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An Overview of Our Changing Environment

2006



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ISBN: 92-807-2668-4 UNEP/GCSS.IX/INF/2

UNEP Job No. DEW/0773/NA

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Produced by Division of Early Warning and Assessment (DEWA) United Nations Environment Programme P.O. Box 30552 Nairobi 00100, Kenya

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GEO Year Book web site: http://www.unep.org/geo/yearbook

Editor: Paul Harrison

Graphics and layout: Bounford.com

Coordination of Production: United Nations Office for Project Services (UNOPS)

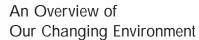
Printing: Progress Press Ltd. Malta

Distribution: SMI (Distribution Services) Ltd. UK

This publication is available from Earthprint.com http://www.earthprint.com

This publication is printed on chlorine and acid free paper from sustainable forests.











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Preface

It was the French novelist, Victor Hugo, who said: "There is nothing so powerful as an idea whose time has come". That idea is the role of nature and natural capital in overcoming poverty and underpinning the wealth of nations.

2005 has witnessed unprecedented interest in the economics of the environment and the goods and services that nature provides. The wealth of nature was emphasized by, among others, the Millennium Ecosystem Assessment (MA), the findings of the Millennium Project – the initiative of the Secretary-General designed to inform the review of the Millennium Development Goals (MDGs) – and the 2005 World Summit.

The message emerging from these different processes, quite clearly, is this: targeted investments in the environment and in the restoration of damaged and degraded ecosystems have enormous long- and short-term economic benefits. As the 2005

Overview of this GEO Year Book

points out with regard to the findings of the MA, although many of the benefits that ecosystems provide do not pass through the formal market system, they are often among the most valuable to societies.

The MA findings also point out that the economic and public health costs associated with damage to ecosystem services can be substantial. This was clearly demonstrated in 2005 – for several regions of the world where the impact of diverse natural disasters were worsened because environmental buffers had been previously removed.

The Feature Focus this year elaborates on the environmental, socio-economic and public health impacts of energy-related air pollution. There are many reasons why air pollution needs to be addressed urgently – not only because of its huge toll on human health in areas where it originates but also because it is too often an uncontrolled and unwelcome export to neighbouring countries. Associated

with the energy consumption that contributes to air pollution are increasing global concerns over climate change, and energy security and access. On the other side of the coin, cleaner energy technologies are now available but are not always being widely adopted. These issues will be discussed at the annual UNEP Global Ministerial Environment Forum (GMEF) in 2006. A key challenge will be to identify ways in which the global community can continue to meet the rising demand for energy without compromising energy needs particularly those of the poor – and still address the negative impacts of energy-related emissions.

In the past, the goods and services delivered by nature have often been seen as free and available at little or no cost. This will have to change as these resources become increasingly scarce and society demands higher standards of environmental care. The chapter on **Emerging Challenges** addresses two topics of policy interest related to food security.

The first topic explores the issue of crop production in a changing climate. Global warming could seriously compromise the ability of the environment to meet food requirements in the future. Action is needed at the national and global level to ensure that we adapt as best we can to the changes that are already taking place, while addressing the root of the problem by reducing harmful greenhouse emissions in the future. The entry into force of the Kyoto Protocol earlier this year is a first historic step, but we still have a long way to go.

The second topic identifies environmental effects and best practices related to fish and shellfish farming in marine ecosystems. Caution, planning and good management is needed to ensure that current practices do not compromise the services provided by marine ecosystems in the future.

The **GEO Indicators** depict major developments and trends. They support the findings reported

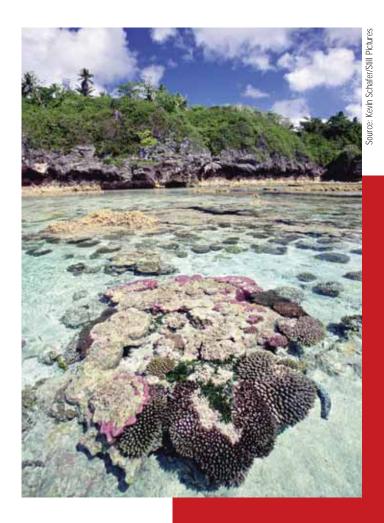
elsewhere in the Year Book that rising greenhouse gas emissions are resulting in ecosystem change, such as accelerating ice thickness losses of mountain glaciers, and that increasingly intense exploitation of fisheries stocks is leading to serious depletion.

