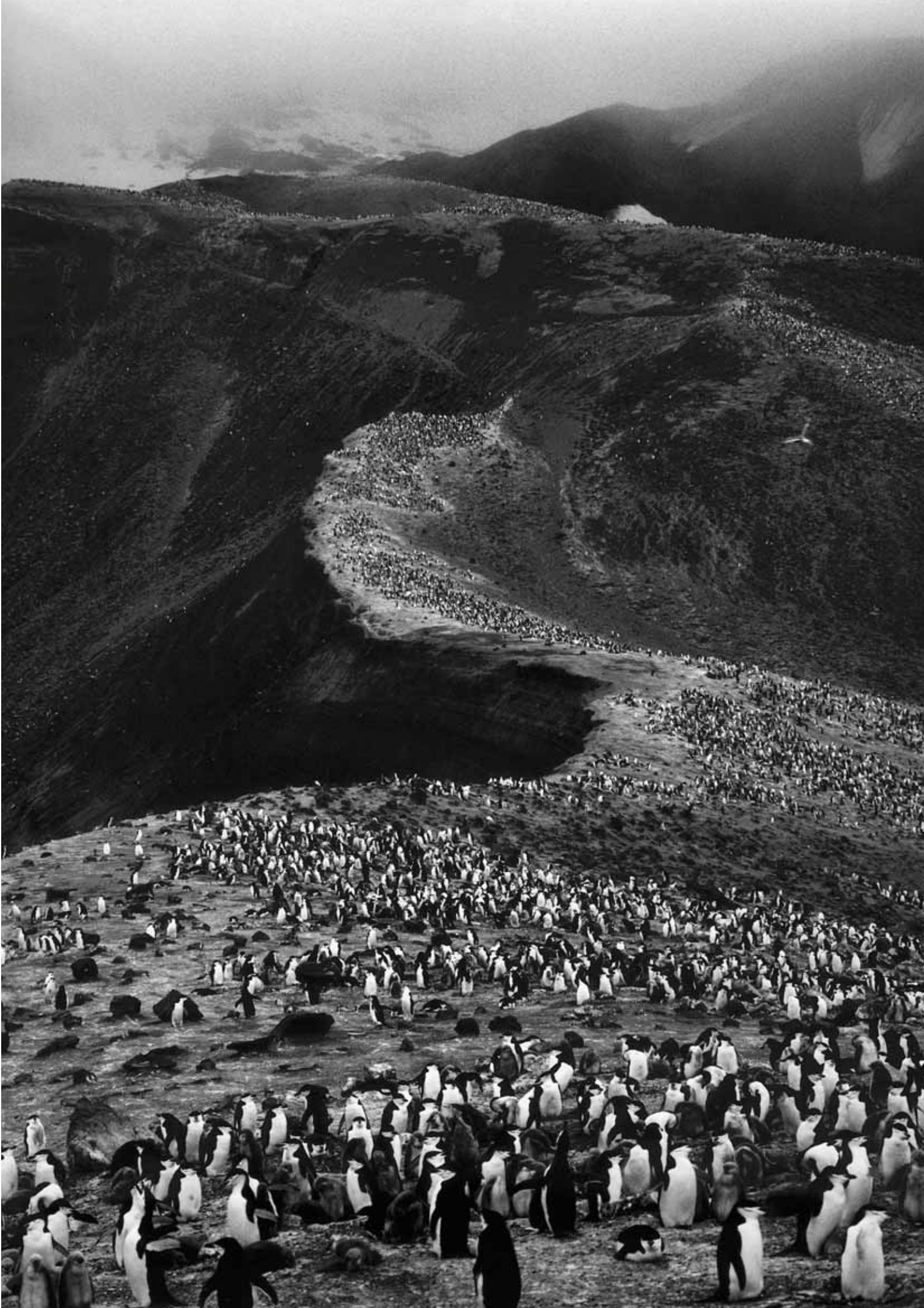
Deception Island, a volcanic island at the tip of the Antarctic Peninsula, is home to one of the world's most concentrated colonies of penguins. Antarctica was the latest destination in UNEP-supported Genesis project by photographer Sebastiao Salgado to catalogue some of the world's remaining wild places.

