

UNEP 2008 ANNUAL REPORT



UNEP

United Nations Environment Programme

The Mission of the United Nations Environment Programme is to provide leadership and encourage partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations.

The UNEP 2008 Annual Report is also available online at www.unep.org.

Published January 2009

© 2009 UNEP

ISBN: 978-92-807-2007-9,

Job number: DCP/1133/NA

Produced by the UNEP Division of Communications and Public Information

Director of Publication: Satinder Bindra

Writer/Project coordinator: David Simpson

Layout: Jennifer Odallo-UNON/Publishing Section Services/Nairobi

Pre-press: UNON/Publishing Section Services/Nairobi

Cover photo: © Robert Postma

Chapter headline photos:

1. © Ralph Lee Hopkins
2. © Kennika Senanunsakul/UNEP/Still Pictures
3. © UNEP
4. © Zack Seckler/Corbis
5. © David Norton/Getty
6. © Reuters

All \$ referred to in this report are US\$

The term 'one billion' in this report refers to one thousand million

All World Wide Web addresses are prefixed <http://>

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder provided acknowledgement of the source is made. UNEP would appreciate receiving a copy of any publication that uses this publication as a source. No use of this publication may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from UNEP. The designation of geographical entities in this report, and the presentation of the material herein, do not imply the expression of any opinion whatsoever on the part of the publisher or the participating organisations concerning the legal status of any country, territory or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

UNEP promotes environmentally sound practices globally and in its own activities. This publication is printed on 100% recycled paper; the cover is 50% recycled and 50% FSC, the inks are vegetable based. Our distribution policy aims to reduce UNEP's carbon footprint.

UNEP in 2008

Message from the UN Secretary-General	3
Introduction by the UNEP Executive Director	4
1. Climate Change	12
2. Ecosystems Management	28
3. Environmental Governance	42
4. Resource Efficiency	60
5. Harmful Substances and Hazardous Waste	72
6. Disasters and Conflicts	84
UNEP Funding 2008	94
UNEP Around the World	98



your planet needs YOU!

UNite to combat climate change

WORLD ENVIRONMENT DAY, 5 JUNE 2009



UNEP

UNEP Governing Structure

The UNEP Governing Council was established in accordance with UN General Assembly resolution 2997 (XXVII) of 15 December 1975 (Institutional and financial arrangements for international environmental cooperation). The Governing Council reports to the General Assembly through the Economic and Social Council. Its 58 members are elected by the General Assembly for four-year terms, taking into account the principle of equitable regional representation. Full information on the composition, functions and responsibilities of the UNEP Governing Council and the Committee of Permanent Representatives, formally established and strengthened as a subsidiary organ to the Governing Council by decision 19/32 of 4 April 1997, is available at www.unep.org/governingbodies.

Bureau Members of the UNEP Governing Council

President

H.E. Mr. Roberto Dobles
Minister for the Environment and Energy (Costa Rica)

Vice-Presidents

H.E. Ms. Rejoice Mabudafhasi
Deputy Minister for Environmental Affairs and Tourism
(South Africa)

H.E. Mr. Hameed Ullah Jan Afridi
Minister of Environment, Local government and Rural
Development (Pakistan)

H.E. Mr. Jan Dusik
Deputy Minister for Environment (Czech Republic)

Rapporteur

H.E. Ms. Elfriede-Anna More
Director of International Environmental Affairs, Ministry
of Agriculture, Forestry, Environment and Water
Management (Austria)

Bureau Members, Committee of Permanent Representatives

Chair

H.E. Ms. Agnes Kalibbala
Ambassador, Deputy High Commissioner and Deputy
Permanent Representative (Uganda)

Vice-Chairs

H.E. Mr. Selwyn Das
High Commissioner and Permanent Representative
(Malaysia)

H.E. Ms. Ana Maria Sampaio Fernandes
Ambassador and Permanent Representative (Brazil)

H.E. Mr. Georges Martin
Ambassador and Permanent Representative
(Switzerland)

Rapporteur

H.E. Mrs. Anna Grupinska
Ambassador and Permanent Representative (Poland)

Members of the Governing Council of the United Nations Environment Programme for the period 2008–2011

A. Breakdown by alphabetical order (indicating terms of office)

Algeria *	Croatia **	Mali **
Angola *	Cuba **	Mauritius **
Antigua and Barbuda *	Czech Republic *	Mexico **
Argentina *	Democratic Republic of the Congo *	Monaco **
Australia *	Fiji **	Netherlands **
Austria *	Finland **	Niger **
Bahamas **	France *	Pakistan *
Bangladesh **	Germany *	Republic of Korea *
Belarus **	Guinea **	Romania *
Belgium *	Haiti *	Russian Federation *
Benin **	Hungary ***	Saudi Arabia **
Botswana *	India **	Somalia **
Burundi *	Indonesia *	South Africa *
Canada *	Iran (Islamic Republic of) **	Spain **
Chile *	Israel **	Thailand *
China *	Italy **	Tunisia **
Colombia **	Japan *	Tuvalu **
Congo **	Kazakhstan **	Uganda *
Costa Rica **	Kenya *	United States of America *
		Uruguay *

* Members whose terms expire on 31 December 2009.

** Members whose terms expire on 31 December 2011.

*** On 23 July 2008 at the 115th plenary meeting of the General Assembly, Hungary announced its intention to relinquish its seat on the Governing Council as from 31 December 2008, in favour of Serbia, in accordance with the rotation agreement within the Eastern European group. An election was conducted at that same meeting, as a result of which Serbia was declared to have been elected a member of the Governing Council for a term of office beginning on 1 January 2009 and expiring on 31 December 2011.

Message from the United Nations Secretary-General

As we look back on a year of multiple crises, it is striking to note how strongly environmental themes feature. Soaring food prices brought intense focus not just on the issues of agriculture and trade but on the inflationary role of biofuel production. Wildly fluctuating crude oil costs illustrated once again our dependence on the fossil fuels that are causing climate change. Finally, the short-sighted economic vision that has precipitated the current financial turmoil is also bankrupting our resource base.

We are devouring our natural capital at ever increasing rates. Future prosperity and stability means rethinking how we exploit the planet's natural assets. Just as governments are calling for tighter regulation in the finance sector, and at the same time digging deep into their pockets to prevent further instability, so a growing number of political and business leaders are advocating innovation and investment in a new 'green' economy.

The defining issue for many is climate change – not just because it presents a multitude of very real threats, but because it provides tangible opportunities to make progress on a wide range of sustainable development issues. By pursuing a green economy based on efficient and equitable resource use we can not only cut down greenhouse gas emissions and protect essential ecosystems, but reinvigorate national economies, improve human well-being and achieve many of the targets agreed by the international community at the turn of the Millennium.

Nobody claims this will be easy, or that it will happen overnight. But neither is it unrealistic. Wherever one looks in the world, one can



see industrial innovation and political leverage being applied in the cause of environmental sustainability.

The United Nations Environment Programme is playing an increasingly significant leadership role in this movement. This annual report shows how UNEP is building partnerships and momentum to build a global Green New Deal that can combat climate change and address the many interlinked environment and development challenges of the 21st century.

I commend the organisation and its hard-working staff for another year of achievement and I look forward with confidence to its contributions in 2009, a year in which we must make significant progress in putting in place the essential elements for tackling the underlying causes of climate change.

Rapid reform, unmasking myths and challenging the status quo

By Achim Steiner



2008 was a year in which UNEP made serious and significant progress on several broad fronts, set against a backdrop of tumultuous events in the global economy to which the organisation responded creatively and courageously in launching its Global Green New Deal and Green Economy initiative. These two concepts crystallise the best current thinking on how to translate sustainable development into an actionable agenda, putting environment fairly and squarely at the centre of global affairs.

Before looking out, however, one needs to look in. Since 2007, UNEP has embarked on wide-ranging reflection and reforms to equip the institution for the challenges and opportunities that are unfolding. In 2008 this gathered pace and maturity with several important developments and milestones reached.

The adoption of a Medium Term Strategy for 2010–2013 underpinned by six priority areas is among those, and one which was achieved with a new level of transparency and cooperation between UNEP, Member States and other stakeholders. It will make UNEP a stronger and

better focused organisation, able to deliver more effectively on behalf of governments and in support of the ‘One UN’ system as a whole.

The mainstreaming of UNEP’s ability to deliver on the Bali Strategic Plan for technology support and capacity building, not least in the area of poverty alleviation and via the organisation’s enhanced partnership with UNDP, also defined 2008.

UNEP’s work with the Multilateral Environmental Agreements has also been strengthened and streamlined this year, including a recruitment drive in the regional offices – one among many tangible outcomes of a stronger strategic presence in the regions.

These and the wide range of other institutional reform achievements, highlighted in more detail on pages 8 and 9, have not come a moment too soon. The food, fuel and financial crises of 2008, which have turned into a full-scale economic crisis as we enter 2009, have brought into sharp focus the vulnerability of the structures this century has inherited from the 20th, and the sharp gulf that has emerged between what is value and what is speculation.

In many ways they have also exploded some well-entrenched myths – myths that have all too often perpetuated the status quo in terms of policy planning, and which have stifled or arrested creative thinking and innovative responses. For example, in the space of less than 12 months oil prices soared to nearly \$150 a barrel and then collapsed to under \$50. If the global economy can withstand such dramatic price swings, it can surely withstand the more modest costs of combating the far greater threat of economic disaster that unchecked climate change will bring.

Indeed, one wonders why a simple \$10 or \$20 climate change levy on a barrel of oil might not be the way to slice through the current complexity of the UN climate change negotiations and assist in securing a serious deal in Copenhagen in 2009. The OECD consumes around 60 per cent of 18 million barrels of oil sold annually. A levy of \$10 to \$20, up to an oil price of perhaps \$100, could raise \$180 billion to \$360 billion a year – money that could be invested in averting and adapting to global warming while also bringing stability to the clean technology and renewable energy markets.

Perhaps this could be eventually matched with another \$300 billion – the sum invested in energy subsidies, much of which is on fossil fuels and spent by developing economies. An assessment by UNEP's Economics and Trade Branch published in 2008 underlined that, contrary to popular belief, these subsidies rarely reach the poor but benefit the better off, the energy companies and the suppliers of equipment. Not only would a progressive cancelling of such subsidies boost the global economy by 0.1 per cent, but it would also

reduce greenhouse gas emissions by perhaps 6 per cent annually.

During the last climate negotiations in Poznan, Poland, another myth was challenged. The heads of three major renewable companies – First Solar, Suntech and Solar Century – announced that solar power would be grid-competitive not in 20 or 30 years but in as little as between three and five years.

According to the International Energy Agency, wind power is already more competitive than coal in many locations. And a new study by the Massachusetts Institute of Technology is suggesting that, for less than the price of a new generation 'clean-coal' power station, the United States could commercialise geothermal power, setting the stage for 100 gigawatts of base-load electricity from hot rocks under North America.

A UNEP-Global Environment Facility (GEF) project, which has been testing advanced drilling and seismic systems in East Africa, was also completed in 2008. It has demonstrated that geothermal wells in the Rift Valley are capable

In February 2008, the UNEP Governing Council / Global Ministerial Environment Forum convened in the Principality of Monaco. The focus of the gathering, which brought together some 150 governments, was Mobilising Finance for Climate Change. The UNEP Finance Initiative convened a roundtable on Harnessing the Power of Private Finance.



REWARDING EXCELLENCE – THE UNEP BAOBAB AWARDS

Launched in 2008, the UNEP Baobab Awards celebrate the most committed and dynamic members of staff from across the UNEP family. There are five categories:

- Environmental Service Award, open to all staff
- Managerial Service Award, open to staff at levels P3/L3-USG supervising at least two professional staff
- Professional Service Award, open to staff from P1/L1 to P5/L5 and UN Volunteers
- Support Service Award, open to staff from G1 to G7
- Team Award, open to any team of two or more individuals working on a specific project.

The 2008 UNEP Baobab Staff Awards winners were:

ENVIRONMENTAL SERVICE: CHRISTIAN LAMBRECHTS
Christian is from Belgium and has been in UNEP for 15 years. Currently he works in the Division of Early Warning and Assessment (DEWA). Outside UNEP, he is involved in a number of trusts and NGOs, including the Elephant Research Fund of the Kenya Wildlife Service, the Kenya Forests Working Group and Kipini Wildlife and Botanical Conservancy Trust.

MANAGERIAL SERVICE: ELIZABETH MREMA
Elizabeth Mrema is from Tanzania and this is her 14th year with UNEP. She is currently a Senior Legal Officer and Chief of the Biodiversity and Land Law and Governance Unit in Division of Environmental Law and Conventions (DELCC).
FINALISTS: Cristina Boelcke, Director of the Division of Regional Cooperation (DRC); Ahmed Djoghlaif; Executive Secretary of the Convention on Biological Diversity; Fanina Kodre-Alexandre, Head of the Internet Unit in the Division of Communications and Public Information (DCPI); Asif Ali Zaidi; Programme Manager for the Post Conflict and Disaster Management Branch, National

Environmental Protection Agency (NEPA), Afghanistan.

PROFESSIONAL SERVICE: CHIZURU AOKI
Chizuru Aoki, from Japan, first joined UNEP as Junior Professional Officer in 1993. She currently works in the Shiga (Japan) Office of the International Environmental Technology Centre within the Division of Technology, Industry and Economics (DTIE). She coordinates the Iraqi Marshlands project and other water and technology related initiatives.
FINALISTS: Nelson Kimanzi, a UN Volunteer in the Division of Environmental Policy Implementation (DEPI); Naomi Poulton, Editor, DCPI; Ashbindu Singh, Regional Coordinator for DEWA in Washington, DC., USA; Onesmus Thiong'o, Fund Management Officer for DRC and the Regional Office for Africa (ROA).

SUPPORT SERVICE: ROY KANAI
Roy Kanai is Kenyan and works in DCPI. Since 2006 he has been the Personal Assistant to the Director.
FINALISTS: Mary Mbugua, Administrative Assistant, DCPI; Grace Mogaka, DEPI; Jacinta Obonyo, Strategic Implementation Team (SIT); Sylvio Oodoomansail, Administration Service, DTIE.

TEAM AWARD: UNEP KABUL TEAM
Since 2003, the close-knit UNEP Kabul Team has been responsible for the implementation of the UNEP's institutional development and capacity building programme for environmental management in Afghanistan. The Kabul office is part of the DEPI Post Conflict and Disaster Management Branch.
FINALISTS: Billion Tree Campaign Team, DCPI; GEO Team, DEWA; CBD Programme of Work on Protected Areas (PoWPA) Team; West Asia Compliance Assistance Programme Team;



of producing more than double the energy than was previously achieved using older technology. This too has set the stage for an expansion of indigenous, predictable clean energy right up the Rift as far north as Djibouti and Yemen – where there is a potential of at least 4,000 megawatts – under a new UNEP-GEF and World Bank project called ARGEO.

Organic agriculture is an area that triggers sharply polarised views, ranging from those who see it as a panacea to those who dismiss it as the wishful thinking of the well-heeled, well-intentioned but ultimately naïve middle-classes of the developed world. UNEP, in partnership with the UN Conference on Trade and Development, published an assessment this year on how smallholder farmers are faring in Africa after switching from intensive to organic, or near-organic, agriculture. The analysis of 114 projects in 24 African countries found that yields had more than doubled where organic or near-organic practices had been used. That increase in yield jumped to 128 per cent in East Africa.

Other benefits also emerged, from longer growing seasons, reduced risk from drought and improved water supplies, to higher incomes in part because farmers could spend less on fertilisers, pesticides and fuel. The research suggests that, far from being a niche agricultural system for feeding choosy, higher income households, organic agriculture has a role – and perhaps a significant role – to play in food security and poverty eradication in some of the world's poorest communities. And, perhaps not surprisingly, it also has climate benefits, as organic farms are not only less-carbon intensive but their soils sequester significantly more carbon as well.

Challenging widely held 'truths' was at the centre of the Governing Council/Global Ministerial Environment Forum in Monaco, where some of the policies and creative market mechanisms needed to realise a transition to a low-carbon economy were outlined and discussed. Over the rest of the year this forward-looking vision on sustainable development has been distilled into UNEP's Green Economy initiative, which was launched in October under the theme of a Global Green New Deal.

The Global Green New Deal and Green Economy initiative is taking this further and farther

forward. Together they echo to the crises of today and also those looming for tomorrow – from climate change to increasing natural resource scarcity and rapidly degrading ecosystem goods and services. It has several pillars supporting a re-direction and a re-focusing of markets to deliver the wide-ranging transformations so urgently required. These include: improving how we value nature's services; mainstreaming these valuations into national and international accounts; generating employment through green jobs; and laying out policies and market signals that will accelerate a transition to a Green Economy.

The strategy builds on work requested under the German presidency of the G8 on The Economics of Ecosystems and Biodiversity, and links with the Green Jobs Initiative of UNEP, the International Labour Organisation, the International Trades Union Confederation and the International Organisation of Employers. At its heart is the notion that an intelligently spent dollar, euro or rupee can deliver multiple rather than singular benefits that tackle multiple threats and open numerous doors to sustainability.

For example, an investment in energy efficiency in households or in renewable energy infrastructure not only stimulates the economy, but fosters one that is more resource-efficient too – an economy that puts people back to work in numbers far greater than, for example, in the fossil fuel industries, while cutting CO₂ emissions and building the businesses of the 21st century.

The Green Economy Initiative will draw on the existing and considerable body of work generated by UNEP, the UN system and others, ranging from the impacts and opportunities of shifting fish, fuel and other subsidies, up to innovative market mechanisms and financial products that are already triggering a transition.

One thinks of the Clean Development Mechanism of the Kyoto Protocol. According to calculations in 2008 by UNEP's Risoe Centre, more than 4,000 projects are registered or are in the pipeline. Furthermore previously excluded economies in areas such as sub-Saharan Africa are now starting to access the CDM. One thinks too of the simple changes in the law that triggered feed-in tariffs – whereby utility companies are obliged to buy energy generated by a variety of

Introduction by the UNEP Executive Director

producers, including at the individual household level – that have fuelled a renewables explosion in economies such as Germany and Spain. It is important to champion such theory and collate the best practice.

It is equally important to demonstrate the Green Economy on the ground. UNEP, along with the Food and Agriculture Organisation of the UN and the UN Development Programme, this year launched the UN Reduced Emissions from Deforestation and Forest Degradation (REDD) programme. The programme, with funding from Norway, will prepare nine developing economies for the possible inclusion of REDD in a Copenhagen climate deal. In doing so, the international community will not only be beginning to address up to 20 per cent of current greenhouse gas emissions. It could also be a major stimulus for reversing the rate of biodiversity loss and for boosting employment in conservation and forest-related industries in tropical countries.

UNEP is also showcasing the Green Economy and its potential in our host country. The Mau Complex, located on the western side of the Rift Valley, is Kenya's largest closed-canopy forest. UNEP estimates that the goods and services generated annually by the Mau are worth in excess of 20 billion Kenya shillings (or over \$320 million) for the country's tea, tourism and hydropower sectors.

Water provided by the Mau feeds rivers and lakes in Kenya that support major tourist destinations, including the Masai Mara National Reserve and Lake Nakuru National Park, that are crucial to an industry that employs a million people in the formal and informal sectors. The ecosystem also feeds Lake Victoria – shared with Uganda and Tanzania and a principal source of the River Nile – and Lake Natron, also shared with Tanzania, which is a major breeding ground for lesser flamingos.

Over the past decade, around a quarter of this essential ecosystem has been destroyed – often illegally – by felling for timber and farming. A partnership with the Government of Kenya on restoring the Mau is scheduled to commence in the New Year as part of a wider ranging partnership aimed at demonstrating the economic, social and environmental benefits of

ecosystem restoration. Evaluations of similar projects elsewhere – one involving Lake Faguibine in Mali and another in Haiti in the Caribbean – have also taken place this year.

One response to the natural asset component of the Green Economy might be an Intergovernmental Platform on Biodiversity and Ecosystems. In November, close to 100 nations met in Malaysia to debate the pros and cons, and the issue is being taken forward to the forthcoming Governing Council in Nairobi in February 2009. How this will evolve will ultimately rest on Member States. But it was encouraging to see countries re-engaging on the biological diversity agenda and its economic dimension, both at this meeting and earlier in the year at the Convention on Biological Diversity.

The decision to negotiate on the longstanding question of an international regime on Access and Benefit Sharing of genetic resources, coupled with a deadline of 2010 to reduce the rate of biodiversity loss, opens up the possibility of an additional string to the Green Economy bow. Paying developing countries for genetic resources could be a major boost, not only for conservation and development but for reaching the Millennium Development Goals by 2015.

UNEP has set itself the goal of delivering for governments – North and South – a comprehensive assessment and tool kit for making the necessary transition to a Green Economy within two years time. I am delighted to have secured the services of Pavan Sukhdev, formerly head of global markets, India, for Deutsche Bank, to spearhead the initiative in cooperation with, among others, UNEP's Economics and Trade Branch.

UNEP has also been heartened by the extremely positive response being shown by governments across the globe. Many, from China and the Republic of Korea, to Mexico, the United States and the United Kingdom, have been drafting elements of their economic stimulus packages in line with a Global Green New Deal.

Last but not least, I would like to applaud the vision of Ban Ki-moon, the UN Secretary-General, and his team for their support, both privately and publicly, on the Green Economy and on so many other challenges, including global

warming. The system-wide slogan in Poznan was ‘Unite to Combat Climate Change’, a measure of how the Secretary-General’s commitment to Delivering as One extends forcefully to environmental issues.

The economic models of the 20th century have in many ways reached their limits in terms of their employment potential and ecological footprint. Sometime in 2009, or perhaps 2010, investors are likely to dispatch trillions of dollars back into the markets – this needs to flow into the new Green

Economy, not the old brown one of the last two centuries. That, we believe, is the lesson of 2008.

The Green Economy is not some whimsical Nirvana, but a fresh way of getting public and private finance back to work and to focus on what really matters. In the end it is about delivering a more intelligent, resource-efficient, environmentally responsible and socially equitable development path that embraces the aspirations of all economies and all peoples within and across generations.

UNEP IN THE GLOBAL ENVIRONMENT FACILITY (GEF)

UNEP is one of the implementing agencies of the GEF, along with the World Bank and the UN Development Programme (UNDP). The GEF helps developing countries and those with economies in transition to meet the agreed incremental costs of measures in six focal areas: biological diversity, climate change, international waters, ozone layer depletion, land degradation and persistent organic pollutants. The GEF priorities and UNEP’s six thematic areas as defined in the Medium Term Strategy (MTS) are closely aligned, giving UNEP an opportunity to develop GEF projects and programmes that fit UNEP’s wider objectives.