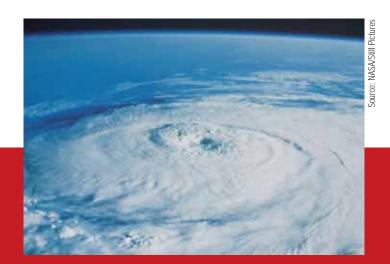
However, the Indicators also show that there is hope. Where action has been taken, there are positive results. The global consumption of chlorofluorocarbons continues to decrease. The proportion of the Earth's surface affording some form of environmental protection to biodiversity continues to increase.

The GEO Year Book is intended to provide a bridge between science and policy. More than 140 experts were involved in preparing the sections of this Year Book. Previous volumes have stimulated calls for action – including by UNEP's Governing Council. I hope that you will find this edition both stimulating and informative. Your feedback is very welcome.



Klaus Toepfer
United Nations Under-Secretary General and
Executive Director,
United Nations Environment Programme





2005 Overview



GLOBAL • AFRICA • ASIA AND THE PACIFIC
 EUROPE • LATIN AMERICA AND THE CARIBBEAN
 • NORTH AMERICA • WEST ASIA • POLAR

Global

The linkages between environmental well-being, vulnerability and poverty en 2005. Extreme weather events and new research and data were so dramatic turning point in the urgency of our awareness and response.

In a year that brought compelling evidence for biodiversity loss, climate change and a host of other environmental threats, the global community showed signs of improved response. Major events such as the G-8 Summit in July and the 2005 World Summit in September reinforced the intent to act on environmental challenges and their links to development goals. In December the first Meeting of the Parties to the Kyoto Protocol produced a better than expected outcome. And at the year's close, at the sixth World Trade Organization Ministerial Conference, rich countries agreed to end export subsidies for cotton by the end of 2006 and for all agricultural products by 2013. By improving the incomes of poor farmers in poor countries, this should reduce the pressure to farm marginal land and clear forests.

CLIMATE CHANGE AND EXTREME EVENTS

The physical evidence for climate change continued to mount in 2005. It was one of the warmest years on record, second only to 1998, according to preliminary estimates from the US National Climatic Data Center (NOAA-NCDC 2005a).

There were also an unusually large number of extreme weather events (Box 1) a development that most scientists agree is consistent with climate change. Heavy rainfall and floods persistently struck China, India, and Eastern Europe, causing considerable loss of life and serious economic damage. In the Americas, a record number of storms and hurricanes formed during the Atlantic season. Heat waves and severe droughts also plaqued many parts of the world. In the Arctic, a stunning reduction in sea ice was observed during the northern summer by US experts (NSIDC-NASA 2005). The Munich Re Foundation, part of one of the world's

Box 1: A year of weather extremes

January

Drought across eastern and southern Africa and the Roc Lanka experience flooding. Costa Rica, Panama and Guy affects 200 000 people. Algeria has its heaviest snowfall

February

Avalanches kill over 200 people in Kashmir after heavy so Tajikistan, Iran and much of Europe, especially in the Ball

March

Ongoing drought causes a state of emergency in souther Flooding affects Algeria, Pakistan, Afghanistan, Madagas and injuries and displacing thousands.

April

Persistent drought affects eastern Africa, including Kenya shortages affect an estimated nine million people in Thail

May

Flooding displaces 25 000 people in Kenya and kills doze

June

A heat wave continues in South Asia, with 400 deaths reflooding in China in 200 years. Hundreds die from thunde mudslides and flooding in Guatemala, El Salvador and He

July

Monsoon rain causes serious flooding in Mumbai, India, the most rain in 24 hours, and leaving 1 500 people dead Europe and North Africa.

August

Hurricane Katrina becomes one of the most devastating Louisiana and Mississippi. Typhoon Matsa displaces ove Droughts strike the Pacific Northwest, United Kingdom, I in Portugal.

September

Hurricane Rita causes severe damage in Texas and Louis

Octobe

Hurricane Stan takes 2 000 lives in Guatemala, while Hurric before striking Florida. With five further storms – Alpha to E Atlantic hurricane season. Northern China suffers from sever 350 000 people. Hurricane Vince is the first hurricane ever

November

Tropical storm Delta hits the Canary Islands, the first eve

December

By 31 December, there were 27 tropical storms (six more 14 hurricanes, breaking the 1969 record of 12 hurricanes Sources: WMO 2005, NOAA-NCDC 2005b, UN News Center 2005, BBC 2005a, B



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