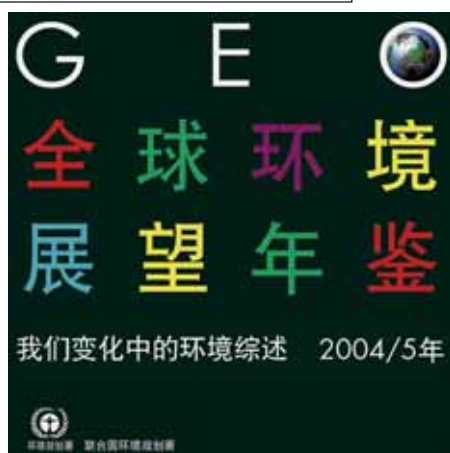
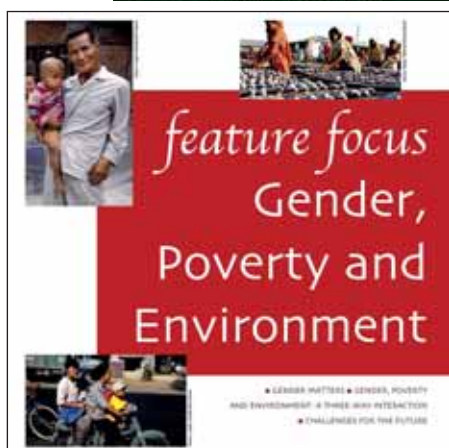
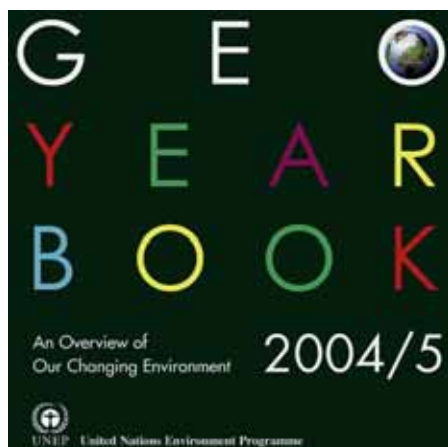
Salgado travelled to Antarctica aboard the two-masted ocean-going yacht Tara, which is monitoring changing conditions in the polar regions with UNEP support. Tara was formerly known as Seamaster when it was captained by UNEP Special Envoy Sir Peter Blake, who was murdered by pirates in the Amazon in 2001. Sir Peter's 'Blakexpeditions' project to chart environmental change was also supported by UNEP. After Sir Peter's death, the ship—and its mission—passed to Frenchman Etienne Bourgois, who re-named the boat Tara.

December 2005 saw the launch of a new book about the Tara Expeditions at the Salon Nautique boat and water sports expo in Paris. The book includes more photographs by Sebastiao Salgado. A series of 19 black-and-white photographs by Salgado also formed part of a UNEP-supported photographic exhibition at the exposition, which was seen by an estimated quarter of a million people.

On 29 November, Tara launched Arctic Drift 2007–2008 to gather data related to changing conditions in the Arctic. The Arctic is warming up faster than the rest of the world, with potentially devastating consequences for humanity. Sea ice cover across the region has decreased by 10 per cent during the past three decades, lowering the salinity of Arctic waters and risking the ability of the Gulf Stream to bring warm water—and mild winters—to northern Europe. Arctic Drift is a major two-year programme linked to the International Polar Year 2006. The activity is supported by the European Research Programme's DAMOCLES (Developing Arctic Modelling and Observing Capabilities for Long-term Environmental Studies) project.

Photograph by Sebastiao Salgado/Amazonas Images





The annual GEO Year Book provides an overview of global and regional environmental trends, developments and indicators.

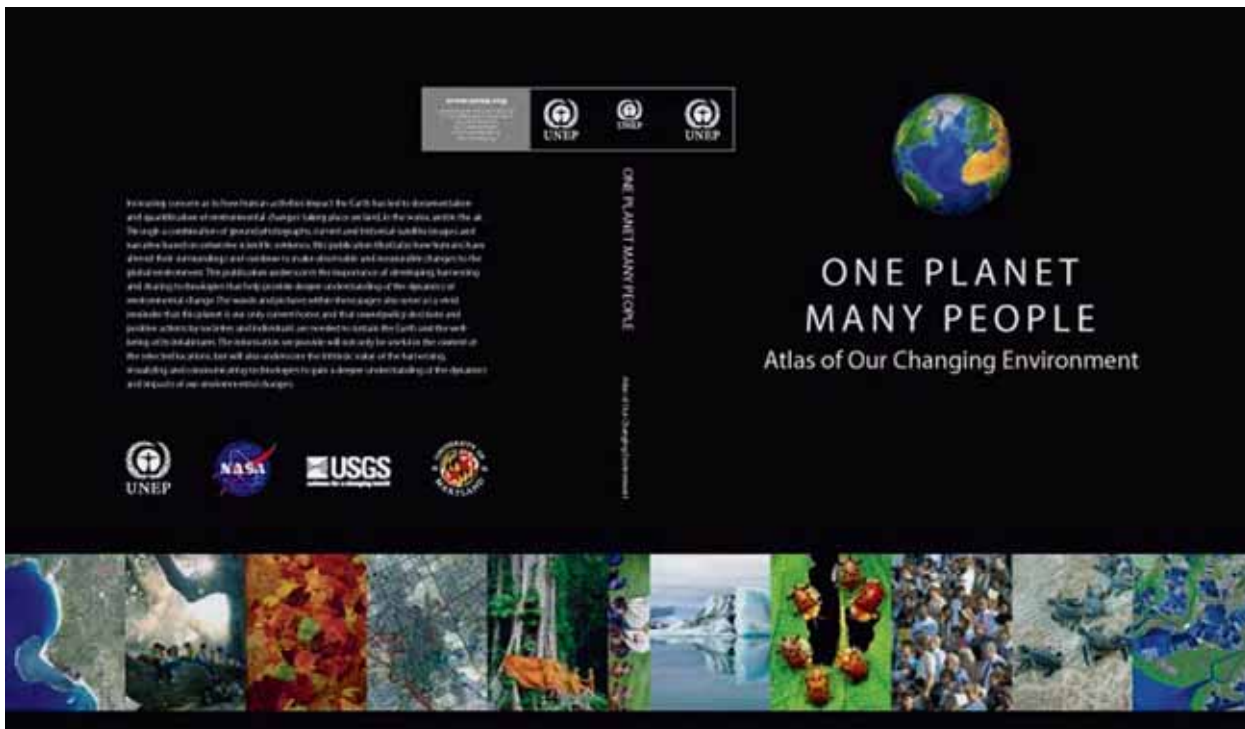
issues related to the environment. In 2005, indicators were added for renewable energy supply, marine protected areas, freshwater quality, urban air pollution and the consumption of hydrochlorofluorocarbons and methyl bromide. The data are extracted from the GEO Data Portal, which holds the reference database for the GEO assessment and reporting process.