UNEP is the only GEF agency whose core business is the environment. It plays a key role in supporting the GEF, operationalising the GEF Trust Fund and enhancing its scientific rigour, including by providing the secretariat of the GEF Science and Technical Advisory Panel (STAP). Since the GEF was established in 1991, through to the first quarter of 2008, it has approved 433 projects to be implemented by UNEP with a total value of \$708 million, which in turn have generated \$1.7 billion in co-financing. In GEF-IV, as part of an ongoing reform process, certain changes were put into place by the GEF that have had an adverse impact on the size and pace of the portfolio of projects that UNEP has been developing for GEF-IV. Nevertheless, the total of project approvals for 2008 was substantial – approximately \$83.79 million from GEF resources.

Against this backdrop, UNEP’s Division of the Global Environment Facility (DGEF) undertook a comprehensive review of its work in 2008, and developed the first DGEF Business Plan which will cover the remainder of GEF-IV from 2008 to 2010. The Business Plan outlines four Strategic Principles by which the work of GEF within UNEP will be governed:

- Enhance UNEP’s leverage and influence on GEF policy setting.

- Enhance UNEP’s track record of project delivery and impact, while achieving greater cost-effectiveness and job satisfaction.
- Integrate DGEF and other Divisions, while also creating a firewall between UNEP’s role as a GEF implementing agency and as an executing agency.
- Diversify to manage risks better and enhance financial viability.

As the GEF looks towards a strong replenishment of the Trust Fund for GEF-V in 2010, UNEP is actively strengthening its strategic engagement with GEF through various actions including:

- technical input into the development of strategic papers and programmes, such as the new Programme on Technology Transfer and the Sustainable Buildings initiative
- launching key projects that will result in information necessary for strategic planning for the GEF, such as the Economic Analysis of Adaption Options, with McKinsey and Company and Developing an Analytical Basis for Improved Policies Responding to Human Migration as a Result of Climate Change Impacts
- launching key initiatives that will help to provide high-quality, consistent and participatory input into developing GEF-V strategies, such as the Global Commission on Land Use and Ecosystems, and Intergovernmental Panel on Biodiversity and Ecosystem Services
- strengthening the role of STAP in providing not only strategic advice, but also a mechanism to provide long-term perspectives on environmental challenges that GEF should engage in the future
- proposing new targeted research projects that would help define the direction for new GEF windows, such as Carbon Sequestration. This will be carried out through a new proposal for Science and Assessment for Land Restoration. Discussions on this proposal will be initiated in 2009.

IMPLEMENTING A STRATEGIC REFORM AGENDA

In 2007, UNEP embarked on a reform process to make better use of existing structures, and create a more effective, efficient and results-focused organisation, sometimes referred to as 'UNEP+'. Key milestones from 2008 include:

DEVELOPING A MEDIUM TERM STRATEGY (MTS) FOR 2010-2013

The MTS vision for UNEP is for the organisation to be the leading global environmental authority that sets the global environmental agenda, that promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and that serves as an authoritative advocate for the global environment. The open, transparent and consultative process undertaken with the UNEP Committee of Permanent Representatives, UNEP-administered multilateral environmental agreement secretariats, civil society and the private sector concluded in 2008 with Member States adopting a decision on the MTS at the tenth Special Session of the UNEP Governing Council/Global Ministerial Environment Forum (GC/GMEF), in Monaco in February 2008. This milestone was achieved a full twelve months ahead of schedule, which enabled UNEP to expeditiously move forward with its ambitious reform agenda.

ENHANCING THE ROLE OF THE GC/GMEF AS THE UNITED NATIONS HIGH-LEVEL ENVIRONMENT POLICY FORUM

Through its GC/GMEF, UNEP brings the world's environment ministers together annually to "review important and emerging policy issues in the field of the environment", in the process involving heads of UN agencies, MEAs, civil society and the private sector. The process of strengthening the role of the GC/GMEF, which started in 2007 where the heads of five UN agencies participated in the Forum, continued in 2008 with the focus of the Ministerial Forum being 'Globalisation and the Environment: Mobilising Finance to meet the Climate Challenge' and 'International Environmental Governance'.

FURTHER EMBRACING UNEP'S ROLE AS THE ENVIRONMENT PROGRAMME OF THE UNITED NATIONS

This included work on climate change where UNEP continued to be instrumental in the UN's move towards climate neutrality, and in supporting the Secretary-General's climate change initiatives. In addressing the global food crisis, UNEP brought an environmental sustainability perspective to the Secretary-General's Task Force on the Global Food Crisis. Other initiatives included further enhancing UNEP partnerships, including: with UNDP through the Poverty and Environment Facility and UN REDD; ILO through its work on Green Jobs; FAO through UN REDD; the World Trade Organisation (WTO) on climate change and trade; and the World Bank through consultations on the creation of the Climate Investment Funds.

ENHANCING UNEP'S CAPACITY TO DELIVER ON THE BALI STRATEGIC PLAN FOR TECHNOLOGY SUPPORT AND CAPACITY-BUILDING

The delivery of the Bali Strategic Plan at national and regional level was mainstreamed through the Programme of Work 2008-2009, including through directly participating in the One UN 'Delivering as One' pilot programmes by engaging in all eight pilot countries, and through UNEP's enhanced partnership with UNDP, including the UNDP-Spain MDG Achievement Fund and the Poverty and Environment Facility. The MTS placed strong and renewed emphasis on significantly enhancing UNEP's capacity to deliver on the Bali Strategic Plan, providing clear strategic direction for the development of the Programme of Work 2010-2011.

ENHANCING UNEP'S SCIENCE BASE

Such initiatives included implementing the reform of the GEF Scientific and Technical Advisory Panel to enhance its impact and finalising the recruitment of a UNEP Chief Scientist within the Division of Early Warning and Assessment. The MTS placed strong and renewed emphasis on UNEP operating to become a more effective, efficient and results-focused entity, including through ensuring its interventions are founded on sound science.

MAKING FULL USE OF THE UN ENVIRONMENT MANAGEMENT GROUP (EMG) AS A MEANS OF ENHANCING COOPERATION ON ENVIRONMENTAL ISSUES WITHIN THE UN SYSTEM

Under the Chairmanship of the UNEP Executive Director, the EMG continued to lead a number of high priority UN-wide initiatives; including its significant work on progressing the UN's efforts to become climate neutral and having the UN adopt sustainable procurement policies.

PROMOTING GREATER COHERENCE BETWEEN THE WORK OF UNEP AND UNEP MEA SECRETARIATS

The Executive Director regularly convened the Executive Heads of MEAs through the UNEP MEA Management Team to enhance effective administration, communication and better cohesion in addressing substantive issues of common interest, recognising the authority and autonomy of relevant governing bodies of the parties, and convened an annual meeting of the UNEP Senior Management Team, MEA Management Team and UNEP Regional Directors. MEA Secretariats were also consulted in the development of the MTS and the Programme of Work and Budgets 2010-2011.

STRENGTHENING THE FINANCIAL SITUATION OF UNEP BY GAINING CONFIDENCE

Greater confidence in the organisation gained through the finalisation of the MTS, the consultative process in the development of a new Programme of Work and Budgets 2010-2011 (including 15 meetings with the Committee of Permanent Representatives), and the clear emphasis on fully implementing results-based management in UNEP, resulted in significant additional resources being available to UNEP through the Environment Fund in 2008, necessitating a supplementary budget to authorise the Executive Director to allocate an additional \$24 million. The financial situation was also strengthened through further reinvigorating the Division of GEF coordination and UNEP's relationship with the GEF, and establishing a Resource Mobilisation Section to drive a more coordinated approach to mobilising financial resources from an expanded donor base, including the private sector.

BECOMING A MORE RESULTS BASED ORGANISATION

Results-based management was mainstreamed through the organisation by developing a prioritised results-based MTS and Programme of Work and Budgets for 2010-2011. Extensive training was also provided to staff as part of making the transition towards being a fully results-based organisation.

MOVING TOWARDS A STRATEGIC PRESENCE MODEL

In line with the direction provided by the MTS, strategic directions were put into place for the significant strengthening of UNEP's presence in the regions, based on UNEP engaging its staff and resources more effectively. As a part of strengthening UNEP's presence in the regions, clear strategic direction on the respective roles of Regional Offices and Headquarters was developed.

ACTIVELY ENGAGING IN THE INTERNATIONAL ENVIRONMENTAL GOVERNANCE (IEG) DISCUSSIONS

UNEP engaged in the IEG debate through the GC/GMEF and through participating in various events and informal processes instigated by Member States and civil society consistent with the 'Cartagena package'. The UNEP IEG 'Cartagena package' 2002 includes five key recommendations:

- improved coherence in international environmental policy-making
- strengthening the role and financial situation of UNEP
- improving coordination among and effectiveness of MEAs
- capacity building, technology transfer, and country-level coordination for the environmental pillar of sustainable development
- enhanced coordination across the UN system.

IMPLEMENTING INTERNAL REFORMS

The UNEP Strategic Implementation Team (SIT) was established by the Executive Director in March 2007 to provide additional capacity to help drive an ambitious reform agenda within UNEP. The SIT was established for "up to three years" with the aim of achieving two fundamental organisation-wide goals: to operate as 'One UNEP' by delivering on results-based management reforms; and to deliver on the 'One UN' and the Bali Strategic Plan for Technology Support and Capacity-building (Bali Strategic Plan). Five objectives were set for the SIT to achieve its goals.

AN INTEGRATED RESULTS-BASED PROGRAMMATIC FRAMEWORK THAT INCORPORATES ORGANISATION-WIDE PRIORITIES AND COMPARATIVE ADVANTAGES, AND THAT IS INCREASINGLY RESPONSIVE TO REGIONAL AND COUNTRY LEVEL NEEDS

The MTS has been at the centre of UNEP internal reform. The MTS spearheaded the development of a new approach to a results-based programme of work based upon six organisation-wide cross cutting thematic priorities (reflected in the structure of this annual report); placed strong and renewed emphasis on significantly enhancing UNEP's capacity to deliver on the Bali Strategic Plan; emphasised the need to fully implement the 'Cartagena package'; and set the stage for a review of UNEP's strategic presence as part of its drive to be more responsive to regional and country needs. UNEP delivered a draft results-oriented Programme of Work and Budgets for 2010–2011 in line with UNEP's reform agenda, with programmatic interventions developed to be fully supportive of the MTS, including the alignment of all sources of funds.

A WORKFORCE WHERE HUMAN TALENT IS CREATED, FOSTERED AND ALIGNED TO MEET PROGRAMMATIC REQUIREMENTS

The MTS also served to guide UNEP in reinforcing its commitment towards ensuring that gender equality and equity are embedded within UNEP's programmatic framework, management and operations. UNEP's capacity on results-based management was strengthened by providing training opportunities for more than 200 UNEP staff in duty stations around the world on results-based management in the context of environmental sustainability, as well as for more than 250 staff on programme and project development and implementation. Equally importantly, new innovative organisational and staff development programmes in support of programmatic priorities as outlined in the MTS were developed, including a voluntary rotation programme, a training and learning programme, a staff reward and recognition programme (UNEP Baobab Staff Awards) and a career coaching programme. UNEP conducted a wide-spanning Staff

Opinion Survey combined with a 360-degree assessment for managers, as well as a comprehensive training and learning survey. Significant support was provided to the Executive Director and Deputy Executive Director towards filling more than 25 senior management positions, including related targeted outreach activities. An intensified search for qualified female candidates continued to result in an increase of women employed in senior and professional positions within UNEP.

TRANSPARENT BUSINESS PROCESSES THAT SUPPORT RESULTS-BASED MANAGEMENT AND RESOURCE ALLOCATION

New line management structures within UNEP were created through new sections on quality assurance, corporate services and resource mobilisation, as well as through the introduction and mainstreaming of results-based management into the operations, programming and planning of UNEP. Moreover, an organisation-wide delegation of authority and accountability framework put into place in 2007 was reviewed, and internal business processes were streamlined, thereby making the organisation more effective and efficient.

A COHESIVE E-IDENTITY FOR UNEP ENABLING INFORMATION EXCHANGE AND KNOWLEDGE MANAGEMENT FOR ALL STAFF AND STAKEHOLDERS WORLD-WIDE

The MTS laid the foundation for initiatives aimed at upgrading UNEP's information and communication technology capacity. The first UNEP-wide Intranet, established in 2007, was enhanced, and together with UNON, UNEP established a 'mirror-site' with the UN in Geneva to strengthen UNEP's IT capacity and efficiency, which laid the foundation for creating an organisation-wide e-identity, and provided the necessary platform for developing enhanced knowledge management tools.

AN ORGANISATION THAT HAS EMBEDDED GENDER EQUALITY AND EQUITY WITHIN ITS PROGRAMMATIC FRAMEWORK, MANAGEMENT AND OPERATIONS

On gender equity and equality, UNEP took further steps to ensure it is an organisation that contributes substantively to greater gender equality through its programmes and operations. Specific gender focal teams embedded within Divisions now comprise a total of 80 staff members, and Divisional gender action plans have been developed. Profound training on mainstreaming gender into UNEP's programmes of work was provided to all Divisions and Regional Offices reaching a total of 450 staff. Significant efforts also resulted in a strengthened partnership on gender with both intergovernmental and non-governmental organisations, including the Network of Women Ministers and Leaders of Environment, which will be meeting in the margins of the 25th session of the UNEP GC/GMEF in February 2009. UNEP was also instrumental in the formation of the Global Gender and Climate Change Alliance, with key partners such as UNDP, IUCN and WEDO.

The SIT, which reported directly to the Executive Director, was composed of the SIT Team Leader, who is also the Principal Advisor to the Executive Director on Policy and Programme, and senior advisors on programming, results-based management and resource planning, human resources, information and communication technology, and gender. Due to the successful implementation of its core mandate and work plans – and based upon its own recommendation – the SIT was wound up on 31 December 2008, well within its three year time limit. The reform agenda will not, however, cease. The continuation of the reforms is now mainstreamed into the organisation, in line with the SIT mandate, including through the recently established Quality Assurance Section, Corporate Services Section and Resource Mobilisation Section.





Climate Change

THE ROAD TO COPENHAGEN

Climate change, as the UN Secretary-General has said, is “the defining challenge of our generation.” The potentially catastrophic consequences for economies and social stability are commanding the attention of a growing number of political, business and civil society leaders in developed and developing countries alike. The campaign theme for the run-up to the crucial negotiations in Copenhagen in December 2009, ‘Unite to combat climate change’, says that we are all part of the solution. The goal for the Copenhagen meeting is an inclusive, comprehensive and ratifiable deal that will address the challenges and harness the opportunities that climate change presents. Given its longstanding experience and its mandate, UNEP is well positioned to step up its support to governments, the private sector and civil society to make that deal a reality, and to help them reduce greenhouse gas emissions and prepare for the consequences of a changed climate.

The Conference of the Parties of the UN Framework Convention on Climate Change (UNFCCC) and the meeting of the Parties to the Kyoto Protocol, in Bali, Indonesia, in December 2007, resulted in a series of decisions that will shape the future global climate change regime and which are of particular relevance to developing countries. Those decisions, commonly referred to as the Bali Roadmap, established a process and set out guidance and direction for a negotiation track to address climate change issues after the first commitment period of the Kyoto Protocol expires in 2012.

Negotiations under the Bali Roadmap for the post-2012 period are already tough and complex. It is essential that developing country Parties play an active role and have their national and regional positions clearly articulated, defined and defended throughout UNFCCC discussions. To ensure that negotiators from developing countries are fully abreast of the latest developments in advancing the Bali Roadmap and are properly prepared to participate in discussions on progress achieved in Bali and at the subsequent climate change conference, which took place in Poznan, Poland, in December 2008, UNEP and the UNFCCC Secretariat organised a series of regional preparatory workshops throughout 2008 for negotiators from Least Developed Countries (Maseru, Lesotho, October 2008), Asia (Bangkok,



UNEP's history of working on climate change dates back more than 20 years. UNEP helped establish the Intergovernmental Panel on Climate Change (IPCC) with the World Meteorological Organisation (WMO) in the 1980s and conducted assessments of the scientific understanding of climate change in preparation for the 1992 UN Conference on Environment and Development. UNEP also supported the negotiation of the UN Framework Convention on Climate Change (UNFCCC), which entered into force in 1994. Beyond its support for science and legal mechanisms, UNEP's work has concentrated on efforts to reduce emissions of greenhouse gases, mainly by promoting renewable energy and improved energy efficiency and spurring development of a carbon market. UNEP has also been active in efforts to reduce the risks of, and improve society's resilience to, climate change, notably through its support to the development of National Adaptation Programmes of Action.

Thailand, October 2008), the Alliance of Small Island States (Singapore, November 2008), Africa (Algiers, Algeria, November 2008), and Latin America (Poznan, Poland, November 2008).

The goal was to assist the Parties in articulating and/or refining national and, wherever possible, regional policy positions with regard to specific building blocks of the Bali Roadmap and other items on the climate change agenda. Based on the success of the 2008 series of workshops, which were attended by participants from 120 countries, the Parties requested UNEP to carry on the initiative in 2009 to keep continuity in the negotiation process up to the Copenhagen Climate Conference.

POLICY SUPPORT

Supporting intergovernmental policy processes around the world is an integral part of UNEP's work on climate change. In June 2008, the 12th Session of the African Ministerial Conference on the Environment (AMCEN) was held in Johannesburg, South Africa. UNEP, in its capacity as the AMCEN Secretariat, organised the meeting and facilitated the expert and ministerial deliberations. One of the main topics discussed was climate change. UNEP collaborated with the Stockholm Environment Institute to produce a Scoping Paper on Climate Change Adaptation in Africa as background for the discussions of the AMCEN Expert Group Meeting, and developed a discussion paper to guide the Ministerial Dialogue on Climate Change Adaptation. UNEP also facilitated the discussions of the Expert Group and the Ministerial Dialogue.

In the resulting decision on climate change, AMCEN Ministers identified disaster reduction and risk management, sectoral planning and implementation, and diversification of economies for building economic and social resilience as key areas for work on climate change adaptation in Africa. Steps for implementing work in these three areas were identified. UNEP will continue to be active in the follow-up to this decision, in particular in organising preparatory meetings for Africa's climate change negotiators and supporting the development of a comprehensive framework of African climate change programmes.

In West Asia, UNEP is providing technical and policy guidance to the development of the Arab Framework of Action on Climate Change as requested by the League of Arab States and is also leading the Thematic Working Group on Climate Change in the Arab Region as part of the UN's regional coordination work. The object is to develop programmes and projects that address identified priorities, including capacity building, climate proofing, and investment for resilience and mitigation.

TOWARDS A GREEN ECONOMY

In 2008, the world witnessed what has been widely characterised as the worst financial and economic crisis since the Great Depression of the 1930s. It followed other crises, including a fuel crisis, reflected in massive fluctuations of crude

oil prices, and a food crisis, reflected in dramatic increases in grain prices. These crises are all taking place in the context of a climate crisis that is exacerbating these challenges.

In response, UNEP has launched a major new initiative – with financial support from the Government of Norway – to promote the 'greening' of the global economy through increased investments in such areas as clean and efficient technologies, renewable energy sources, sound chemical and waste management, energy efficient buildings, sustainable transport, biodiversity-based products, and environmental infrastructure. The overall objective of UNEP's Green Economy initiative is to enable global leaders and economic, finance, trade, environmental and other policy makers to recognise the contribution of environmental investment to economic growth, job creation and poverty reduction, and to reflect this recognition in their policy responses to the prevailing economic crisis and beyond.

As an immediate first step, UNEP is calling for a Global Green New Deal to steer economic stimulus investments in an environmentally and financially sustainable direction. In view of the

The Green Jobs Initiative was established with the International Labour Organisation (ILO), the International Trade Union Confederation (ITUC) and the International Employers Organisation (IEO) to promote coherent policies and effective programmes that will lead to a green economy with decent jobs and livelihoods for the maximum number of people. The report *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World* provides analyses of employment in different sectors – renewable energy, energy efficiency in buildings, sustainable transportation, and organic agriculture – and provides recommendations for policy makers, business and industry, workers and trade unions regarding the challenges of transition towards a low-carbon economy. The report emphasises that while climate change is having negative effects on jobs in some sectors, such as extractive industries, electricity generation, fuel supply, transportation, chemicals, primary metals processing (such as steel and aluminium) and pulp and paper production, since these sectors account for a greater share of energy use and toxic waste generation than they contribute to employment, moving towards a greener, less carbon-intensive economy could generate more and better jobs. It also highlights that millions of green jobs already exist in industrialised countries, emerging economies and developing countries. The Initiative is expected to continue for another two years as part of the wider UNEP Green Economy Initiative.



Climate change

challenges posed by climate change and food and energy security, the initiative hopes to focus these public investments towards areas that have the potential to create large numbers of jobs, sustain existing environmental assets and reduce the risk of environmental catastrophes.

In the longer-term, the Green Economy initiative will make recommendations for a just transition from a 'brown' to a 'green' economy for enterprises and workers. The project will provide guidance to policy makers and other stakeholders on how to achieve these objectives, and will highlight governments' key role in making this transition. In addition, the project will make a strong economic case for proactive investment and labour market policies in such areas as water, forest, soil and marine resource management, which are key components of ecosystem management, in an effort to pre-empt the environmental causes of conflicts, disasters and poverty.

A final component of the Green Economy initiative is The Economics of Ecosystems and Biodiversity (TEEB) project, sponsored by the European Commission, the German Ministry of the Environment, and the UK Department for Environment, Food and Rural Affairs. The TEEB project was launched in response to a call during a meeting of the G8+5 Environment Ministers in 2007 for a global study on the economic value of biodiversity and ecosystem services. Preliminary findings from the project were presented at the High-Level Segment of the Ninth Conference of the Parties to the Convention on Biological Diversity (CBD) in May 2008. The interim report highlighted the economic magnitude of business-as-usual losses and drew strong links between ecosystem and biodiversity losses and the persistence of poverty. The next phase of TEEB implementation, which is being led by UNEP, will expand on these initial findings to guide national policy makers, local administrators, the private sector and consumers on how to incorporate the economic value of ecosystems into their decisions.

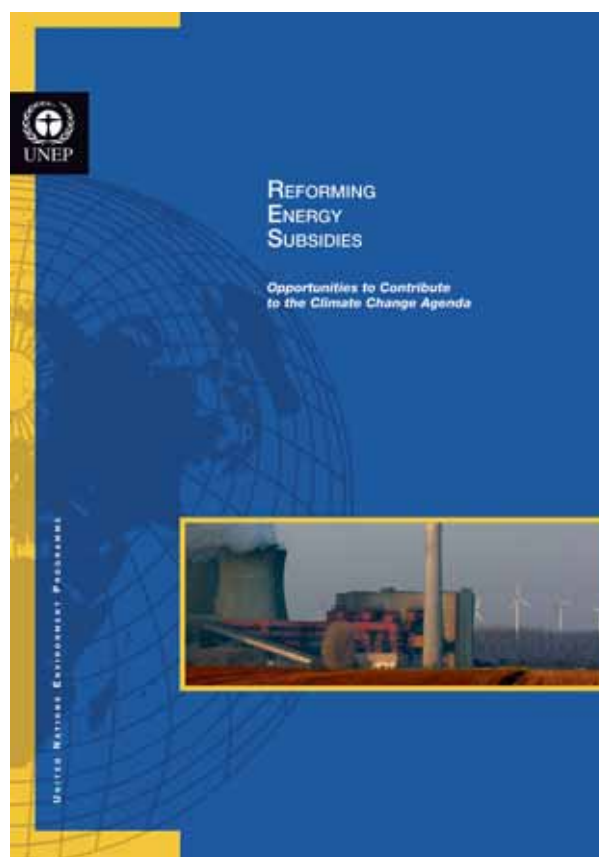
The Green Economy initiative was officially launched at a meeting of over 130 financial and economic experts in December 2008 in Geneva, Switzerland. The meeting provided an opportunity for the experts to advise UNEP on the initiative's strategy, focus and implementation. The outcomes from this meeting and a smaller meeting of

economists to be convened in New York in early 2009 will feed into discussions on the transition to a green economy that will take place at the UNEP Governing Council in February 2009.

TRADE AND CLIMATE CHANGE

As national governments explore various policy responses to address climate change, there is increasing interest in the role of international trade and trade liberalisation policies. In particular, some countries are concerned that climate policies might lead to increased trade barriers, while other countries are interested in exploring how trade policies might be used to address climate change. In 2008, UNEP organised three international workshops involving over 200 experts to further global dialogue on these issues. The first two, in

Reforming Energy Subsidies: Opportunities to Contribute to the Climate Change Agenda shows that many seemingly well-intentioned subsidies neither make economic sense nor address poverty, with the main beneficiaries often being well-off households, equipment manufacturers and fuel producers. It calls on governments to review their energy subsidies and begin phasing out perverse ones. Acknowledging that there are some cases where subsidies can, if well-devised and time-limited, meet important social and environmental goals, the report offers recommendations for policy makers on how to design and implement subsidy reform in an environmentally, socially and economically sound manner.



February in Geneva, Switzerland, helped identify emerging issues, policy implications and gaps in current analysis and activities related to trade and climate change. The third, convened in Geneva in September with the EU-funded ADAM project – Adaptation and Mitigation Strategies: Supporting European Climate Policy – focused on trade and economic strategies in a post-2012 world and the future interplay between the UN climate regime and the World Trade Organisation (WTO).

Three research projects also looked at trade and climate change in 2008. The first, a joint publication with the WTO scheduled for release in 2009, will provide an overview of the latest research on trade and climate change. UNEP is also providing support for an International Centre for Trade and Sustainable Development project analysing trade barriers in climate-friendly technologies in the energy supply and building and residential sectors. The third research project was focused on energy subsidies. The main contributor to climate change is greenhouse gas emissions, of which carbon dioxide (CO₂) is the most significant. CO₂ emissions result mainly from burning fossil fuels, the excessive use of which is fostered by government subsidies amounting to around \$170 billion a year. In addition to contributing to climate change, fossil fuel subsidies hinder the transition to a green economy by making investments in renewable energy sources less appealing and encumbering innovations in the field of energy efficiency. It is estimated that eliminating these subsidies could lead to an increase in worldwide GDP by 0.1 per cent, alleviate local air pollution and reduce CO₂ emissions by 6 per cent a year.

REDD

September 2008 saw the official launch by UN Secretary-General Ban Ki-moon and the Prime Minister of Norway of the UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD Programme) in response to the UNFCCC Bali Action Plan, which calls on Parties to negotiate a post-2012 legal instrument on climate change, including possible financial incentives for forest-based climate change mitigation actions in developing countries.

The UN-REDD Programme is a collaboration between the UN Food and Agriculture

Organisation (FAO), the UN Development Programme (UNDP) and UNEP. The Programme's main aim is to contribute to the development of capacity for implementing REDD in a number of pilot countries and to support the international dialogue for the inclusion of a REDD mechanism in a post-2012 regime. A number of Quick Start Actions have been identified, which will be implemented over the next 18 months with funding from the Government of Norway. They will aim to:

- build capacity in developing countries to implement REDD actions that will maximise emission reductions as well as other benefits at the national and local level
- test a range of activities relevant to the REDD negotiations under the auspices of the UNFCCC, including training negotiators about REDD
- test preliminary concepts and scenarios for a potential REDD mechanism.

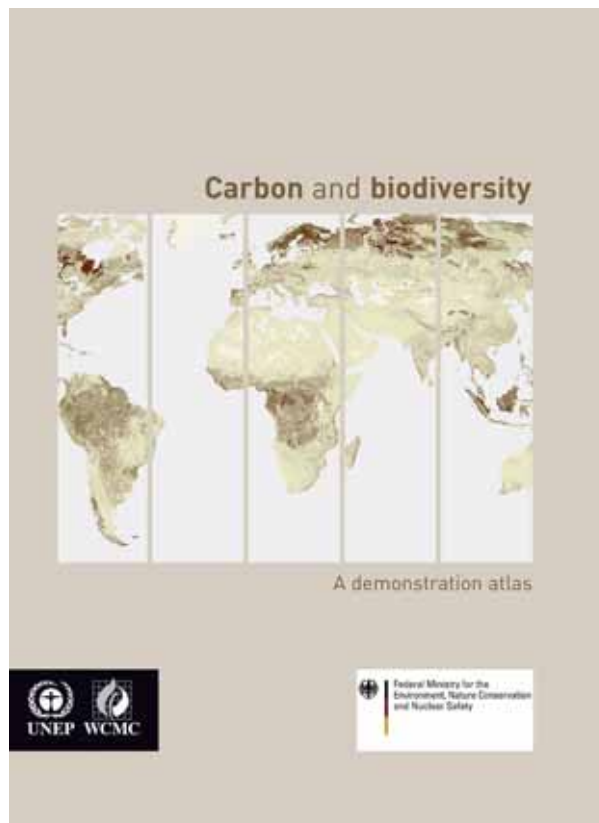
FAO, UNDP and UNEP will support country-led development programmes and facilitate the informed participation of national stakeholders, particularly indigenous people and forest-dependent communities. They will also use their convening power to bring together other organisations, experts and scientists to develop global and national monitoring, assessment, verification and financial components. The UN-REDD Programme will also work with other REDD actors, such as the UNFCCC Secretariat, regional development banks, bilateral donors, research institutions, NGOs and potential REDD investors and, to ensure complementarity with other ongoing and planned REDD initiatives, the UN-REDD Programme is cooperating closely with the World Bank's Forest Carbon Partnership Facility and will also collaborate with the Global Environment Facility Tropical Forest Account, and other initiatives such as Australia's International Forest Carbon Initiative and the Collaborative Partnership on Forests.

Background work undertaken by the UNEP World Conservation Monitoring Centre (UNEP-WCMC) has highlighted both the opportunities for multiple benefits and the associated risks of implementing REDD actions. REDD has the potential to deliver reduced carbon emissions and benefits for biodiversity. If it is to achieve this, then decision making will need to be informed by an understanding of the spatial relationship

Climate change

between areas of high carbon stock and areas of biodiversity value. *Carbon and biodiversity: A demonstration atlas*, a UNEP-WCMC publication released in December, shows how areas of high carbon and biodiversity can be identified using simple mapping tools. It is focused on the tropics and includes maps at the regional and national scale. UNEP-WCMC has also investigated the role of the global protected area network in preventing emissions from tropical deforestation. If all tropical protected areas were successful in meeting

According to the IPCC Fourth Assessment Report, the forestry sector accounts for about 17 per cent of global greenhouse gas emissions, mainly through deforestation, making it the second largest source after the energy sector. Without effective policies and measures to slow deforestation, clearing of tropical forests will likely release an additional 87 to 130 gigatonnes of carbon by 2100, an amount equivalent to the carbon release from more than a decade of global fossil fuel combustion at current rates, as well as remove a valuable natural carbon sequestration facility. Forests do not just retain a vast share of the world's terrestrial carbon. They are also one of Earth's most important living systems, providing essential environmental functions and ecosystem services upon which all societies depend. Half of all known plant and animal species reside in forests; they conserve soil, protect watersheds, buffer against natural disasters and provide sources of livelihoods to more than 1.5 billion people, many of whom lead subsistence lifestyles. REDD is therefore not only important in terms of reducing greenhouse gas emissions but, when properly implemented, it could simultaneously accomplish several ancillary goals.



their objectives of preventing land use change, it is estimated they would contribute a 28 per cent reduction in total potential emissions from the conversion of vulnerable tropical forest. Strengthening the global protected area network could therefore make an effective contribution to reducing emissions from deforestation and forest degradation.

A BUSINESS CLIMATE FOR CHANGE

Part of UNEP's activities on climate change include the facilitation of dialogue between business and industry representatives with public officials and other stakeholders involved in the climate negotiations. In 2008 this included convening a discussion with international industry associations and business organisations on sectoral approaches to climate action and regulation. The UNEP Business and Industry Global Dialogue 2008 was co-hosted with the International Chamber of Commerce (ICC) in October at the ICC Paris headquarters. A hundred participants from the developed and developing world discussed the current status of climate change negotiations and how to use the planet's resources more efficiently.

Climate best practice was also the key agenda item at the second Business for Environment (B4E) summit in Singapore in April 2008 for 1,000 business and other stakeholder delegates. UNEP was a co-host along with the UN Global Compact and other partners, including Business for Social Responsibility. At the summit, the President of the Republic of the Maldives made a strong plea for action on climate mitigation and adaptation. Through the year, UNEP continued to support the development of new environment and climate-related activities in collaboration with the UN Global Compact, including co-hosting the first Meeting of the Signatories to the Caring for Climate (C4C) initiative, in Geneva in October. Analysis of climate action by the 300 participant companies was done by GlobeScan and summarised in a first stocktaking report at the event.

CLIMATE NEUTRAL UN

UN Secretary-General Ban Ki-moon has repeatedly emphasised the need for the UN to 'walk the talk' on key issues such as climate change. In response, the UN Chief Executives



Sustainable United Nations

UNEP's Sustainable UN facility supports UN and non-UN organisations, especially large public institutions in developing countries, to achieve emission reductions. A first workshop on moving towards a climate neutral UN was organised in September 2008, providing training, tools and guidelines, and a forum to share experience on preparing greenhouse gas inventories and implementing emission reduction strategies. Over 40 agencies across the UN system participated. SUN will develop a range of tools and services to assist UN organisations to reduce emissions and adopt sustainable business practices. Areas of focus include buildings, travel, procurement, and organisational culture and management systems.

Board adopted the UN Climate Neutral Strategy in October 2007. United Nations agencies, funds and programmes have committed to moving towards climate neutrality, and, by 2009, to:

- estimate their greenhouse gas emissions in a manner consistent with accepted international standards
- undertake efforts to reduce their greenhouse gas emissions
- analyze the cost implications and explore budgetary modalities – including consulting with governing bodies as needed – of purchasing carbon offsets to eventually reach climate neutrality.

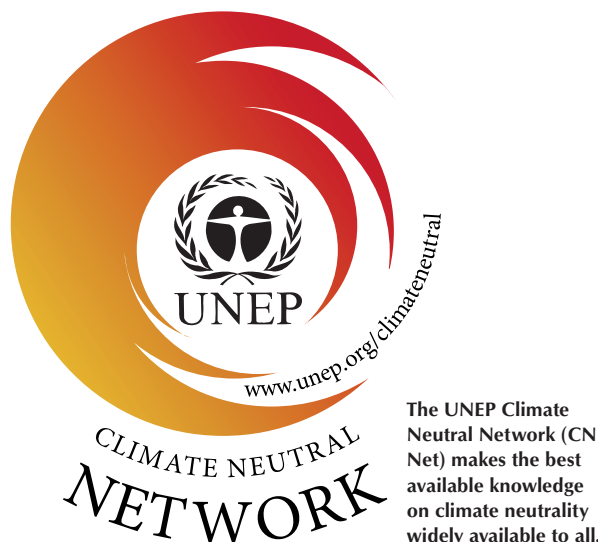
Implementation of the Climate Neutral UN initiative is guided by the Environment Management Group (EMG), for which UNEP provides the Secretariat, in close consultation with the designated climate neutral focal points of each member and supported by UNEP's Sustainable UN facility. The focal points also constitute a Climate Neutral Issue Management Group under the EMG. Its efforts have yielded significant results. The majority of UN system organisations have now designated climate neutral focal points, eight of them have established internal task forces to address climate neutrality within their organisation, and 10 have designated a 'senior-level champion' to drive the process. Eight organisations have prepared a strategy document outlining how they intend to move towards climate neutrality.

Organisations' main sources of greenhouse gas emissions are from official travel, refrigerants used in air conditioning, official vehicles and electricity consumption. Good progress has been made by organisations in estimating their greenhouse gas footprints, with some 17 agencies having begun the process, eight of which have preliminary data, and four of which have final or near-final numbers. Some 10 agencies have developed strategies outlining how they will reduce their greenhouse gas emissions, of which seven have already begun implementing some measures. Seven organisations have made specific events that they have organised climate-neutral through the purchase of offsets. A UN Climate Neutral Knowledge Management website has been established to provide a platform for sharing experience, tools, methods, guidelines, bench-marking and documenting best-practice. It will also document individual agencies' greenhouse gas emissions and reductions. An evaluation by the Office of Internal Oversight on the initial phase of the initiative is expected in early 2009.

UNEP became climate neutral in 2008 by reducing greenhouse emissions where possible, and by offsetting the remainder. UNEP has developed a greenhouse gas inventory, based on the World Resources Institute/World Business Council on Sustainable Development Greenhouse Gas Protocol. To reduce emissions, UNEP is addressing areas such Internet and communication techniques to provide realistic alternatives to



The Climate Neutral Network was launched in 2008 following a proposal made by H.E. Mr. Roberto Dobles Mora, Minister for Environment and Energy and Telecommunications of Costa Rica and President of UNEP's Governing Council.



The UNEP Climate Neutral Network (CN Net) makes the best available knowledge on climate neutrality widely available to all.

travel, administrative rules, information sharing procedures, training and procurement. UNEP will purchase offsets to compensate for a total emission of 11,508 tonnes CO₂ equivalent during 2008. The choice of offsets will meet the quality defined under the Kyoto Protocol's Clean Development Mechanism: high international standards of additionality, transparency and verification that promote sustainable development in developing countries.

UNEP is also supporting the United Nations Office in Nairobi (UNON) with greening the complex. Achievements during 2008 include a more than 50 per cent reduction in waste being sent for dumping, a significant increase in recycling (glass, paper, plastic, toner cartridges, aluminium etc), increased availability of organic and fair trade products, and a number of actions and investments that have reduced electricity and water use.

As part of efforts to reduce their environmental impacts, a pioneering initiative was also taken by UNEP and the Government of Qatar to hold a pilot paperless conference to save greenhouse gas emissions linked with the production and shipment of conference documents and publications to and from meetings. Delegates

at the 20th Meeting of the Parties to the Montreal Protocol and 8th Conference of the Parties to the Vienna Convention on Substances that Deplete the Ozone Layer were issued with laptops and given lessons on how to minimise paper in terms of documents, reports and publications. Special software was used to allow delegates to share and amend papers during the six-day meeting. In addition, UNEP hosted a 'paperless information booth', setting a trend to disseminate information by handing out memory sticks containing publications and documents. Both initiatives established a precedent for the UN system.

CLIMATE NEUTRAL NETWORK

In February 2008, UNEP launched the Climate Neutral Network (CN Net) to promote national, regional and global involvement in climate neutrality. Based on an interactive website, the CN Net gives participants a platform to present their climate neutral strategies to the world. It functions as a network for information exchange and sharing of practical experiences, making the best available knowledge on climate neutrality widely available to all.

The CN Net counts countries, cities, major international companies, UN agencies and leading NGOs among its participants. They are

the trailblazers on the route to zero emission economies, communities and businesses, and are already achieving significant cuts in greenhouse gas emissions. As the Network grows and expands, so will its contribution to global efforts to combat climate change.

CN Net participants have set the most ambitious greenhouse gas reduction targets in the world. For example, Costa Rica aims to be climate neutral by 2021 when it celebrates 200 years of independence, and Iceland has the world's highest rate of renewable energy use. CN Net cities include Växjö, Sweden, which has decided to become a fossil fuel-free city, while in Rizhao, China, close to 100 per cent of urban housing has solar heaters. CN Net corporate participants are the largest category, including Toyota Motors Europe, Skanska Norway and Tesco Lotus – Thailand's largest supermarket chain, which aims to at least halve its carbon emissions by 2020. NatureAir, based in Costa Rica, is the world's first carbon neutral airline.

KICK THE HABIT

Climate neutrality also formed the core of UNEP's messaging for World Environment Day, 5 June, which was hosted in 2008 by New Zealand, under the theme: 'Kick the Habit! Towards a Low Carbon Economy'. More than 200 events were held by local authorities, communities, NGOs, schools and businesses throughout the country, with the main official projects being hosted in Wellington. New Zealand's then Prime Minister Helen Clark was one of the many officials involved in the day's celebrations. Nearly half a million participants took part and 55,000 trees were planted. World Environment Day coincided with the Maori New Year, and the community organised several events around the day. More than a dozen New Zealand companies also joined UNEP's CN Net.

UNEP's World Environment Day publication *Kick the Habit: A UN Guide to Carbon Neutrality*, written and reviewed by experts from many

'Unite to Combat Climate Change' is the UN's campaign theme urging world leaders to reach an inclusive, comprehensive and ratifiable deal to address climate change. The campaign was launched in New York in October 2008 through Paint for the Planet – an exhibit and auction of 52 paintings selected from around 200,000 entries from UNEP's International Children's Competition. Showcasing children's fears and hopes for the planet, the paintings are a powerful plea from children for leadership on climate change before it is too late. Auction proceeds, totalling \$21,000, were donated to UNICEF to benefit children in areas affected by climate-related disasters. For the launch, UNEP also commissioned a survey that showed that 90 per cent of young people across the globe think world leaders should do "whatever it takes" to tackle climate change. The online survey of 12-18 year olds from Brazil, India, Russia, South Africa and the United States was conducted for UNEP and carried out by the international polling firm GlobeScan in October 2008. Four in five youths surveyed believe they can make a difference on climate but a majority also say they need more information about what they can do to tackle climate change.



Climate change

disciplines and various countries, provides solutions for individuals, small and large businesses, NGOs, international organisations, cities and countries interested in going climate neutral. The book was produced by UNEP GRID-Arendal on behalf of the EMG.

Around the world, the call to reduce carbon emissions was echoed in many countries, with people from all walks of life taking steps to turn off lights, walk to work or car pool, install energy-saving light bulbs, reduce the temperature of their washing machine, and so on. At UN headquarters, Secretary-General Ban Ki-moon introduced a trial 'Cool UN' initiative for the month of August – reducing air conditioning, energy use and greenhouse gas emissions. The 2009 World Environment Day celebrations will be held in Mexico, under the slogan: 'Your planet needs YOU! Unite to Combat Climate Change'.

ENERGY FOR CHANGE

A main focus of UNEP's work in the area of climate change mitigation is to help governments and the finance sector mainstream investment in energy efficiency and renewable energy and to remove market distortions that impede their progress. Examples include the Sustainable Energy Finance Initiative (SEFI), which provides financiers with tools, support and networks to drive financial innovation that improves the environmental performance of the world's energy systems. During 2008, SEFI released several new publications, including the 2008 edition of *Global Trends in Sustainable Energy Investment*. With the UNEP Collaborating Centre BASE, SEFI also launched the SEF Alliance, a new network of public finance institutions, and is working with the UNFCCC to examine how public finance mechanisms could form part of a future climate agreement. UNEP is also working with a consortium of MunichRe, RSA Insurance Group, CarbonRe and insurance companies from a number of developing countries to develop a Global Renewable Energy Insurance Facility to assist the growth of renewables and clean energy in developing economies.

UNEP is also helping to support entrepreneurs and develop markets for clean energy. By providing enterprise development services and early stage seed finance, the Rural Energy Enterprise Development Initiative (REED)

has nurtured more than 50 new, clean energy enterprises in developing countries, providing better energy services to more than 400,000 people. Building on this experience, the Seed Capital Access Facility (SCAF) will help close the gap between investment returns offered by early stage sustainable energy entrepreneurs and those required by the investment community. Jointly implemented through the Asian Development Bank and the African Development Bank, SCAF helps mainstream financiers invest seed capital as a viable and cost-effective strategy for creating long-term commercial energy investment portfolios.

The link between good policies and adequate finance is an essential element for driving the transfer of technologies to mitigate climate change, UNEP works with a number of partners to create and foster these links. UNEP's bank partnership programme in Tunisia, PROSOL, for example, has helped 35,000 Tunisian families finance solar water heaters to heat their water without fossil carbon emissions. The project also helped the Tunisian government develop policies that removed market distortions and created incentives for a thriving solar market. From the original programme for the southern Mediterranean countries of Tunisia, Morocco and Egypt, programmes are under way or planned for Montenegro, Albania, Macedonia, Mexico and Chile.

LOOKING TO THE FUTURE

Technology transfer and research and development is facilitated by collaborations through a number of international networks, including the Solar and Wind Energy Resource Assessment (SWERA), an international collaboration of more than 25 institutions to map the solar and wind energy resources of 13 developing countries in South America, Central America, Africa and Asia. SWERA's high quality information supports energy planning and policy development, while lowering the risk for renewable energy project developers and reducing project lead times.