Capacity building continues to be an integral part of the GEO process, with UNEP supporting governments and institutions in all regions to produce data and information on the state of the environment that can be incorporated into assessments from national to global level. A fellowship programme has also been launched, giving an opportunity for about 40 young scientists, mainly from developing countries, to participate in the GEO assessment process.

ONE PLANET MANY PEOPLE

As part of its World Environment Day celebrations UNEP launched *One Planet, Many People: Atlas of our Changing Environment*, in cooperation with the United States National Aeronautics and Space Administration (NASA), the United States Geological Survey (USGS) and the University of Maryland. The publication provides visual evidence of environmental change over several decades resulting from natural processes and human-induced activities. Using 271 satellite images, 215 ground photos, and 66 recent environmental maps, plus a comprehensive accompanying text, the *Atlas* demonstrates how the consumption patterns of the growing number of people on the planet are shrinking the natural resource base. *One Planet, Many People* received unprecedented worldwide media coverage and has become UNEP's best selling publication ever. Requests have been received for exhibit materials in museums and TV productions.

Satellite observation is an increasingly useful tool for scientists wanting to identify global environmental changes and threats, especially those of a transboundary nature. UNEP is a partner in the Group on Earth Observations process and its Global Earth Observing System of Systems (GEOSS) initiative, and is working to link GEOSS with UNEP's early warning and other data and information activities and strategies in support of the Bali Strategic Plan for Technology Support and Capacity Building.



The dramatic and, in some cases, damaging environmental changes sweeping planet Earth were brought into sharp focus in *One Planet Many People: Atlas of our Changing Environment*. The atlas compares and contrasts spectacular satellite images of the past few decades with contemporary photographs, some of which have never been seen before. The huge growth of greenhouses in southern Spain, the rapid rise of shrimp farming in Asia and Latin America and the emergence of a giant, shadow puppet-shaped peninsula at the mouth of the Yellow River, China, are among a string of curious and surprising changes seen from space. They sit beside the more conventional, but no less dramatic images of rain forest deforestation in Paraguay and Brazil, rapid oil and gas development in Wyoming, United States, forest fires across sub-Saharan Africa and the retreat of glaciers and ice in polar and mountain areas. The atlas, produced in collaboration with organizations including the United States Geological Survey and the National Aeronautics and Space Administration (NASA), shows the explosive growth and changes around some of the major cities of the world such as Beijing, Dhaka, Delhi and Santiago. Also covered are developed world cities including Las Vegas, the fastest growing metropolitan area in the United States, and Miami. The atlas also includes specially commissioned images of Bucharest, London, Nairobi and San Francisco.

UNEP is also involved in a project entitled GLOBCOVER, which aims to produce the most detailed portrait ever of the Earth's land surface, using the European Space Agency's ENVISAT environmental satellite.

ACCESS TO ENVIRONMENTAL INFORMATION

There is no shortage of information on the environment for policy makers, scientists, journalists and the public. However, in many instances, especially in the developing world, access to information remains difficult. To alleviate the problem, UNEP has launched an initiative so public institutions in developing countries can have online access to major environmental journals for free or at a reduced cost. The Online Access to Research in the Environment (OARE) initiative is a joint project of UNEP, the World Health Organisation, the UN Food and Agriculture Organisation, Yale

University, Cornell University and several leading publishers.

In another initiative, the University of Geneva and the Geneva International Academic Network are collaborating with UNEP on an e-learning capacity building project based on the GEO Data Portal. The project demonstrates the role of information and communication technologies in improving access to environmental data and information. In Asia and the Pacific, UNEP is tackling the question of access to information through a regional e-Knowledge Hub on environment and sustainable development issues that will link resources, support integrated planning that incorporates environmental priorities and increase public participation through enhanced access to information. UNEP is also continuing the development of a global Environmentally Sound Technologies Information System (ESTIS). During 2005 ESTIS was launched in French and Arabic.