The Global Network on Energy for Sustainable Development (GNESD) is a collaboration of more than 20 centres of excellence in both developing and industrialised countries noted for their outstanding work on energy, development, and environmental issues. It has produced targeted

reports on energy access and renewable energy, and a new study is under way to investigate the links between energy and the Millennium Development Goals (MDGs). UNEP also co-hosts the Secretariat of REN21 (the Renewable Energy Policy Network for the 21st Century) with GTZ, an international cooperation enterprise owned by the Government of Germany. REN21 is a leading global network supporting policy development and local, national and international decision making to facilitate a rapid expansion of renewable energy. REN21 encourages the inclusion of renewable energy in international political processes, engages key leaders and stakeholders in efforts to strengthen national legislation and regulatory environments that accelerate the uptake of renewables, and promotes knowledge flow and exchange. The annual REN21 *Renewables Global Status Report* has become an industry standard.

UNEP is also involved in moves to develop sustainable biofuels, working with FAO on the issue, and participating in the Roundtable on Sustainable Biofuels. These are part of UNEP's Bioenergy Programme that also includes working with the Global Bioenergy Partnership to support bioenergy planning and policy frameworks while

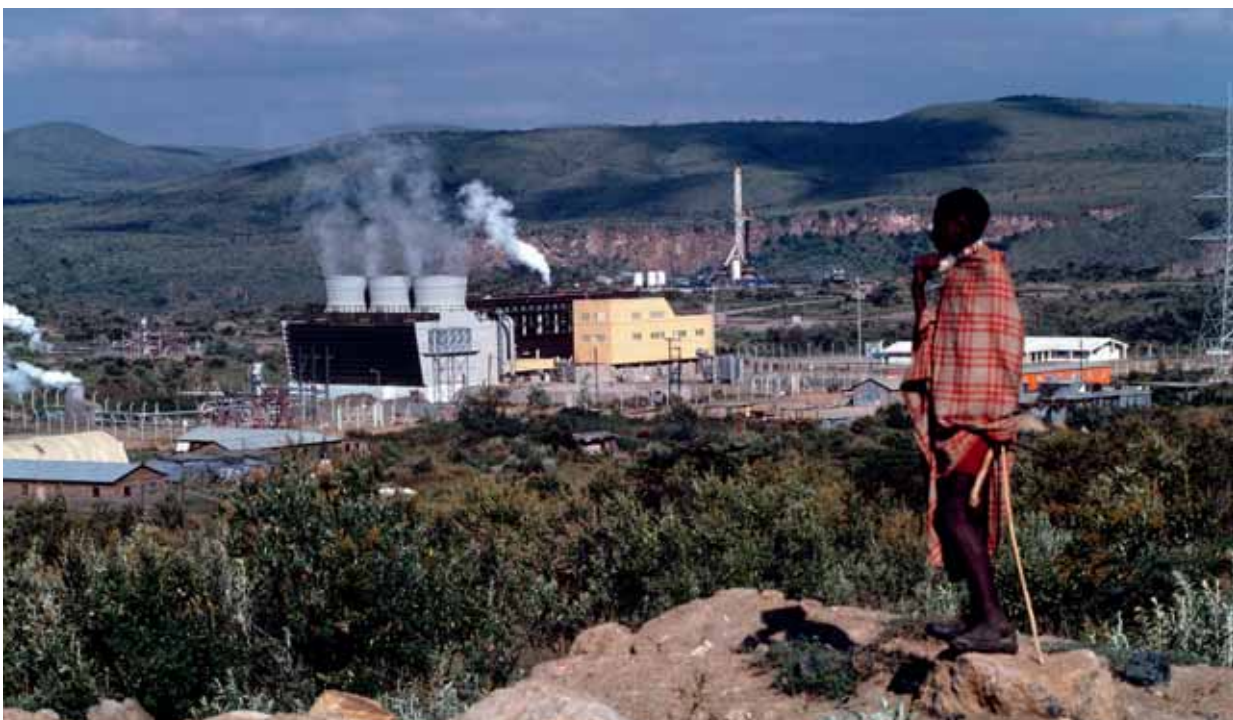
promoting small agribusinesses that produce sustainable bioenergy feedstocks. UNEP also participates in the BioTop Project to identify technical opportunities and research needs for Latin America to synchronise its biofuel sector with the European sector.

CLEAN DEVELOPMENT

The UNEP Risoe Centre on Energy, Climate and Sustainable Development (URC) helps UNEP to play a key role helping developing countries participate in the Clean Development Mechanism (CDM) and other international efforts to address climate change and encourage sustainable development. URC provides technical and financial support to develop the capacity of institutions and individuals to address climate change. This includes the CD4CDM project, a major effort to help 32 developing countries participate in the CDM.

URC also facilitates the participation of developing countries in the carbon market. With a dynamic carbon market under constant development, URC's Energy and Carbon Finance Programme continuously analyses market barriers, the actions needed to overcome them, and ways

Kenya has vast geothermal potential in the Rift Valley, estimated at over 4,000 megawatts (MW), compared with actual peak demand in Kenya of 1,000 MW. By identifying new high-production wells with less drilling risk, the Global Environment Facility-funded UNEP project Joint Geophysical Imaging (JGI) Methodology for Geothermal Reservoir Assessment in Kenya aims to reduce the cost of exploration for geothermal energy so it can become one of the region's cheaper and more reliable sources of electric power. © BIOS/Mark Boulton/Still Pictures



Climate change

to strengthen emerging CDM sectors. UNEP is aiming to increase investment in clean energy projects by \$100 million in 2009 and US\$200 million by 2011.

Community benefits may arise directly from a CDM project itself, such as village electrification, improved air quality or increased employment and income. These may be structured as an 'add-on' to a project where carbon revenues help to pay for basic social services or infrastructure such as schools or irrigation. For example, URC is collaborating with two sisal producers in Tanzania under the CD4CDM project to channel investment into technologies with environmental and local economic benefits for rural areas, including the replacement of chemical fertilisers with quality organic fertilisers for farming activities. In the Tanzanian project, biogas will be captured from 1,000 tonnes of sisal fibre waste produced daily that are currently sent to landfill. The gas will be used to generate electricity for surrounding communities and workers.

The Felou Regional Hydropower Project is another project with substantial carbon reduction and community benefits. The 60 megawatt run-of-river hydroelectric plant being constructed on the Senegal River 200 kilometres downstream from the Manantali Dam will deliver clean, low-cost electricity to consumers in Mali, Mauritania and Senegal while offsetting over 650,000 tons of greenhouse gas emissions. This sub-regional CDM project was initially supported through the Carbon Finance for Sustainable Energy Services in Africa initiative by UNEP and URC, in cooperation with the World Bank's Community Development Carbon Fund.

COMBATING REGIONAL AIR POLLUTION

Increasing energy use along with increasing urbanisation, industrialisation and motorisation has increased the emissions of air pollutants in many parts of the developing world. Some of the pollutants have a long lifespan and travel thousands of kilometres from the source. Air pollution and its transboundary effects are an emerging environmental issue in the Asia-Pacific region. UNEP is facilitating intergovernmental cooperation and the development of science and capacity to address the issue and providing secretariat support for two intergovernmental sub-regional networks on transboundary air pollution:

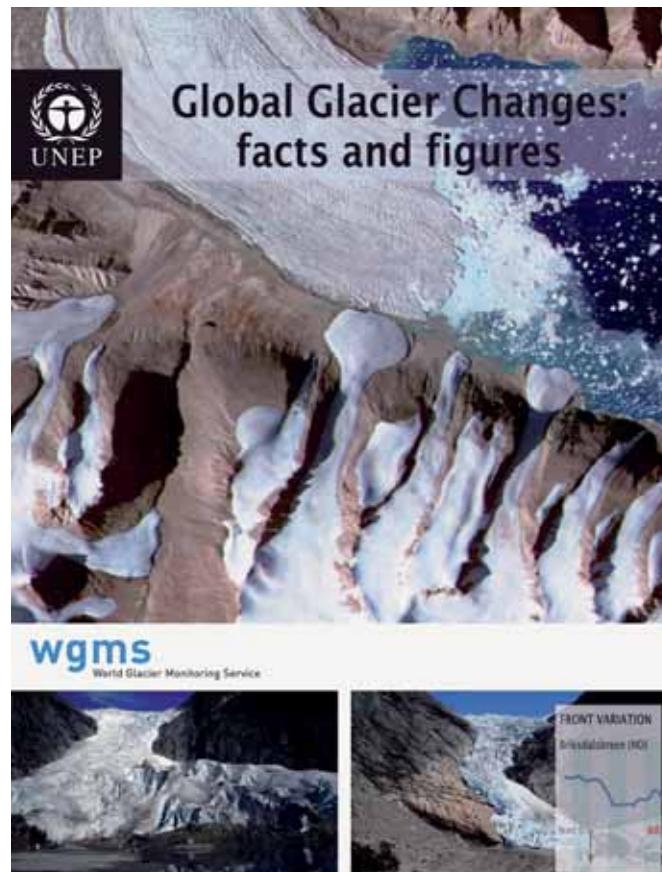
the Malé Declaration on Control and Prevention of Air Pollution and Its Likely Transboundary Effects for South Asia, and the Acid Deposition Monitoring Network for East Asia.

In the same region, UNEP has brought together an international science team to study the impacts of aerosols on regional climate, the hydrological cycle, agriculture and human health. The Atmospheric Brown Cloud (ABC) Project aims to address concerns about regional plumes of air pollution that consist of tiny particles of soot, sulphates, nitrates, fly ash and other pollutants. A large proportion of the aerosol particles that make up ABCs originate from the incomplete combustion of fossil fuels and biofuels. ABC observatories have been operational in India, Japan, the Republic of Korea, Maldives, Nepal and Thailand since 2006. The first impact assessment report with a focus on Asia was published in 2008. Initial scientific results suggest that the brown haze is reducing the amount of sunlight reaching the Earth's surface by as much as 10 to 15 per cent. It may also be affecting monsoon weather patterns, triggering droughts in western parts of the Asian continent and increasing flooding in parts of Bangladesh and India. There are also indications that the haze may be reducing winter rice harvests in India by as much as 10 per cent and be the cause of several hundreds of thousands of premature deaths from respiratory diseases.

ADAPTING TO CHANGE

Even with the most stringent mitigation measures, the impacts of climate change will continue for centuries. The severity of the impacts will vary from region to region, depending on physical vulnerability, the degree of socio-economic development and adaptive capacity. There is an urgent need for immediate adaptation action before the impacts of climate change become unmanageable. However, significant constraints exist, particularly in developing countries, including a lack of necessary adaptive capacity, technology and finance.

UNFCCC Parties have recognised the importance of promoting adaptive action and that multi-level governance and complementary action should be based on joint partnerships and effective networking. The Subsidiary Body for Scientific and Technological Advice recognised that regional centres and networks undertaking work



Global Glacier Changes: facts and figures, produced by UNEP and the World Glacier Monitoring Service, presents the latest data on the fluctuations of glaciers and ice caps. There is mounting evidence that climate change is triggering a shrinking and thinning of many glaciers worldwide, which may eventually put water supplies at risk for hundreds of millions of people.

relevant to climate change play an important role in enhancing adaptation and agreed to promote existing networks for impacts, vulnerability and adaptation and encouraged the establishment of new networks. To this end, UNEP, in partnership with key UN and other international organisations has proposed a Global Climate Change Adaptation Network.

To initiate the process, UNEP convened an International Consultation Meeting in October, hosted by the Government of the Republic of Korea. Participants, including government representatives, experts from Africa, Asia, Latin America and the Small Island Developing States, and UN and other partner organisations endorsed the need for the global adaptation network and agreed on its main functions and associated structure.

The Network will help developing countries enhance their key adaptive capacity through supporting governments, communities and other users with knowledge, technology, and capacity building for adaptation policy setting, planning

and practices. The three components of the Network are: ground facilities, regional centres and an international support group of technical institutions, supported and complemented by a knowledge management system and regional policy forums. The Network will build on existing networks, institutions, centres and ground facilities. UNEP will facilitate the next steps in establishing the Network by building regional and global consensus and pilot testing the initiative in Africa and the Asia-Pacific region.

In sub-Saharan Africa, the Climate Change and Development – Adapting by Reducing Vulnerability (CC-DARE) programme, a joint initiative of UNEP and UNDP initiated in 2008 with funding from the Government of Denmark, is a practical example of UN system cooperation that is providing pragmatic advice on mainstreaming climate change risks into development decisions. The initiative ensures that development proceeds along paths that are less at risk from climate change and serves to reduce, rather than increase, vulnerability to climate change. It is assisting countries in their efforts to make climate change



Impacts of climate change: How can we adapt? summarises in sixteen key messages the IPCC's *Climate Change 2007: Impacts, Adaptation and Vulnerability* report. UNEP also published *Vital Climate Change Graphics: The Facts*, from the IPCC's 20 years of Climate Change Alerts.

resilience an important component in planning economic policies and development programmes. CC-DARE was launched in February 2008 with an initial inception phase that involved Benin, Senegal, Tanzania and Uganda. In January 2009 the full roll-out phase of CC-DARE will begin with 16 countries in sub-Saharan Africa being targeted as CC-DARE partners.

BUILDING RESILIENCE

In the Asia-Pacific region, support for assessments of climate change vulnerability and adaptation at national and city level are increasingly being requested. With the participation of leading climate scientists from the Asia-Pacific region, a *Draft Manual for the Development of National and City Assessment Reports on Climate Change* has been produced and piloted in Thailand, Mongolia and Viet Nam during 2008. Elsewhere in the region, funds from the MDG Achievement Fund have been provided to China to conduct in-depth assessments of climate change impacts and adaptation in western China and the southeast coastal zone, and to build local capacity to incorporate climate change adaptation into development planning.

UNEP and partners are also conducting a feasibility study for a climate change impact and adaptation assessment for the Hindu Kush-Himalaya region. In the same vicinity, the Karakorum Trust Project is working to improve livelihoods and capacity to adapt to climate change. The Central Karakorum National Park in northern Pakistan is a mountain area with rich biodiversity and natural resources. A number of activities are being undertaken to safeguard these ecosystem services and enhance the resilience of the ecosystem, preserve cultural heritage and promote rural development in Karakorum, but are so far uncoordinated. With support from the Government of Italy, UNEP is helping to improve their effectiveness through better coordination. The Karakorum Trust Project seeks to develop an integrated management plan, enhanced knowledge management and an environmental monitoring system.

In Africa, UNEP developed the project Building Capacity and Improving Resilience of African Countries to Cope with Water Stress and Adapt to Climate Change. The project, supported by the Ministry of Science and Technology of China,

covers Kenya, Tanzania, Rwanda, Burundi, South Africa, Zambia, Mozambique, Egypt, Morocco, Libya and the Democratic Republic of Congo. It has four components: rainwater harvesting; re-use of waste water for forest plantation irrigation; drought early warning and adaptation; and sustainable transboundary ecosystem management for Lake Tanganyika. UNEP has also been involved in developing joint programmes on environment and climate change under the UNDP-Spain MDG Achievement Fund Thematic Window for Environment and Climate Change in Egypt and Mozambique. The UNEP Addis Ababa Office and UNDP led the UN Country Team in Ethiopia in developing the project Pastoralist Adaptation to Climate Change. Support has also been extended to Tanzania, particularly the One UN joint programme on environment and climate change.

REDUCING VULNERABILITY

Mangroves for the Future (MFF) is a regional initiative to strengthen the environmental sustainability of coastal development and promote sound investment and action in coastal ecosystem management in India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand. The initiative is led by the World Conservation Union (IUCN) and UNDP in partnership with UNEP, CARE International, FAO and Wetlands International. UNEP is helping to integrate climate change and climate variability into the initiative, as well as mainstreaming climate change into countries' national and sectoral development planning processes. *An Approach to Mainstream Adaptation to Climate Change into MFF* was prepared for the MFF Regional Forum in Sri Lanka, in April 2008. Climate change was also considered one of the crucial subjects at the MFF Regional Training course Applying Project Cycle Tools to Support Integrated Coastal Management, in October, in Samarang, Indonesia.

In Latin America, UNEP is implementing programmes focusing on mitigation, adaptation and reducing vulnerability to climate change through strategy development, strengthening local capacity and increasing access to financial support through payment for ecosystem services. Emphasis is being placed on the management of environmental resources to minimise climate vulnerability and on the administration and provision of environmental services, including

micro-watershed management, sanitation and improved access to freshwater. Other areas of UNEP engagement include: sustainable forest management; assessment to promote the conservation of tropical forests; and integrated environmental assessment for MERCOSUR countries.



Many Strong Voices

– turning vulnerability into strength

The Many Strong Voices programme bridges the farthest reaches of the world to bring together the peoples of the Arctic and Small Island Developing States (SIDS).

These peoples face some of the most potentially devastating impacts of climate change, from loss of livelihoods and cultures to loss of land.

The Many Strong Voices programme will press for significant reductions in global greenhouse gas emissions and stress the need for adaptation to climate change.

www.manystrongvoices.org



The Many Strong Voices Programme brings together local, national and regional stakeholders in the Arctic and Small Island Developing States to support and build capacity among vulnerable regions and peoples. It helps to collaboratively devise strategic solutions to the challenges of climate change, and to highlight the perspectives of peoples in the two regions.





Ecosystems Management

ECOSYSTEMS MATTER

The sustainable management of ecosystems is increasingly recognised as essential for combating climate change, underpinning progress towards a green economy and ensuring the achievement of most, if not all, the Millennium Development Goals (MDGs). It focuses on sustaining ecosystems to meet both ecological and human needs, and integrating social, environmental and economic perspectives to managing geographically defined natural ecological systems.

One way of ensuring that ecosystems are valued is by giving them an economic value. UNEP has developed a primer on Payments for Ecosystem Services (PES). Launched at the ninth Conference of Parties to the Convention on Biological Diversity (CBD) in Bonn, Germany, in May 2008, it provides step-by-step guidance for developing and implementing PES schemes. Through this primer, UNEP seeks to increase the number of organisations and communities exploring PES and, where appropriate, applying PES to further their goals for conservation, restoration and sustainable resource management.

UNEP puts special emphasis on the equity aspect of PES, and is publishing a series of papers, including a review of how equity has been considered in existing PES schemes worldwide, a paper on the principles of equity and fairness for the design of PES, and a guidance paper for designing equitable and efficient PES.

Through the UNDP/Spain MDG Achievement Fund programme, UNEP is working on the practical application of economic instruments in Senegal. The project aims to improve information on the economic value of critical forest ecosystem services and the understanding of the trade-offs

among various ecosystem services across different stakeholders. By generating this information, the project aims to guide the ongoing revision of the tax system in Senegal, with a special emphasis on developing eco-taxes and rebates as financial incentives for the sustainable use of forest ecosystem services.

STRENGTHENING THE SCIENCE-POLICY INTERFACE

UNEP has also been involved in consultations with governments and other stakeholders on a proposed Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Building on the Millennium Ecosystem Assessment (MA) follow-up initiative and the consultative process on an International Mechanism of Scientific Expertise on Biodiversity, UNEP was invited to explore the interest of member countries for such a mechanism. A concept note was drafted and reviewed by UN Member States, secretariats of various biodiversity-related multilateral environmental agreements (MEAs) and other related partners and experts in preparation for the first intergovernmental multi-stakeholder meeting, in Putrajaya, Malaysia, in November. The Putrajaya meeting agreed on the need to strengthen the science-policy interface, and recommended that the UNEP Executive Director seek guidance from the UNEP Governing Council on a way forward.

In response to independent evaluations of the MA that recognised that it has had limited direct impact on policy formulation, as well as the fact that there is a need to further build the knowledge base, UNEP and key partners have been implementing a global follow-up strategy. UNEP contributed to designing a 10-year research

All MEAs require and produce large quantities of data, documents and other information. Much of this knowledge addresses common biodiversity-related themes and activities, yet it is not organised in a harmonised manner. A joint knowledge management project between UNEP and the secretariats of six of the biodiversity-related MEAs has been addressing this problem, with support from the Government of Norway. An Internet portal provides access to a comprehensive range of MEA information for all the participating agreements.





International Assessment of Agricultural Science and Technology for Development

The Final Intergovernmental Plenary for the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) was held in Johannesburg, South Africa, in April 2008. The Executive Summary of the Synthesis Report and the Global Summary for Decision Makers were approved by 58 countries. Formal transfer of the IAASTD website from World Bank to UNEP was completed in November 2008. The final Executive Summary of the Synthesis Report and all Summaries for Decision Makers are available online, and the final underlying reports, including the entire Synthesis Report, will be made available to the website in June 2009.

programme on ecosystem services and human well-being, which is now being implemented by the UN University (UNU), the UN Educational, Scientific and Cultural Organisation (UNESCO) and the International Council for Science (ICSU). Another area of progress is on sub-global assessments. The first meeting of sub-global assessments, in Kuala Lumpur, Malaysia in April 2008, saw practitioners gather to re-establish the MA sub-global assessment network and exchange information and lessons learned. The outcomes of the meeting included agreement on selection criteria and policies for sub-global assessments and a programme of work for follow-up. UNEP, through the UN Development Account project, is also undertaking national assessments, including in Lao PDR and Southern Sudan, and mainstreaming ecosystem service considerations into national policy making processes through the UNDP-UNEP Poverty-Environment Initiative (PEI).

Also in 2008, the 10th Biennial International Society for Ecological Economics Conference was held in August at UNEP headquarters in Nairobi, Kenya, organised by UNEP with the African Society for Ecological Economics and the African Technology Policy Studies Network. With the theme Applying Ecological Economics for Social and Environmental Sustainability, the conference objective was to further cross-disciplinary dialogue in the face of climate change and globalisation, and to engage young scientists in developing countries to explore the relationship between the natural world and human social systems. The conference was attended by around 200 scientists and practitioners from various disciplines and institutions from six continents.

MONITORING BIODIVERSITY PROTECTION

Understanding the Earth's life support systems, and predicting and mitigating the rapid changes occurring in these systems because of human activities, is one of the great global scientific challenges. UNEP's World Conservation Monitoring Centre (UNEP-WCMC) provides objective, scientifically rigorous products and services that include ecosystem assessments, support for implementation of MEAs, regional and global biodiversity information, research on threats and impacts, and the development of future scenarios. 2008 saw the launch of a number of major products, including the World Database on Protected Areas, in partnership with the World Conservation Union (IUCN). Protected areas cover 19 million square kilometres, with more than 114,000 sites, equivalent to 12.9 per cent of the Earth's land surface – a larger area than all the world's croplands combined and 18 times larger than the combined area of the world's urban landscapes. Innovative technology and a partnership with Google Earth allow users of the Database to zoom in, fly over and explore more than 100,000 protected area sites worldwide.

The information in the World Database on Protected Areas helps determine the achievement of the CBD 2010 target to reduce rates of biodiversity loss, which has been included in MDG7 on environmental sustainability. The 2010 Biodiversity Indicators Partnership, coordinated by UNEP-WCMC and supported by the Global Environment Facility (GEF), is helping governments determine their progress.

A complex and important area related to the conservation and sustainable and equitable use of

Ecosystems management

biological services is the issue of access to genetic resources and benefit sharing (ABS). During 2008, UNEP consolidated its focus on ABS by supporting global, regional and national processes. At the global level, UNEP provided technical and strategic advice through the CBD Working Group on ABS. UNEP is currently working on a range of ABS issues, including compliance, designing a benefit-sharing regime under ABS, and capacity building. At national level, UNEP is supporting the effective implementation of India's Biological Diversity Act that focuses on ABS issues.

SUSTAINABLE AGRICULTURE

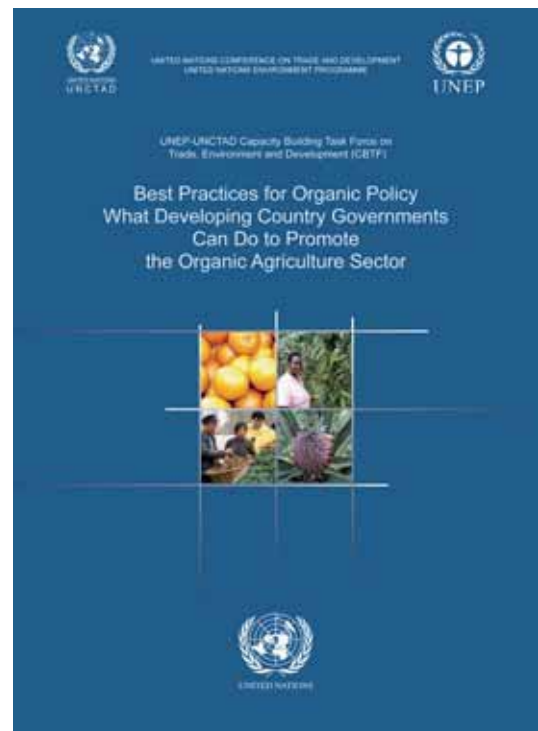
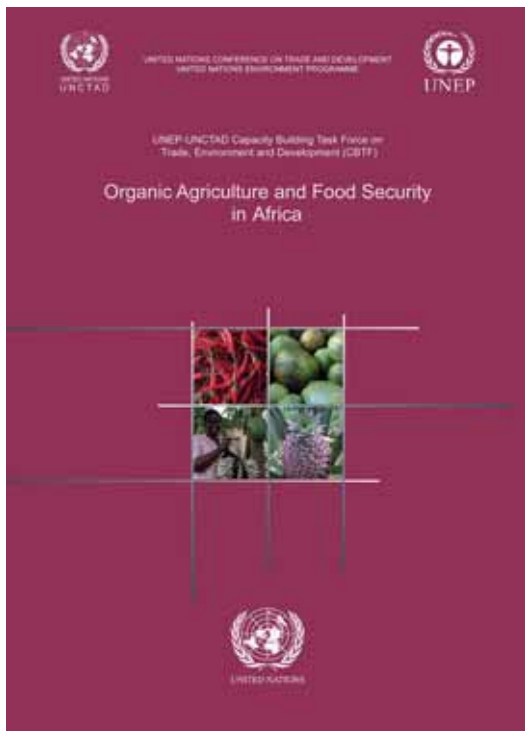
Changes in agricultural trade policies often have serious implications for biodiversity through changes in land use and production methods. UNEP's Trade and Biodiversity Initiative promotes the use of integrated assessment to identify links between trade-related policies and biodiversity and to contribute to a more comprehensive understanding of biodiversity assessment and valuation. Six Asian, Pacific and Caribbean (ACP) countries have been receiving technical and financial support to assess the economic, social and environmental impacts of

trade liberalisation in the agricultural sector, with a particular focus on biodiversity. The object is to support countries to safeguard biological diversity while maximising sustainable development gains from trade liberalisation in the agriculture sector.

UNEP has also been working at country level to develop conceptual frameworks and analytical tools to identify impacts, develop policy responses to minimise those impacts, and formulate national plans to implement policy recommendations to safeguard biodiversity. The results will be improved trade policies that take account of economic, social, environmental and biodiversity impacts. National institutions in Jamaica, Cameroon, Madagascar, Mauritius, Uganda and Papua New Guinea have applied a draft integrated assessment and biodiversity manual developed for this project to fit local conditions and needs. Also, to commemorate the International Day on Biological Diversity, 22 May, UNEP produced six policy briefs on agriculture and biodiversity.

To demonstrate that environmental protection is not only compatible with economic growth but can also promote trade, generate employment, help address climate change, and reduce poverty,

International sales of organic products in 2006 were \$38.6 billion, almost double the figures for 2000. In the past three years, sales are reported to have increased by \$4 billion a year. In parts of Africa, yields from organic farms have been recorded at 116 to 128 per cent higher than conventional farms. CO₂ emissions per hectare of organic agriculture systems are 48 to 68 per cent lower than conventional systems. Studies have also shown that organic fields sequester between three and eight tonnes more carbon per hectare than conventional agriculture.



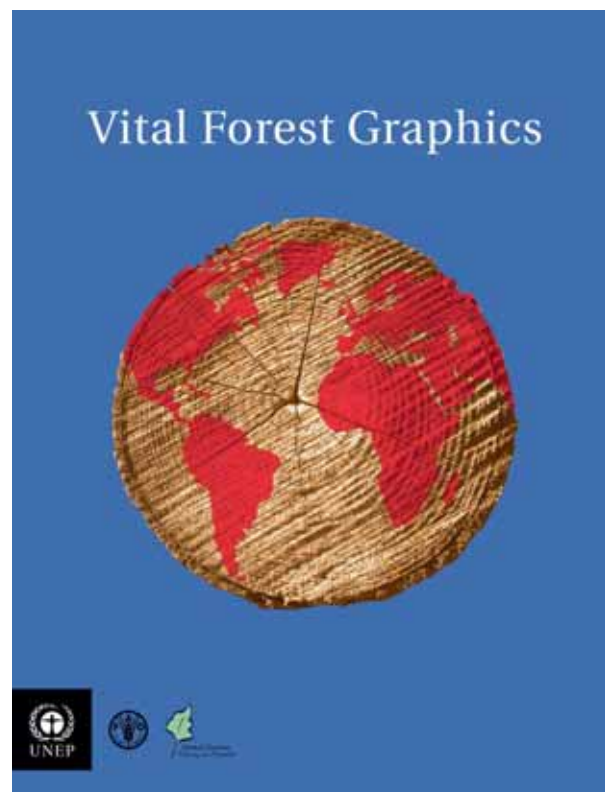
UNEP and the UN Conference on Trade and Development (UNCTAD) have selected organic agriculture as one of the thematic areas to be addressed in the framework of the UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF). In 2008, the UNEP-UNCTAD CBTF launched a regional study on *Organic Agriculture and Food Security in Africa*, building on its success in 2007 when the East African Community officially adopted the CBTF-supported East African Organic Product Standards. The study presents analyses of 114 organic and sustainable agriculture projects in terms of their potential to ensure food security. The partnership also released *Best Practices for Organic Policy: What Developing Country Governments Can Do to Promote the Organic Sector*, with 35 detailed recommendations.

In May 2008, the 16th Session of the Commission on Sustainable Development (CSD) convened to consider the six thematic areas of agriculture, rural development, land, drought, desertification and Africa. UNEP organised a side event on Agriculture and Environment: Climate Change Challenges and Policy Options. Increasing agricultural productivity to attain global food security by 2015 will require policy support for mitigation and adaptation against the impacts of agriculture and climate change on the environment.

FORESTS FOR THE FUTURE

The Congo Basin holds the world's second largest expanse of tropical rainforest after the Amazon. It is a region of virtually unparalleled biological diversity, a carbon store of global importance, and the watershed to many African rivers that drain into the Congo River and the Atlantic Ocean. The sheer size of the Congo Basin greatly influences ecological functions, climate and rainfall patterns, not only in Central and East Africa, but globally. The Congo's forests are under increasing pressure, with an annual deforestation rate of 0.4 per cent (800,000 hectares).

Efforts to protect the Congo Basin forests date back to 1999 when the Yaoundé Declaration on Forests was signed by Heads of State of Central Africa, followed by the establishment of the Commission of Forests of Central Africa. In 2002, the Congo Basin Forest Partnership was established at the World Summit on Sustainable



Estimated at more than 13 million hectares a year, an area roughly equivalent to the size of Greece, deforestation has profound implications for livelihoods, increased carbon emissions, and loss of biological diversity. *Vital Forest Graphics: Stopping the Downswing?* – a collaboration between UNEP/GRID-Arendal, FAO and the UN Forum on Forests – illustrates complex forest issues for decision makers.

Development and, in 2005, the Brazzaville Treaty was signed by 10 Central African States and Kenya's Nobel Peace Prize laureate, Professor Wangari Maathai, was appointed as the Goodwill Ambassador for the Congo Basin Forest Ecosystem. In 2008, following a request from Professor Maathai, UNEP provided a support office within the Division of Environmental Policy Implementation (DEPI) to coordinate activities, provide strategic advice, identify donors, raise funds, build partnerships and strengthen the operations of the Congo Basin Forest Fund (CBFF). During the CBFF launch in June 2008, the Government of Norway announced support of \$100 million, bringing the CBFF portfolio to \$220 million, and UNEP was invited to join the CBFF Governing Council.

PROTECTING GREAT APES

The forests of the Congo Basin are home to four of the five species of great apes – mountain gorillas, lowland gorillas, bonobos and chimpanzees. Escalating conflict in their habitat



The Convention on the Conservation of Migratory Species of Wild Animals (CMS) declared 2009 as the Year of the Gorilla in December at its ninth Conference of Parties in Rome. Partners include the Great Apes Survival Partnership (GRASP), in cooperation with UNEP and UNESCO, and the World Association of Zoos and Aquariums. The Year of the Gorilla campaign will support the legally binding CMS Gorilla Agreement agreed in 2008 on the conservation of gorillas and their habitats, which aims to secure their survival in the wild in the ten African range states in which they live. The main threats to gorillas are hunting for food and traditional medicine, destruction of habitat through logging, mining and production of charcoal, the effects of armed conflicts, and diseases like Ebola.

areas, especially in the Democratic Republic of Congo (DRC), is drawing increasing international attention. With financial support from the Governments of Spain and Norway, the Great Apes Survival Partnership (GRASP) has helped to initiate a programme to support environmental cooperation and dialogue in key transboundary areas, including the Virungas, shared between DRC, Uganda and Rwanda, Mayombe, shared with the Republic of Congo and Angola, Garamba, shared with Sudan, and in the Kahuzi Biéga National Park in South Kivu Province of DRC. Lessons learned will be replicated in cross-border conservation of ecosystems of international importance elsewhere. In Borneo and Sumatra, home to orang-utans, a GRASP grant is helping facilitate a high conservation value ecosystem assessment and mapping approach to identify areas for biodiversity protection and development of sustainable agriculture, in particular oil palm. It is anticipated that this approach may become a model for land use planning in other regions, such as the Amazon and equatorial Africa.

In Cameroon, a project on Indigenous People's Participation in Mapping of Traditional Forest Resources for Sustainable Livelihoods and Great Ape Conservation is engaging the Baka, traditional hunters and gatherers living around Boumba Bek and Nki National Parks, to participate in the management of areas where great apes are under protection. Implemented by the WWF and the Forest Peoples Programme/ UK in Cameroon, the project aims to support communities to document their forest resource uses and establish dialogue with governmental and non-governmental conservation agencies to devise conservation plans.

The project has provided an opportunity to document community attitudes towards gorilla and ape conservation and it enabled communities to present the results of their participatory mapping to government agencies responsible for the development and implementation of forest management plans. It also supported the establishment of a collaborative agenda shared

by communities and conservation organisations for enabling community rights to be protected in the park management plan, while conservation objectives are also achieved. Both implementing partners will continue the project and replicate it in Cameroon and possibly in DRC. Lessons learned regarding indigenous participation could also be applied to emerging REDD models and initiatives.

SUSTAINABLE ECOSYSTEM MANAGEMENT

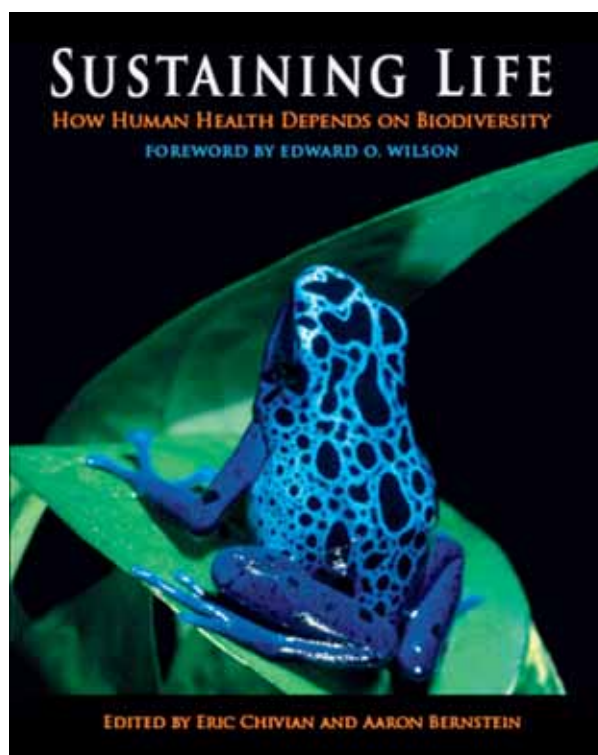
The Gran Chaco Americano biome covers approximately a million square kilometres of north-central Argentina, western Paraguay and southeast Bolivia. It represents the largest dry forest ecosystem in South America, with identified biodiversity of 3,400 plant species (400 endemic), 150 mammal species (12 endemic), almost 500 species of birds, 186 amphibious species and 297 reptiles. UNEP, UNDP, the Secretariat of Sustainable Development and Environmental Policy of Argentina, the Vice Ministry of Watersheds and Water Resources of Bolivia and the Environment Secretariat of Paraguay have joined to implement a GEF project to mainstream sustainable forest management and sustainable land management principles into policy and legal frameworks, build capacity at regional, provincial, departmental and local levels, develop tools and instruments to mainstream sustainable forest and land management into regional land use planning and decision making, and promote on-the-ground investments and increased stakeholder participation in management practices that reduce land degradation, combat desertification and contribute to poverty alleviation. Another project is helping Colombia, Ecuador, Peru and Venezuela to overcome barriers to conserving biodiversity and safeguarding hydrological and other environmental services in the Andean Paramo ecosystem.

Also in Latin America, UNEP is working on promoting and consolidating Biological Conservation Corridors. The Cocos-Galápos Corridor is a regional initiative involving Colombia, Costa Rica, Ecuador and Panama to establish a marine protected areas network. The initiative aims at ensuring proper management of marine and coastal resources through an ecosystem management approach and the establishment of joint governmental regional strategies supported by civil society,

international cooperation agencies and NGOs. The Mesoamerican Biological Corridor stretches from Mexico through Central America and includes Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. UNEP is offering technical assistance, preparing a directory on biological education, promoting national legislation and the negotiation of conventions, and mobilising resources for the consolidation of the Corridor. In the Caribbean, another Biological Corridor project involves Cuba, Haiti and the Dominican Republic. A critical part of the project is the rehabilitation of degraded watersheds in Haiti.

In sub-Saharan Africa, UNEP has initiated a project to assess land degradation and target improved land management interventions, with a special emphasis on the three African pilot One UN countries: Mozambique, Rwanda and Tanzania. Improved land management is a key strategy for climate change adaptation and mitigation, improved ecosystem management and poverty alleviation in many tropical regions.

Sustaining Life: How Human Health Depends on Biodiversity, spearheaded by Harvard Medical School's Center for Health and the Global Environment, in collaboration with UNDP, UNEP, CBD and IUCN, reflects the work of over 100 leading scientists. It examines the threats that a loss of biodiversity poses to human health and helps to establish the sound science that is essential for effective policy making, including at the international level.



Policy makers and planners often lack adequate data on land degradation to target cost-effective land management interventions and evaluate their impacts. To help tackle this gap, UNEP will help to identify ecosystems and areas that are at risk of degradation or are already degraded, with a focus on areas with large populations of vulnerable people. The project is using land health surveillance methods piloted by UNEP in a West Africa Drylands Project in partnership with the World Agroforestry Centre.

In Kenya, UNEP is working with the Government to protect a threatened forest ecosystem essential for the country's tea and tourism industries and hydropower generation. The Mau forest block, which at 400,000 hectares is the largest in East Africa, is an extremely important water catchment. Rivers flowing from it supply the Masai Mara and Serengeti National parks, and the annual market value of goods and services generated by the tea, tourism and energy sectors as a result of the Mau forest complex is estimated to be in excess of \$286 million. At the request of the Government of Kenya, UNEP initiated a rehabilitation project with \$2.8 million support from the Government of Spain. The UNEP-led project complements the Kenya Government's efforts by promoting and demonstrating pro-conservation livelihoods, the importance of law enforcement and participatory planning and management of forest resources. It involves outreach to various stakeholders and the provision of impartial, accurate technical information, such as obtained from aerial surveys, to address the challenges facing the Mau forest complex. A draft management plan has been developed for the Masai Mau Forest, one of the 16 main forest blocks in the ecosystem, through a participatory process with all stakeholders, including indigenous forest inhabitants, and reforestation work is being conducted in collaboration with local governments and communities.

Also in Kenya, a UNEP-Kenya Country Programme was created in April 2008 to coordinate UNEP activities and provide strategic coherence in supporting the environmental priorities of the host country. UNEP is also working on a project to address declining flamingo populations, and a National Action Plan for the Conservation of the Lesser Flamingo in Kenya has been developed.

FRESHWATER ECOSYSTEMS

Understanding the vulnerability of water systems and what it means for people who are dependent on them is essential so policy makers can develop and implement effective local, national and transboundary management policies. How this vital resource is managed will determine countries' long-term social and economic health. In the Asia-Pacific region, UNEP's Division of Early Warning and Assessment (DEWA) has conducted water vulnerability assessments along with regional and national academic institutions in Northeast Asia, South Asia and Southeast Asia. These reports look at key threats using a vulnerability index based on resource stress, development pressure, ecological health and management challenges.

In Africa, UNEP, as Chair of the UN-Water/Africa group, has been encouraging other members of the UN family to focus on the water sector, and has also used its position to enhance support to the African Ministers' Council on Water (AMCOW) and other pan-African institutions, including the African Union Commission, the African Development Bank and the New Partnership for Africa's Development (NEPAD). UN-Water/Africa played a central role in co-organising the first African Water Week, in Tunis, Tunisia, in March 2008. UNEP has also strengthened its relationships with the African Network of Basin Organisations and the African Civil Society Network on Water.

At the request of the Government of Mali, UNEP has initiated a project to rehabilitate the Lake Faguibine System on the Niger River. The collapse of Lake Faguibine and its associated flood plain ecosystems in the 1980s as a result of climate change and other factors forced local communities to abandon traditional livelihoods and migrate to towns and neighbouring countries, risking further destabilisation of an already conflict-prone region. Reflooding should recreate the productivity base on which traditional livelihoods can be recovered and new ones developed, thus contributing to the attainment of the MDGs. A two-year first phase will strengthen current rehabilitation efforts, quantify delivery potential of the ecosystem under various climate change and human intervention scenarios and, by broadening the approach to be more comprehensively ecosystem service-oriented, lay the foundations for tangible and sustainable improvements in human well-being

across the various ethnic and social groups of the system. There will be a special emphasis on empowering women, and the project will include raising awareness on HIV/AIDS and malaria as both are expected to increase through return migration and increased breeding opportunities for mosquitoes.

In Latin America, UNEP is facilitating the implementation of Integrated Water Resources Management in the Lake Titicaca, Desaguadero River, Poopo, Coipasa Salt Marsh System: Assessment and Update of Pollutant Discharge Levels, funded by the Spain-UNEP Partnership. The project objectives include: improving the water quality monitoring; promoting a 'water culture' programme in collaboration with national, regional and local authorities focusing on selected communities; and strengthening integrated management of the system and the capacity of the Binational Autonomous Lake Titicaca Authority. The project is being implemented in partnership with the Vice Ministry of Biodiversity, Forest Resources and Environment of Bolivia and the Environment Ministry of Peru. UNEP is also promoting rainwater harvesting in Antigua and Barbuda with the Caribbean Environment Institute to increase the availability of freshwater.

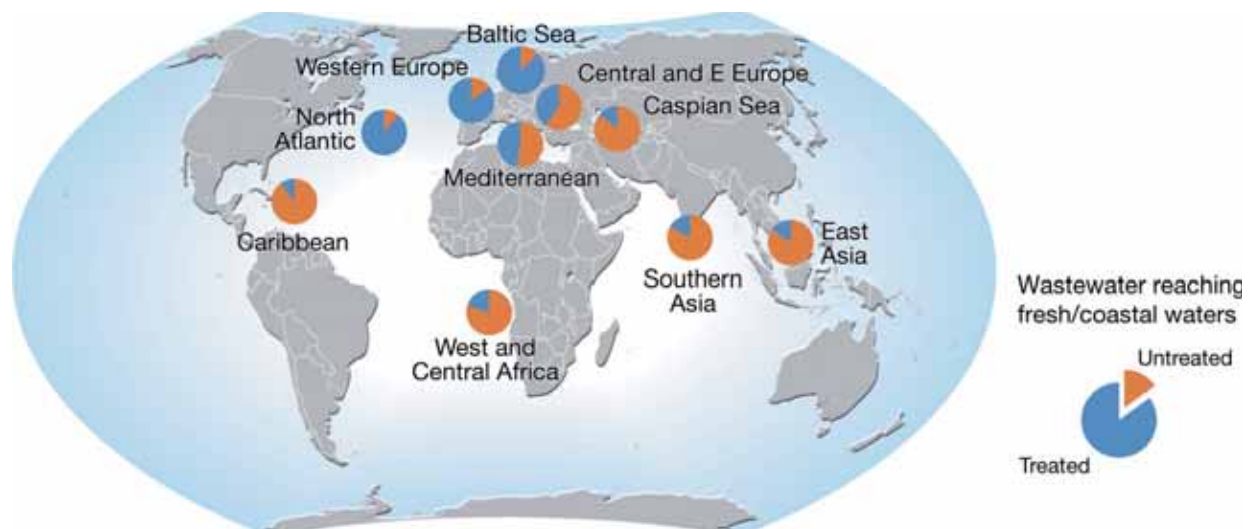
FROM SUMMIT TO SEA

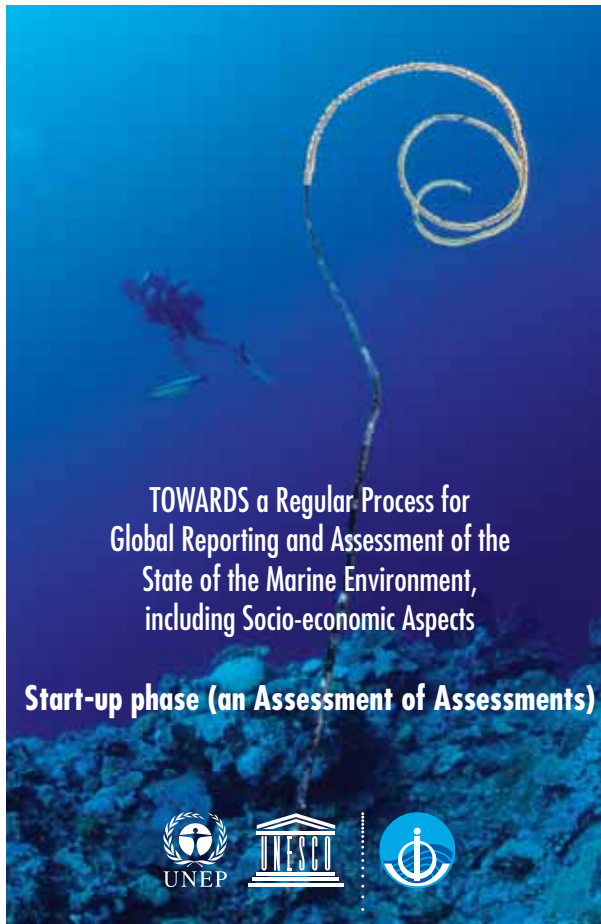
The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), for which UNEP provides

the secretariat, aims to mitigate or prevent the degradation of the marine environment from land-based activities. It is the only inter-governmental programme that addresses the links between freshwater, coastal and marine ecosystems. The UNEP/GPA Coordination Office continued to support national governments to address land-based sources of marine pollution and mainstream coastal and marine issues into relevant national development processes. Examples include regional workshops in Mauritius, in May 2008, and Jamaica, in July, for senior government officials responsible for environment, economic affairs and finance. The workshops facilitated sharing of national experiences in integrating coastal and marine environmental issues into national development plans and budgets, and the country teams were taken through the process of preparing national mainstreaming strategies. UNEP/GPA will provide additional support to selected countries based on proposals from the workshops.

Through the UNEP/GEF and Norwegian-funded WIO-LaB (Addressing Land-based Activities in the Western Indian Ocean) project, UNEP provided support to Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles and Tanzania to implement demonstration activities addressing marine and coastal pollution. The projects are designed to test innovative and locally appropriate technology, such as constructed wetlands for wastewater treatment and new forms of management. Through the WIO-LaB project,

The UN General Assembly designated 2008 the International Year of Sanitation to accelerate progress towards the Millennium Development Goal of reducing by half the 2.6 billion people without access to basic sanitation by 2015. Access to sanitation is vital to ensuring health, dignity, a sound environment and sustainable social and economic development for the world's poorest citizens. As a member of the UN-Water Task Force on Sanitation, UNEP/GPA worked with other UN agencies and international organisations to raise awareness about sanitation issues, in particular wastewater issues.





countries are also being supported with a range of training and educational programmes and, in several cases, with financial grants to purchase equipment for monitoring water and sediment quality. The project also supported the Nairobi Convention Secretariat to launch a Regional Clearinghouse Mechanism providing information on the state of the coastal and marine environment in the Western Indian Ocean.

Another initiative saw UNEP and UNESCO team up to build municipal wastewater management capacity in coastal cities in Barbados, Egypt, Ghana, Guyana, Jamaica, Kenya, Kiribati, Nigeria, Tonga, and Trinidad and Tobago, with funding from the EU ACP (African, Caribbean and Pacific signatories of the Lomé Convention) Water Facility and UNDP-GEF. Under this programme UNEP/GPA has trained regional instructors to increase South-South knowledge sharing. A training website provides an online self-study management tutorial and a compendium of technologies, which are both used by a growing global community of practitioners, planners and decision makers.

Following commitments developed at the 2002 Johannesburg World Summit on Sustainable Development (WSSD), the UN General Assembly, decided to launch a start-up phase towards the establishment of a regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects. This preparatory stage, which builds on existing regional assessments, referred to as the Assessment of Assessments is being led by UNEP and the UNESCO Intergovernmental Oceanographic Commission. A peer review report of the Assessment of Assessments findings and a Summary for Decision-makers will be submitted to the Ad Hoc Steering Group for consideration in May 2009 before presentation to the UN General Assembly in October 2009.

To more effectively coordinate the GPA's increased emphasis on "mainstreaming the implementation of the GPA in national development planning and budgetary mechanisms," and to align the work of the GPA Coordination Office with the UNEP Medium Term Strategy, particularly the objective that countries increasingly utilise the ecosystem approach to enhance human well-being, the GPA Coordination Office was relocated to Nairobi, Kenya, in August 2008. This relocation is also envisaged as a step to integrate the GPA Coordination Office as a key unit of the UNEP Marine and Coastal Ecosystems Branch. The UNEP GPA Coordination Office was first established in The Hague in 1998 with the financial and technical support of the Government of The Netherlands. Since then the GPA Programme has become an internationally recognised and widely used framework for the sustainable development of coasts, oceans and islands and their associated watersheds.

MARINE ECOSYSTEMS

UNEP's Marine and Coastal Ecosystem Branch provides a comprehensive institutional and programmatic framework for regional and global cooperation for the protection of the marine environment. 2008 saw UNEP's work on oceans and coastal ecosystems strengthened through the initiation of the development of a UNEP Marine and Coastal Strategy, which uses the framework of the Mid-Term Strategy and the platform of the Regional Seas Conventions and Action Plans to focus on priority issues for maintaining marine ecosystems and their services for human well-being.

UNEP also furthered its close collaboration with the CBD with the preparation of an in-depth review of the implementation of the expanded

CBD Programme of Work on marine and coastal biological diversity (the Jakarta Mandate). The review will assist the 14th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, May 2010, and provide input to the Global Biodiversity Outlook 3, which is also being prepared by the CBD for 2010. Work includes a scientific synthesis of the impacts of destructive fishing practices, unsustainable fishing and illegal, unreported and unregulated fishing on marine biodiversity, with CBD and the UN Food and Agriculture Organisation (FAO).

A global meeting of the Regional Seas Convention and Action Plans was held in Guayaquil, Ecuador, addressing oceans and climate, as well as implementation of activities related to national and regional marine management and policy development, including ecosystem management. In collaboration with the Permanent Commission for the South Pacific (CPPS) a first Regional High-Level Meeting on Climate Change was also convened to engage authorities in discussing regional actions to mitigate and adapt to the effects of climate change. Support was also given to the CPPS to undertake pilot projects in some member countries (Chile, Peru, Ecuador, Colombia and Panama) to address by-catch of marine mammals due to fishing activities and to identify viable national mitigation strategies under the framework of the Plan of Action for the Conservation of the Marine Mammals in the Southeast Pacific.

In the Western Indian Ocean, support was provided to the Nairobi Convention to further develop its work on integrating ecosystem-based management into national development planning in eastern Africa. In the Caribbean region, UNEP supported the development of a UNEP/Inter-American Development Bank/GEF project for a Caribbean Regional Fund for Wastewater Management in accordance with the Land-Based Sources Protocol of the Cartagena Convention. In the northeast Atlantic, support was given to the OSPAR Commission to raise the awareness of relevant and emerging marine environmental issues of regional and global importance. Fact sheets and leaflets include topics such as: marine litter, marine spatial planning, cooperation with regional fisheries bodies, marine science practice (including areas beyond national jurisdiction), ocean chemistry, selection of threatened species and habitats, and establishing monitoring priorities.

UNEP continued to provide the Interim Secretariat of the Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention) and its Protocols to bridge the time required to finalise negotiations by Caspian countries on a fully Government-financed Convention permanent Secretariat. UNEP is also collaborating on the UNDP-UNEP GEF project The Caspian Sea: Restoring Depleted Fisheries and Consolidation of a Permanent Regional Environmental Governance Framework. UNEP also continued to support 13 Caribbean Small Island Developing States (SIDS) in mainstreaming integrated approaches to the management of watersheds and coastal areas. A similar programme is also under way in 14 Pacific SIDS, and a project for Atlantic and Indian Ocean SIDS has been submitted to GEF.

MARINE BIODIVERSITY

Through the EU-financed project Institutional Strengthening and Capacity Development for the Long-term Management and Conservation of Marine and Coastal Protected Areas, encompassing coral reef resources in South Asia, UNEP supported collaboration between the South Asia Cooperative Environment Programme and its partners, and the International Coral Reef Action Network (ICRAN). The three-year project, which culminated in 2008, produced reports, guidelines, manuals and toolkits to support the five maritime nations of South Asia (Bangladesh, India, Maldives, Pakistan and Sri Lanka) in reducing the rates of marine biodiversity loss, and to protect and sustainably manage their natural coastal resources for economic and social development. UNEP also contributed to the *International Year of the Reef* through the International Coral Reef Initiative (ICRI), which raised awareness of coral reefs, and developed education and information materials in the Caribbean, South Asia and East Africa.

As part of continued collaboration for the protection and management of coral reefs by the UNEP Coral Reef Unit, support was given to the Global Coral Reef Monitoring Network reports *Status of Caribbean Coral Reefs after Bleaching and Hurricanes in 2005* and *Status of Coral Reefs of the World: 2008*. The latter provides an up-to-date assessment of the health of tropical coral reef ecosystems in most coral reef range states, and includes a review of the

status of cold and deep-water coral communities. Support for ICRI continued by contributing to the Coral Reef Crime Scene Investigation programme. The programme developed special investigative, forensic and rapid ecological underwater assessment techniques, standards and protocols for the collection of data and evidence of accidental or deliberate human impact on coral reefs. In Southeast Asia, the Green Fins Programme, supported by UNEP, established a network of dive operators and divers that practice environmentally friendly diving and snorkelling. Initiated in the Philippines and Thailand, the programme has expanded to Indonesia and Malaysia.

UNEP's participation in the interdisciplinary European research project HERMES (Hotspot Ecosystem Research on the Margins of European Seas) links UNEP to the latest scientific discoveries in our deep oceans. The deep sea is teeming with organisms, but is already showing clear signs of impact caused by human activities, despite its remoteness. UNEP is raising the awareness of HERMES results at the global level via publications, such as the joint report *Deep-sea Biodiversity and Ecosystems: A Scoping Report on their Socio-economy, Management and Governance*.

MARINE LITTER

Marine litter, most of which degrades slowly, if at all, poses a growing threat to the marine and coastal environment. UNEP is raising awareness and promoting action on the issue worldwide. Activities on marine litter initiated in 2005 by UNEP's Regional Seas Programme were completed in 2008 in 12 participating Regional Seas (Baltic Sea, Black Sea, Caspian, East Asian Seas, Eastern Africa, Mediterranean Sea, Northwest Pacific, Northeast Atlantic, Red Sea and Gulf of Aden, South Asian Seas, Southeast Pacific, and Wider Caribbean). A *Review of the Status of Marine Litter* in each region was produced, and seven Regional Seas prepared Action Plans on the Management of Marine Litter. Eleven regions participated in the International Coastal Cleanup campaign in 2007.

In addition UNEP and UNESCO, through its Intergovernmental Oceanographic Commission (IOC), developed the *UNEP/IOC Operational Guidelines on Survey and Monitoring of*

Marine Litter, a comprehensive description of scientific surveys and monitoring protocols and also simplified surveys and monitoring procedures suitable for community-based or other non-research-trained groups. Similarly, UNEP collaborated with the Institute for European Environmental Policy and Sheavly Consultants to provide policy makers, managers, Regional Seas programmes and other relevant organisations with advice on the selection, establishment, application and implementation of market-based and economic instruments to address the problem of marine litter.

Lastly, UNEP and FAO produced the report *Abandoned, Lost and Otherwise Discarded Fishing Gear* to address this threat to marine ecosystems and to human activities at sea. The object was to review available information and assess the feasibility of developing joint programmes, activities, capacity building, education and public and sectoral outreach between regional fisheries bodies and Regional Seas Programmes.

SUSTAINABLE FISHERIES

Fisheries in every ocean face unprecedented rates of depletion, with 75 per cent of commercially exploited fish stocks worldwide either depleted or threatened by over-fishing. The tremendous economic, social and development opportunities that fisheries offer are wasted by current inefficiencies. The annual loss of potential economic benefits in the global fishery is estimated at \$50 billion. Perverse fisheries subsidies, estimated at between \$15 billion and \$32 billion a year, are a considerable factor. They contribute to economic losses by providing incentives for overfishing and over-capacity, and distort world trade. UNEP's Economics and Trade Branch has been working for several years on improving economic policies and instruments in the fisheries sector and orienting them towards sustainability.

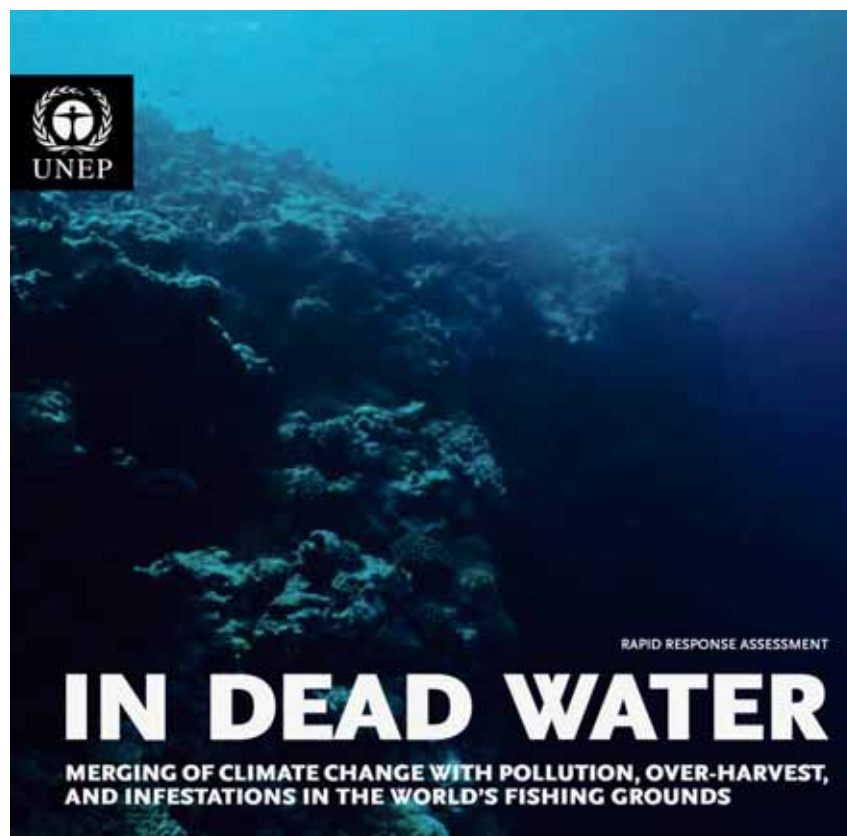
UNEP is working on creating an incentive system that reflects the economic, social and environmental value of fisheries resources instead of accelerating their depletion. This includes the removal of harmful fisheries subsidies. Aiming to provide continuous input for fisheries subsidies reform at the World Trade Organisation (WTO), UNEP held a workshop in

January 2008 that offered a forum for informal technical dialogue at a critical moment in the WTO negotiations. Participants and experts discussed the merits and implications of a proposed draft text of WTO rules on fisheries subsidies, including its scope, the role of sustainability criteria as well as special and differential treatment for developing countries.

Since national reforms, ideally encouraged by international rules, are key for achieving reform, UNEP has increased its efforts to assist governments with related analysis and advisory services. A project in Ecuador, for example, investigates the impacts of subsidies on the sustainability of Ecuadorian tuna and seeks to help Ecuador and other countries in the region to develop policy strategies for national, regional and international subsidies. A side-event at IUCN's World Conservation Congress in October 2008 raised awareness of the subject among the international conservation community to increase stakeholder support for reform and for related data transparency.

In an attempt to look at economic rationales, constraints and opportunities from the public as well as a private sector perspective, UNEP has also been exploring voluntary initiatives throughout the supply chain to improve fisheries management. Challenges for such initiatives, such as those related to eco-labelling and certification, were discussed in two papers, as well as during a workshop in September 2008 that gathered participants of all stages of the seafood supply chain, including fishermen, wholesalers and traders, processors, retailers, NGOs and public institutions. Country projects that look at the obstacles and scope of action for all these groups were launched in Vietnam and southern Africa in 2008. A workshop in Cape Town convened, for the first time, a wide range of stakeholders to discuss challenges for marine certification in southern and eastern Africa. Based on successful examples in these countries, UNEP will continue to encourage all stakeholders to assume their respective responsibility and manage this major natural resource in a way that ensures its long-term contribution to food security, economic development and poverty reduction.

A rapid response report on the global marine environment was launched at the UNEP Governing Council Special Session in Monaco, in February 2008. *In Dead Water*, compiled by UNEP/GRID-Arendal and UNEP-WCMC with the University of British Columbia and other partners, attracted worldwide media attention. The report concluded that over half the world's fish are caught in only 7 per cent of the world's oceans and that fishing grounds are threatened. In spite of fishing further and further offshore and in deeper and deeper waters, we are unable to catch more fish. Bottom trawling has greatly affected fishing grounds and is responsible for between 50 and 90 per cent of seabed damage. Climate change may stop natural flushing mechanisms that clean coastal waters and deliver nutrients to depleted stocks of fish and shrimp in the deep sea that enable them to recover from overharvest. This will result in more polluted coasts and more difficulty in bringing back depleted fish stocks. CO₂ emissions are already causing ocean acidification. Climate change and shipping are also causing massive invasive species infestations in damaged fishing grounds along major shipping routes.







Environmental Governance

TOWARDS ENVIRONMENTAL COHERENCE

Environmental governance and the establishment of coherent environmental laws and institutions lie at the heart of UNEP's mission. Since it was established in 1972, UNEP has been assisting governments to develop and apply environmental law, from global conventions down to national environmental legislation. Long-term strategic guidance for this work is provided by the Montevideo Programme for the Development and Periodic Review of Environmental Law.

Since 1982, three sequential ten-year Montevideo Programmes have guided the development and implementation of UNEP's international environmental law programme, in response to the environmental challenges of each decade. A draft version of the fourth programme has been prepared through a process that started in 2007 and will be concluded with the presentation of the new programme at the 25th session of the UNEP Governing Council in February 2009. The draft Montevideo Programme IV was finalised at a Meeting of Senior Government Officials Expert in Environmental Law in Nairobi, Kenya, in October 2008. While most components reflect those already in the Montevideo Programme III, new features of the programme include:

- climate change
- poverty
- access to drinking water and sanitation
- ecosystem protection
- environmental emergencies and natural disasters
- new technologies
- synergies among multilateral environmental agreements (MEAs).

To strengthen support to governments' efforts to implement and comply with existing internationally agreed environmental objectives in a coherent manner, UNEP has embarked on the Global Environmental Goals initiative. As an initial step, UNEP convened a small group of experts to prepare an outline of the compilation of existing internationally agreed environmental objectives, goals and targets in the margins of the sixteenth session of the Commission on Sustainable Development (CSD16) in New York in May 2008.

Global environmental coherence – and in particular coordination among the various entities

of the UN system – is also a focus of the UN Environment Management Group (EMG), of which the UNEP Executive Director is Chair. UNEP also provides the Secretariat. The EMG provides a platform for bringing together all the diverse perspectives, expertise and strengths of the UN system in identifying and addressing issues on the international agenda that warrant joint efforts. In the past two years, the working relationship between the Group and the Chief Executives Board on coordination has been strengthened and the service capacity of the EMG Secretariat has been enhanced, elevating the relevance and spirit of cooperation in the Group, with cooperation on climate neutrality providing a prime example. Currently, the Secretariat is consulting with members on potential cooperation on two new issues: the ten-year strategic plan and framework for the implementation of the UN Convention on Combating Desertification; and the achievement of the 2010 biodiversity targets.

DELIVERING AS ONE

During 2008, UNEP also increased its participation in the UN Development Group (UNDG) and its various working groups and task teams with the overall strategy of mainstreaming environmental sustainability in country-level development assessment, planning and implementation. Examples included: co-chairing two UNDG task teams (one on mainstreaming disaster risk reduction and the other on mainstreaming environmental sustainability and climate change in the Common Country Assessment and UN Development Assistance Framework (UNDAF) processes, co-convening the UNDG Working Group on Country Office Business Operations; taking on the role of thematic coordinator for several issues handled by the UNDG Working Group on Programming Issues; as well as being more closely involved in the UNDG Working Group on Resident Coordinator System issues. These activities, coordinated by the UNEP New York office, had the added value of increasing awareness of, involvement in, and feedback to UNDG processes by UNEP offices around the world. Being more active in the UNDG is helping UNEP to reinforce its partnerships with operational agencies, such as the UN Development Programme (UNDP), and increasing its country level involvement in development activities while remaining within its non-resident agency character.

Increasing country-level involvement and mainstreaming environmental sustainability in broader development processes is also a core function of UNEP's involvement in the One UN process. In Africa, Cape Verde, Mozambique, Rwanda and Tanzania are involved in the pilot phase of the implementation of the One UN initiative. UNEP is involved in all four countries, ensuring that environmental issues are incorporated in the joint country programmes. Additionally, as a member of UN Country Team (UNCT) in Kenya, UNEP was involved in developing the third UNDAF for Kenya, integrating environment and related issues into Kenya's development plan for 2009–2013. Mozambique, Rwanda, Tanzania and Botswana have received support in environmental assessment and reporting and data and information management under the Africa Environment Information Network framework. National environmental indicators are being developed for mainstreaming into national statistical systems to provide information for planning, and

environmental assessments are being used to monitor UNDAF implementation.

In Latin America, UNEP joined the UNCT in Uruguay and contributed to the One UN Programme and joint projects. UNEP is executing two joint projects: on sustainable consumption and production with funding from the Spain-UNDP MDG Fund, Norway and others; and on the establishment of a system of national environmental indicators. Also in Latin America, UNEP is participating in MDG Joint Programmes in Panama, Peru and Nicaragua, and is part of UNDAF processes in Brazil, Cuba, México, Haiti, Ecuador, Panama and Guatemala.

POVERTY AND ENVIRONMENT

In 2008, the joint UNDP-UNEP Poverty Environment Initiative (PEI), formed in 2005 and scaled up in 2007, continued to expand its delivery, using lessons learned from pilot countries. In Africa, new phases were initiated

Mainstreaming poverty and environment linkages into national development and poverty reduction strategies and their implementation is a core strategic priority for both UNDP and UNEP. The joint UNDP-UNEP Poverty Environment Initiative (PEI) brings together UNEP's networks and environmental capacity with UNDP's development expertise and operational country-led presence.

Environmental governance

in several countries and cooperation between UNDP and UNEP was strengthened across Africa. Following the successful integration of environment into Poverty Reduction Strategies in Rwanda and Tanzania, both countries benefited from significant government budget increases for the environment sector. Environment is now being integrated into strategies at a sector level, such as agriculture and water, in several African PEI countries. Commitments have now been made to launch at least four new country programmes: in Botswana, Burkina Faso, Malawi and Zambia.

Following on from its formation in 2007, the joint PEI Asia team is continuing to develop an Asia Regional Programme. Their efforts have led to a new PEI programme in Bhutan in addition to an existing one in Viet Nam. The team has also started a PEI preparatory phase in Lao PDR, where national and sub-national consultation workshops were held to identify existing environmental gaps in poverty reduction plans and strategies. Plans are under way to launch other programmes in 2009 in Bangladesh, Nepal and possibly Cambodia. Joint UNDP-UNEP PEI teams in Latin America and the Caribbean and Europe and the Commonwealth of Independent States (CIS) were also established and regional programmes launched. To underpin the delivery of the PEI programme and put into operation the principles of Delivering as One, the Poverty-Environment Facility has developed Joint Programme Management arrangements between UNDP and UNEP. These specifically cover pooled funding and joint decision making arrangements. PEI is also increasing its focus on alignment at the country level with UNDP MDG Support activities, UNDAF preparation and One UN Pilot country programmes.

In September 2008, the Poverty-Environment Partnership (PEP) hosted a policy dialogue on Environment, Climate Change and the MDGs: Reshaping the Development Agenda, as part of the High-Level Event on the MDGs convened at UN Headquarters in New York. At this event, PEI presented some results from its country-level activities, which included Bhutan's planning agency ensuring the integration of environmental considerations into all sector development plans, and the Government of Uganda's success in integrating environment into its national budget planning process.

In 2009, PEI will be widening and deepening its programme of work. In Africa, more intense PEI phases will start implementation in Malawi and continue in existing PEI countries. Preparatory phases are expected to begin in Botswana, Burkina Faso and Zambia. In Asia, Viet Nam will be assessed for an additional phase of PEI support and PEI implementation will continue in Bhutan and Lao PDR. Preparatory phases are expected to begin in Bangladesh, Cambodia, Nepal and Pakistan. PEI preparatory phases will commence in between three and five countries in Latin America and the Caribbean and two or three CIS countries are also being identified.

SUPPORT TO AFRICA

UNEP continues to provide technical and policy advisory services to the Secretariat of the New Partnership for Africa's Development (NEPAD) to enhance human and institutional capacity

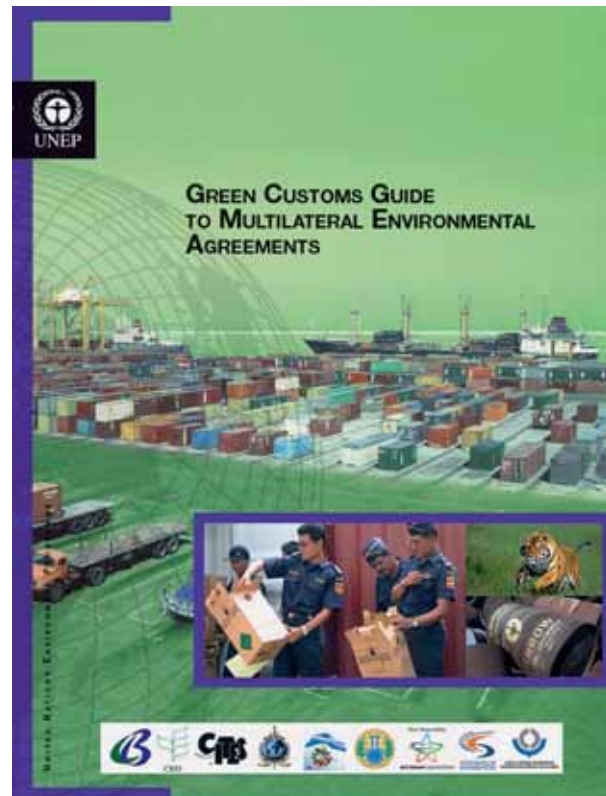
UNEP's *Atlas of Africa's Changing Environment* provides a graphic presentation of environmental change in each of Africa's 53 countries using satellite images of selected sites supported by ground photos and text. The Atlas, a complementary publication to the *Africa Environment Outlook*, was launched during the 12th session of AMCEN in June 2008 in South Africa. It presents examples of transboundary environmental issues related to shared lands and waters, migrating animals and people, and pollutants that drift over international borders. It highlights both emerging challenges and success stories in addressing numerous issues.



for coordinating the implementation of the NEPAD Environment Action Plan and the Sub-Regional Environmental Action Plans (SREAPs). Support was also provided for developing NEPAD and African Union (AU) policy briefs and positions on key emerging issues such as climate change.

Support was also provided to the regional economic communities on policies and programmes for integrating and implementing the SREAPs. Examples include the South African Development Community (SADC) Environment Protocol and the Common Market for Eastern and Southern Africa (COMESA) Climate Change Facility to support the preparation and development of eligible projects for the Clean Development Mechanism (CDM). UNEP supported improved coordination of NEPAD sectoral programmes, particularly in the areas of environment, agriculture, infrastructure and science and technology. In addition, UNEP continued to provide assistance, with financial support from Norway, to five pilot countries – Mozambique, Ethiopia, Libya, Ghana and Cameroon – to develop their NEPAD National Action Plans. The countries presented their progress reports to the African Ministerial Conference on the Environment (AMCEN) in June 2008.

UNEP provides the Secretariat to AMCEN. The 12th session of AMCEN was organised in June 2008 in Johannesburg, South Africa. Outputs included the AMCEN Johannesburg Declaration on Environment for Sustainable Development, the AMCEN President's summary on the ministerial policy dialogue, an Indicative Work Programme for 2009–2010, and eight decisions, including one on climate change, covering Africa's preparations for developing a common negotiating position on a comprehensive international climate change regime beyond 2012 and a comprehensive framework of African climate change programmes. UNEP also continues to give technical and financial support to the Steering Committee of the African Ministers' Council on Water and the consultative processes of its Technical Advisory Committee, and is working to integrate UNEP's work into the activities of the UU, via its Addis Ababa Liaison Office.



UNEP hosts the Secretariat of the Green Customs Initiative, which enhances the capacity of customs and other relevant enforcement personnel to monitor and facilitate the legal trade in environmentally sensitive commodities and to detect and prevent their illegal trade. Such commodities include protected fauna and flora, ozone depleting substances, hazardous chemicals and waste, and chemical weapons. This is achieved through cooperation with the Secretariats of MEAs that have trade controls and other partner organisations to provide an integrated, efficient, self-sustaining and coordinated approach to training and awareness raising on all the relevant international agreements, and provide assistance and tools to the enforcement community which complement and enhance existing customs training efforts under the respective agreements.

TECHNICAL ASSISTANCE

In Latin America and the Caribbean, UNEP continued to support the Forum of Ministers of the Environment of Latin America and the Caribbean through promoting political dialogue and defining environmental priorities for the region. The Latin America and Caribbean Initiative for Sustainable Development (ILAC) is a successful example of regional coordination in the framework of the Forum. The Regional Action Plan of the Forum of Ministers of the Environment is the principal means for implementing the ILAC and includes activities carried out during each biennium with the support of the Inter-Agency Technical Committee (ITC), consisting of UNEP, UNDP, the Inter-American Development Bank (IDB), ECLAC and the World Bank. UNEP also works with various institutions in the four sub-regions

Environmental governance

(Mesoamerica, Caribbean, Andean Region and the South Cone) to support capacity building, environmental assessment and outreach.

UNEP also provided support to sub-regional intergovernmental forums in the Asia-Pacific region to enhance cooperation for better environmental management and sustainable development. Efforts include the promotion of the Central Asian Framework Convention on Environment and Sustainable Development. Legal advice was also given to the Acid Deposition Monitoring Network in East Asia on negotiating an instrument for regional cooperation on acid deposition and air pollution control. Legal advice and support was also given to Mongolia and Maldives for the development of national framework environmental laws and, to enhance the capacity of the judiciary and other legal stakeholders, UNEP organised the Asia-Pacific Regional Conference on Environmental Justice in Bangkok, Thailand, in January, for more than 75 judges, prosecutors, enforcement officials and other legal stakeholders representing 38 countries from the Asia-Pacific region.

In East Africa, UNEP organised a Workshop on Freshwater Governance with a focus on integrated water resources management, payment for ecosystem services, governance, management structures and processes, and transboundary ground water aquifer management, among others. Participants came from Mozambique, Rwanda, Tanzania, Uganda, Burundi and Kenya, the Lake Victoria Commission, the East African Community and the Nile Basin Initiative. UNEP is also organising a High-Level Ministerial Conference on Strengthening Transboundary Freshwater Governance in 2009 with a focus on strengthening its environmental dimension. The conference will be drawn primarily from the African, Asian and Latin American and Caribbean regions and will help to clarify the roles of the various stakeholders in transboundary freshwater governance at regional, sub-regional and national levels.

UNEP has also undertaken four country studies, in China, India, Japan and the Philippines, on strengthening legal and policy frameworks for addressing climate change and moving towards a low-carbon economy. The studies identified and assessed available legal, regulatory and institutional measures to reduce greenhouse gas

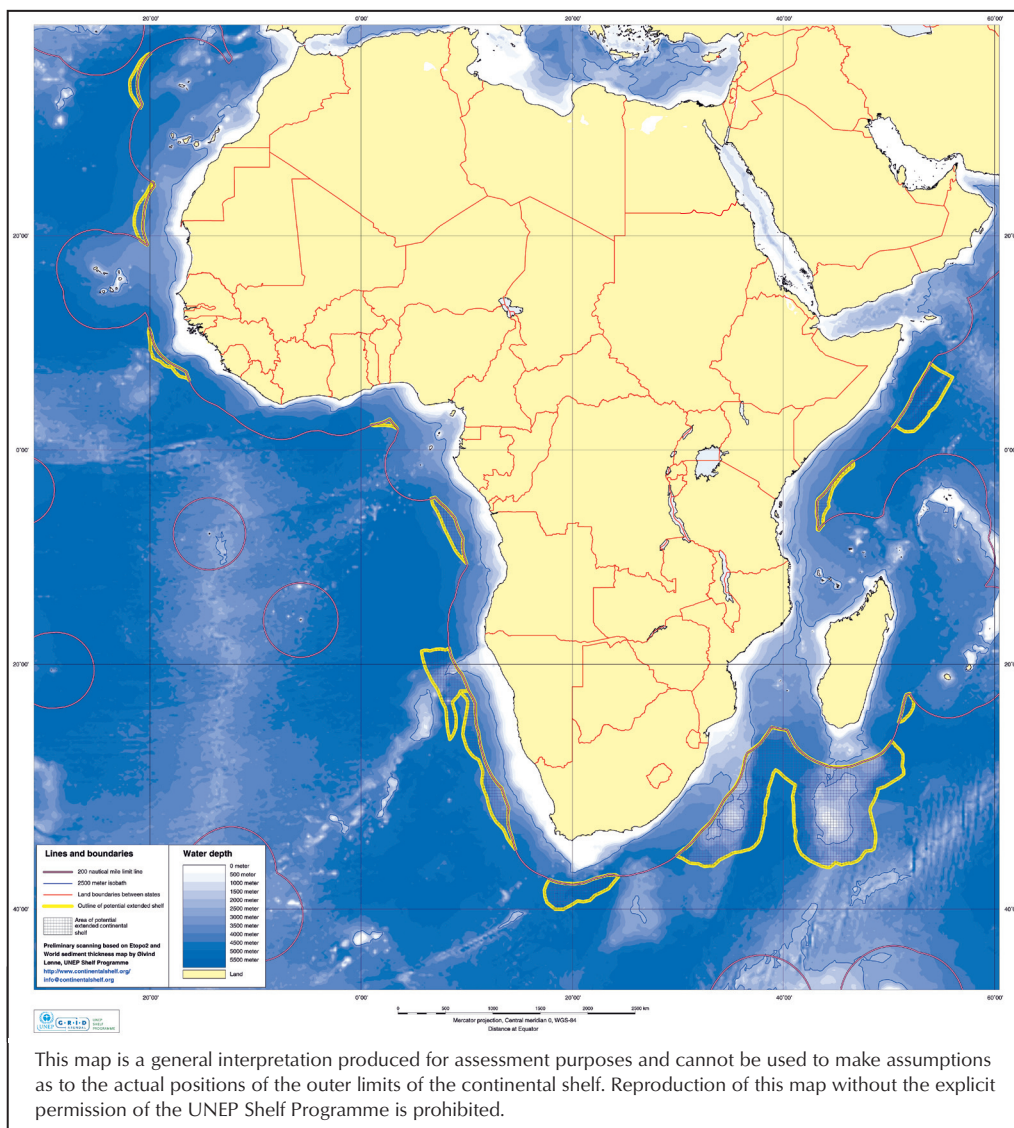
emissions. UNEP also organised four national workshops on climate change law and policy in Cambodia, Lao PDR, Myanmar and Vietnam. In Turkey, UNEP has started a project on Enhancing the Capacity of Turkey to Adapt to Climate Change, funded under the MDG Achievement Fund (MDG-F), in collaboration with UNDP, the UN Food and Agriculture Organisation (FAO) and the UN Industrial Development Organisation (UNIDO). The objective of the MDG-F is to accelerate efforts to reach the Millennium Development Goals in select countries. The programme in Turkey will develop capacity for managing climate change risks to rural and coastal development in Turkey. UNEP will have a core role in activities related to policy and law, education, training and public awareness, scientific capacity building and the development of National Adaptation Programmes of Action.

BUILDING LEGAL CAPACITY

Throughout 2008, UNEP's Division of Environmental Law and Conventions (DELCO) has continued to organise training and technical assistance for national stakeholders, including parliamentarians, negotiators, judges and magistrates, customs officials, lawyers, and non-governmental organisations, in environmental management, policy and law. The objectives are to:

- provide information about policy, legal and institutional developments in the field of environmental law
- promote the use of environmental law as an instrument for translating sustainable development policies into action
- promote the strengthening of existing legal frameworks for more effective environmental management
- strengthen capacity for effective compliance with and implementation and enforcement of MEAs
- promote the sharing of experiences of initiatives in environmental law and policy.

UNEP has also been involved in capacity strengthening and development for hundreds of national negotiators involved in MEAs, including providing support at conferences and meetings of Parties, to ensure they can participate effectively in regional and global negotiations and follow up on decisions at national level. In this context, an environmental diplomacy course for Indonesia



The UNEP Shelf Programme, managed by UNEP/GRID-Arendal, has been providing data and training to experts from developing countries, including Small Island Developing States (SIDS), on the delineation of the outer limits of the continental shelf. The map shows the potential continental shelf beyond 200 nautical miles around Africa. Grey areas would qualify as part of the continental shelf beyond 200 nautical miles as identified by the UNEP Shelf Programme preliminary study. The process of the delineation of the outer limits of the continental shelf is driven by the 1982 UN Convention on the Law of the Sea (UNCLOS). The seabed and the subsoil of the continental shelf constitute the outermost maritime zone over which coastal states have jurisdiction. Coastal states that were early to ratify UNCLOS are due to submit information on the outer limits of the continental shelf by May 2009. Some developing states are experiencing difficulties in finishing the technical work involved in the delineation. The support given by the UNEP Shelf Programme has been instrumental in the advancement of this technical work. Data were provided to 15 countries, training was given to experts from 26 countries and technical advice was provided to an additional five countries. Once the delineation process is completed, coastal states will have responsibility for protecting the environment and managing the resources of these areas of the seafloor. This map was produced by the UNEP Shelf Programme at UNEP/GRID-Arendal in the context of a preliminary evaluation of the potential for continental shelf beyond the 200 nautical mile Exclusive Economic Zone of African states based on criteria outlined in Article 76 of the United Nations Convention on the Law of the Sea.

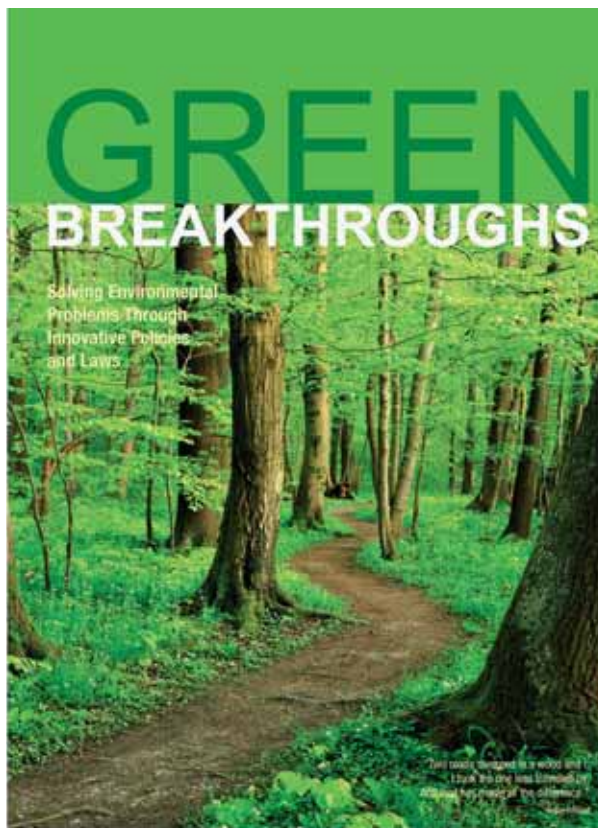
was held in Jakarta in April 2008 to train junior and senior diplomats in environmental law and governance. A fifth University of Joensuu-UNEP Course on International Environmental Law-making and Diplomacy was also conducted in South Africa in June and July. Organised by UNEP, the University of Joensuu and the University of KwaZulu-Natal, the course continues to be one of the major cooperation activities executed under the Declaration of Intent whereby the University of Joensuu acts as

a UNEP Partner University to promote interaction between institutions of higher education in the North and South. The special theme of the fifth course was oceans. To ensure long-term sustainability in the capacity building activities undertaken, a curriculum, including teaching materials on MEA compliance and enforcement, has been developed for use by universities teaching law or environmental management that can stand alone as a full-fledged certificate course on the subject.

ADVANCING ENVIRONMENTAL LAW

Throughout 2008, UNEP supported processes for advancing environmental law in the areas of liability, dispute avoidance and settlement, and access to information and justice. The UNEP Advisory Expert Group on Liability and Compensation for Environmental Damage reviewed and finalised a set of *Draft Guidelines for the Development of National Legislation on Liability and Compensation for Environmental Damage* at a Consultative Meeting of Government Officials and Experts in Nairobi in June, and recommended they be submitted to the 25th session of UNEP Governing Council in February 2009 for adoption. The guidelines are intended to highlight core issues that developing countries and countries with economies in transition will have to face when drafting domestic laws and regulations on liability and compensation for environmental damage caused by activities dangerous to the environment.

To assist legislators in MEA implementation, UNEP and the UN University published *Green Breakthroughs: Solving Environmental Problems Through Innovative Policies and Law*, a compilation of policies and laws that have worked around the world. It was launched at the 10th Special Session of the UNEP Governing Council/Global Ministerial Environment Forum in February 2008 in the Principality of Monaco.



At a Consultative Meeting of Government Officials and Experts in Nairobi in June 2008, *Draft Guidelines for the Development of National Legislation on Access to Information, Public Participation and Access to Justice in Environmental Matters* prepared by the UNEP High-Level Advisors on Environmental Dispute Avoidance and Settlement were revised and further developed for submission to the UNEP Governing Council in February 2009.

ENVIRONMENTAL ASSESSMENT

The development and implementation of effective global, regional and national policies and laws depends on decision makers having access to relevant information. UNEP's strategic approach is to undertake and support timely, participatory and scientifically credible environmental assessments based on the best available scientific expertise, knowledge, data and indicators. The core of UNEP's provision of environmental information and assessments is the Global Environment Outlook (GEO) process with its wide network of Collaborating Centres and other partners that both feed into UNEP's products and receive capacity building support from UNEP.

In Asia and the Pacific, capacity development in integrated environmental assessment (IEA) is currently in high demand at national and municipal levels. A *GEO Training Manual* has been customised, and a *City Assessment Manual* developed for the region. South-South cooperation, through experience sharing between national governments, municipal authorities and GEO Collaborating Centres is a key element. For example, the IEA methodology was incorporated into national and state-level environmental assessment and reporting in India with the assistance of two GEO Collaborating Centres.

Between 2007 and 2008, 10 national and sub-national integrated environment assessment reports were produced (Bhutan; Cambodia; DPR Laos; Islamic Republic of Iran; Kyrgyzstan; Sri Lanka; Turkmenistan; Kathmandu Valley, Nepal; Shenzhen, China; and Ulaanbaatar, Mongolia) with technical support provided by UNEP's Division of Early Warning and Assessment (DEWA). Together with GEO Collaborating Centres and other partners, UNEP has also conducted IEA and reporting processes for Central Asia, the Greater Mekong and the South Asia sub-

The screenshot shows the homepage of the UNEP IA Community Learning Platform. At the top, there is a navigation bar with links: About UNEP, UNEP Offices, News Centre, Publications, Events, Awards, Web Animations, and Employment. Below this is the UNEP logo and the text 'United Nations Environment Programme'. A green banner reads 'IEA Community Learning Platform' with a 'Home' button and links for Training, Notice Board, News, Resources, and Login. The main content area is divided into sections: a large text block welcoming users to the IEA on-line interactive training resource platform, a 'News' section with two articles, and a navigation menu with icons for various resources like 'IEA Training Manual - Modules', 'Training schedules', 'Sign up - Become a member', 'Instructor Guidance', 'Trainer profiles', 'Already a member - Login', 'Developing and Delivering Training', and 'Notice Board'. At the bottom, there are logos for UNEP, GRID-Arendal, and IISD, along with the text 'International Institute for Sustainable Development' and 'Institut international du développement durable'. A footer contains links for 'About | Contact | Sitemap'.

UNEP/GRID-Arendal has launched an Integrated Environment Assessment (IEA) online interactive training resource platform in collaboration with the International Institute for Sustainable Development (IISD). It includes numerous IEA tools, methods, case studies and reports. Users can share their experiences in developing, applying and testing IEA methodologies in their regions as well as learning from the experiences of a diverse network of practitioners from around the world.

regions. Although it is too early to record policy impacts, some interesting uses have been noted. For example, findings and recommendations of the Central Asia assessment have been used to revise the Regional Environmental Action Plan, to ensure a solid scientific base for the Sub-regional Sustainable Development Strategy being developed by the Central Asia Inter-State Sustainable Development Commission, and to provide comprehensive assessments of all current and emerging issues for the implementation of the Framework Convention on Environmental Protection for Sustainable Development in Central Asia. Also, the conclusions and findings of the *Shenzhen Environment Outlook* were used for the city's development strategy and plans.

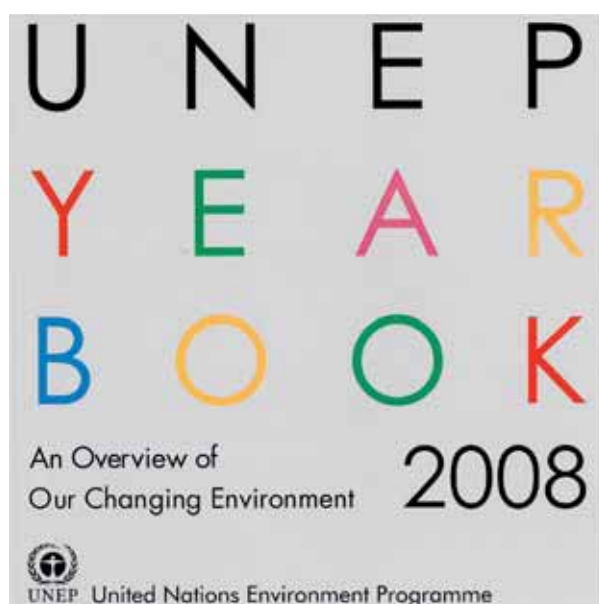
GEO IN LATIN AMERICA

In Latin America and the Caribbean (LAC), GEO is supporting governments and institutions to produce data and information on the state of the environment that can be incorporated into local, national, regional and global assessments. GEO assessment methodology has been applied at several levels: regional (GEO-LAC), sub-regional (GEO-MERCOSUR, GEO-Andean), local (GEO Cities), thematic (GEO-Youth, GEO-Health, Climate Change in the Caribbean) and at the ecosystem level (GEO-Amazonia, GEO-Titicaca, and GEO-Brazil Forests). The GEO process has also contributed to the creation and strengthening of a regional network of scientific centres and experts.

Environmental governance

In many cases, GEO represents the first time scientific and policy experts have come together to draw conclusions on the state of the environment. This has triggered interdisciplinary dialogue – vital in any effort to mainstream environmental issues – and provides the basis for informed decision making. The GEO-MERCOSUR assessment report was launched during the ninth Meeting of Environment Ministers from MERCOSUR and its Associated States in November 2008. It applies UNEP's GEO methodology, but puts special emphasis on environment and trade. *Climate Change in the Caribbean and the Challenge of Adaptation*, prepared by UNEP with the Caribbean Community and Common Market (CARICOM), contributes to the dialogue between policy makers and the scientific community for preparing a more

Part of UNEP's work – under the overall objective of supporting more coherence in international environmental decision-making processes – is to ensure that emerging environmental problems of wide international significance are brought to the attention, and support the functions, of the Governing Council. The *UNEP Year Book* series is part of UNEP's portfolio of information materials to bridge the gap between science and policy. The *UNEP Year Book 2008* highlighted the increasingly complex links between climate change, ecosystem integrity, human well-being, and economic development. It examined the emergence and influence of economic mechanisms and market-driven approaches for addressing environmental degradation and described recent research findings and policy decisions that affect our awareness of and response to changes in our global environment. Core data sets from the GEO Data Portal were used to illustrate the report, including the key indicator on progress with ratification of MEAs. The *UNEP Year Book 2009*, which will be launched at the 25th Session of the UNEP Governing Council in February 2009, examines new science and emerging issues related to the six cross-cutting thematic priorities of the UNEP Medium Term Strategy 2010–2013.



vigorous climate change programme. The study also highlights climate change trends, in particular their impact on Small Island Developing States (SIDS).

The participatory process for the *Ecuador Environment Outlook* was successfully completed in 2008. The report highlights the complex scenarios that Ecuador faces in the area of natural resources, economic dependence, technological development, contradictions between oil exploitation and biodiversity conservation, investment projects in protected areas, atmospheric pollution and increased vulnerability to natural hazards. Positive signs include increased public and governmental awareness of the importance of sustainable development to overcome the impact of climate change and the natural disasters associated with it. Two national GEO processes also started in 2008. Panama, a pioneer in the use of the GEO methodology at national level, started its third process in July 2008 via a virtual meeting for the initial workshop. The Dominican Republic started its first GEO national process in November 2008.

2008 was also a fruitful year for GEO Cities, with eleven projects launched: GEO Rosario (Argentina), GEO Loja (Ecuador), GEO Chiclayo (Peru), GEO Asunción (Paraguay) and GEO Esmeraldas (Ecuador) in South America Region; and GEO Ciudad de Guatemala (Guatemala), GEO Querétaro (Mexico), GEO San Salvador (El Salvador), GEO Cienfuegos (Cuba), GEO Holguín (Cuba) and GEO Santa Clara (Cuba) in Central America and the Caribbean. Processes in Cuba and Peru were implemented as part of the Urban Environment Strategy for Latin America and the Caribbean, developed by UNEP and UN-HABITAT regional offices.

Two GEO Youth reports were launched in 2008. The *GEO for Youth Brazil* was launched with the participation of various Ministers and the President of the Caixa Economica Federal in Brasilia in June 2008. More than 4,000 young people were involved in the publication, 100 organisations gave their support, 60 Focal Points selected, more than 100 activities implemented, and 8,000 books and CDs distributed across Brazil. *GEO for Youth in the Caribbean*, a collaboration of more than 150 young people from 14 Caribbean countries, was launched in Grenada in November 2008.



UNEP and Google Earth have made it possible to monitor the state of our environment from your desktop computer by flying around a virtual Earth, zooming in on 186 environmental hotspots around the globe, and seeing the impact of human activity on the natural world through current and historical satellite data. The *UNEP Atlas of Our Changing Environment* layer was launched by Google Earth in September 2008.

DATA FOR DECISION MAKING

By arranging bilateral agreements with key data partners, as well as participation in inter-agency coordination mechanisms for collecting and processing environmental data, UNEP has made good progress in making available authoritative core data sets and key indicators. Examples include the new GlobCover data set showing high-resolution land cover for the planet, a new database on the worldwide production of mineral resources, and one on the production of biofuels. The core data sets and indicators are made available through the GEO Data Portal, developed by DEWA/GRID-Europe to provide consistent baseline and other scientific data to UNEP's network of GEO Collaborating Centres, as well as other partners and contributors, for the preparation of GEO and other assessment reports. State of the art technology enables the analysis of data and trends in support of UNEP's early warning function and capacity development activities. Regional GEO Data Portals are being developed for Africa, Latin America and the Caribbean, Asia and the Pacific, and West Asia.

UNEP GRID-Europe has also been involved in several European Commission research projects. In 2008, two major research projects were launched with the University of Geneva. The Assessing Climatic Change and Impacts on the Quantity and Quality of Water project focuses on water originating in mountain regions, particularly where snow and ice melt represent the largest stream flow component.

The EnviroGRIDS Black Sea Basin project is addressing the ecologically unsustainable development and inadequate resource management of the Black Sea, which is causing severe environmental, social and economic problems. GRID-Europe was also involved in the METAFUNCTIONS project, a pooling expertise in bioinformatics, computer science, geographical information systems and marine sciences, coordinated by the Max Planck Institute for Marine Microbiology, Bremen, Germany, which ended in 2008.

At the request of the Council of Arab Ministers Responsible for the Environment (CAMRE),

Environmental governance

an *Environment Outlook for the Arab Region* is being developed. A production meeting was held in Cairo, Egypt, in August and drafting teams are working on a report for publication in 2009. The process of producing the report has identified the following regional needs:

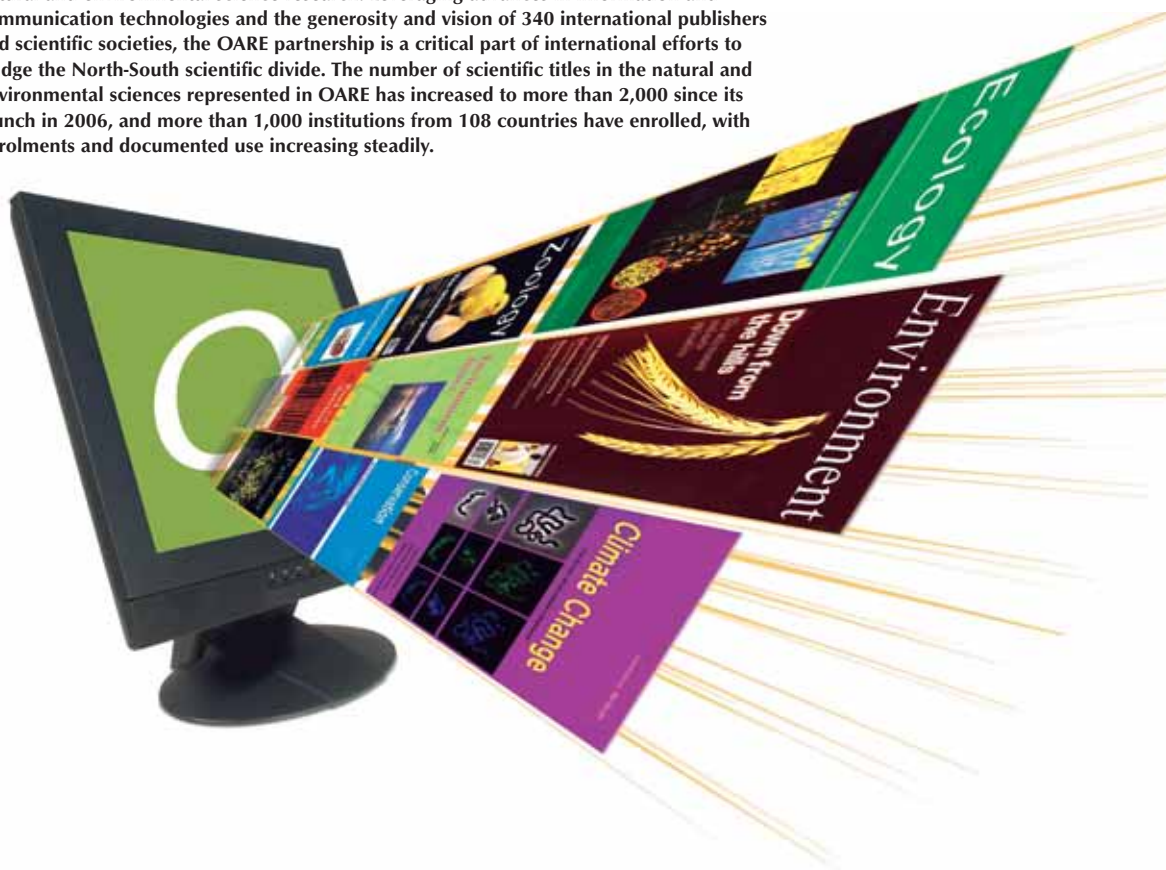
- strengthened interaction between science and policy
- enhanced focus on scientific inter-linkages between environmental challenges and responses
- improved quantity, quality, interoperability and accessibility of data and information
- enhanced national capacity for data collection and analysis, environmental monitoring and integrated assessment
- improved cooperation and synergy among UN bodies, the League of Arab States, and regional environmental organisations.

The final report will comprise an authoritative regional assessment and associated products, such as a summary for decision makers, fact sheets, vital graphics etc., for use by CAMRE and other regional and national stakeholders for decision

making and policy formulation to improve environmental management in the region. The report will cover key environment, development and policy issues for the Arab region, including water, land, coastal and marine environment, human settlement, biodiversity, and atmosphere. It will also address the links between environmental change, human well-being and policies, challenges and opportunities, and emerging issues.

Also in West Asia, the first draft of the *GEO Cities Manual for Integrated Environmental Assessment of Urban Areas for the Arab Region* has been completed in collaboration with the Environmental Centre for Arab Towns. A *Core Set of Sustainable Development Indicators* for the Arab Region has also been developed. The region also further developed the GEO West Asia Data Portal in collaboration with the Abu Dhabi Environment Agency and the University of the United Arab Emirates, and an initial framework for a Regional Environmental Information Network for the Arab region has been developed. Work has also started on the development of an *Atlas on the Changing Environment of West Asia*.

Online Access to Research in the Environment (OARE), an international programme led by UNEP, provides developing countries with access to the world's most important proprietary natural and environmental science research. Leveraging advances in information and communication technologies and the generosity and vision of 340 international publishers and scientific societies, the OARE partnership is a critical part of international efforts to bridge the North-South scientific divide. The number of scientific titles in the natural and environmental sciences represented in OARE has increased to more than 2,000 since its launch in 2006, and more than 1,000 institutions from 108 countries have enrolled, with enrolments and documented use increasing steadily.



ENVIRONMENTAL EDUCATION

2008 was an intensive year for UNEP's Environmental Education and Training programme. UNEP strengthened its collaboration with the UN Educational, Scientific and Cultural Organisation (UNESCO) and other UN Agencies through participation in the UN Inter-Agency Committee on the UN Decade of Education for Sustainable Development (UNDESD) and is engaged with UNESCO in preparations for the UNESCO World Conference on UNDESD in 2009. In responding to the UNDESD, UNEP has been building the Mainstreaming Environment and Sustainability in African (MESA) Universities Partnership, which is now working in 31 countries and 80 universities and institutions of higher learning. UNEP and its partners hosted the First MESA International Conference in November at UNEP headquarters in Nairobi, Kenya. The conference produced resolutions and contributions from Africa to inform the forthcoming World Conference on Education for Sustainable Development (March 2009); the 12th Association of African Universities (AAU) General Conference on Higher Education (April, 2009), the World Conference on Higher Education (May 2009) and the World Congress on Environmental Education (May 2009).

The MESA partnership also featured prominently at the Environmental Education Association of Southern Africa Conference in July in Swaziland. During the conference, the Council of the Southern African Development Cooperation (SADC) Regional Environmental Education Programme reported that they had received funding to promote MESA in SADC countries. Also in Africa, UNEP participated in the third e-Learning Africa Conference in Accra, Ghana, in May. UNEP held a pre-conference seminar on mainstreaming e-Learning into the work programmes of environmental authorities in Africa and other relevant organisations.

UNEP training tools and kits are being increasingly used to influence policy change in academic programmes. In partnership with Environic Foundation International, UNEP produced *Sustainable Societies in Africa: Modules on Education for Sustainable Development* in November 2008. This inter-disciplinary course is designed to promote understanding of the links between diverse human and natural resource

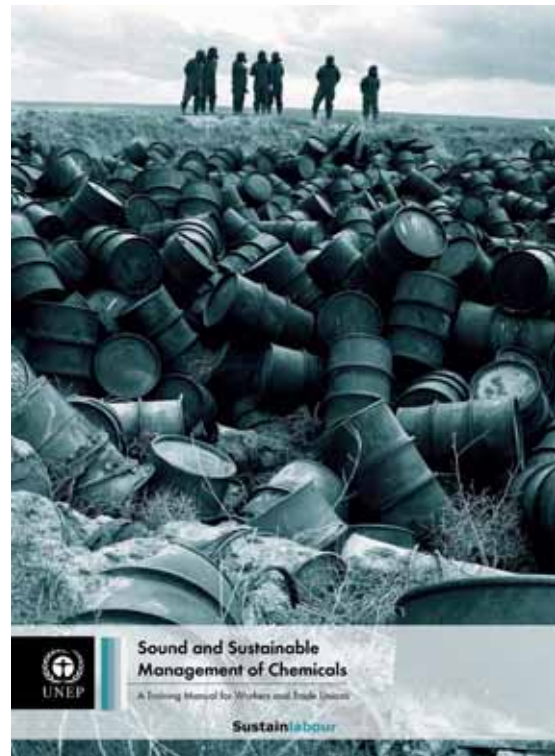
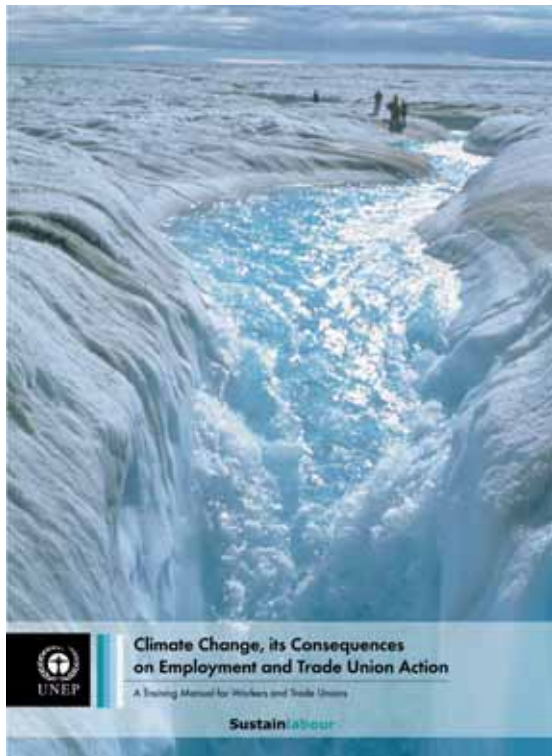
issues. Designed as an online course for university students, the publication will be available on the UNEP website in January 2009. For government officials, the UNEP/UNESCO/BMU 31st International Postgraduate Training Programme on Environmental Management for Developing and Emerging Countries took place in Dresden, Germany, in July 2008, with participants from 18 countries from Asia and the Pacific, Africa and Latin America.

At the instigation of the Council of Anglican Provinces of Africa, UNEP is also broadening its influence by providing a framework for environmental education and public awareness raising for faith-based organisations to reach their congregations. The first training for church leaders was held in September 2008 in Nairobi.

WORKING WITH CIVIL SOCIETY

Faith-based organisations are among a wide range of major groups of civil society with whom UNEP engages. The principal vehicle for engagement is the Global Civil Society Forum cycle, which comprises regional consultative meetings in each of the six UNEP regions and an annual Global Civil Society Forum held prior to the Governing Council/Global Ministerial Environment Forum (GC/GMEF) as an associated meeting. The Forum provides a platform for exchange and consultation around key environmental issues to be addressed by the Member States during the GC/GMEF. It is meant to facilitate the contribution of civil society to the GC/GMEF and other international environmental fora, and to build capacity among major groups from developing regions and from regions with economies in transition in the field of environment and international environmental governance. The 2008 Global Civil Society Forum was attended by 193 participants representing 108 civil society organisations from 42 countries. Participation in these meetings has grown steadily over the years, implying increased interest by civil society to engage in environmental decision making.

Changes have been introduced to the Global Civil Society Forum by new *Guidelines on Improving the Global Civil Society Cycle*, recommendations on how civil society will continue to strengthen its role within UNEP and at the GC/GMEF. They also provide a vision for seeking greater participation among the nine major groups, recognising that



UNEP and the International Labour Foundation for Sustainable Development (Sustainlabour), in partnership with the International Trade Union Confederation (ITUC) and affiliates, the International Labour Organisation (ILO) and the World Health Organisation (WHO), have been conducting a two-year project on Strengthening Trade Union Participation in International Environmental Processes, with financial support from the Government of Spain. The project aims to improve engagement of workers and trade unions in the development and implementation of environmental policy at UNEP, including its GC/GMEF, and in the MEAs and other UN bodies. It is currently being implemented in four regions: Africa, Asia and the Pacific, Eastern Europe, and Latin America and the Caribbean. Among its activities, the project is building a network of climate change and chemicals experts among trade unions, and integrating labour aspects in the design and implementation of international environmental strategies. It is jointly implemented with workers and trade unions to build greater ownership of the programme and guarantee sustainability in the longer term. The capacity building and training component of the project included the development of training manuals, a global training session in Geneva in May, and regional sessions. Particular emphasis has been placed on the link between environmental sustainability and fundamental labour and human rights, including occupational health and safety, trade union experience in climate change and chemicals, and a vision for effective trade union action globally on sustainability issues.

each group has special interests that should be strengthened in a collaborative manner without sacrificing those unique interests within and among the groups.

UNEP has also conducted a mapping exercise to improve understanding of how partnerships with non-governmental stakeholders, including business and industry, fit with and can enhance the delivery of UNEP's Programme of Work. The exercise includes: mapping current partnerships UNEP has with non-governmental stakeholders in implementing the Programme of Work; identifying gaps in implementation; consulting stakeholders on possible partnerships to fill those gaps; and making recommendations on a framework for partnerships with non-governmental stakeholders to feed back to future Programme of Work and policy discussions. The main recommendations of the exercise will be presented to the GC/GMEF in February 2009.

CHILDREN AND YOUTH

UNEP's programme for children and youth operates under the brand 'Tunza', a word from the Kiswahili language of East Africa meaning 'to care for' or 'nurture'. Tunza activities in 2008 included the fourth Global Youth Retreat, which took place in July in Nairobi. It brought together the UNEP Tunza Youth Advisory Council members who represent the six UNEP regions. The Retreat gave the Youth Advisors an opportunity to exchange ideas and build their capacity to address various environmental issues. It also created an avenue for the young leaders to advise UNEP on how to better engage young people in environmental issues.

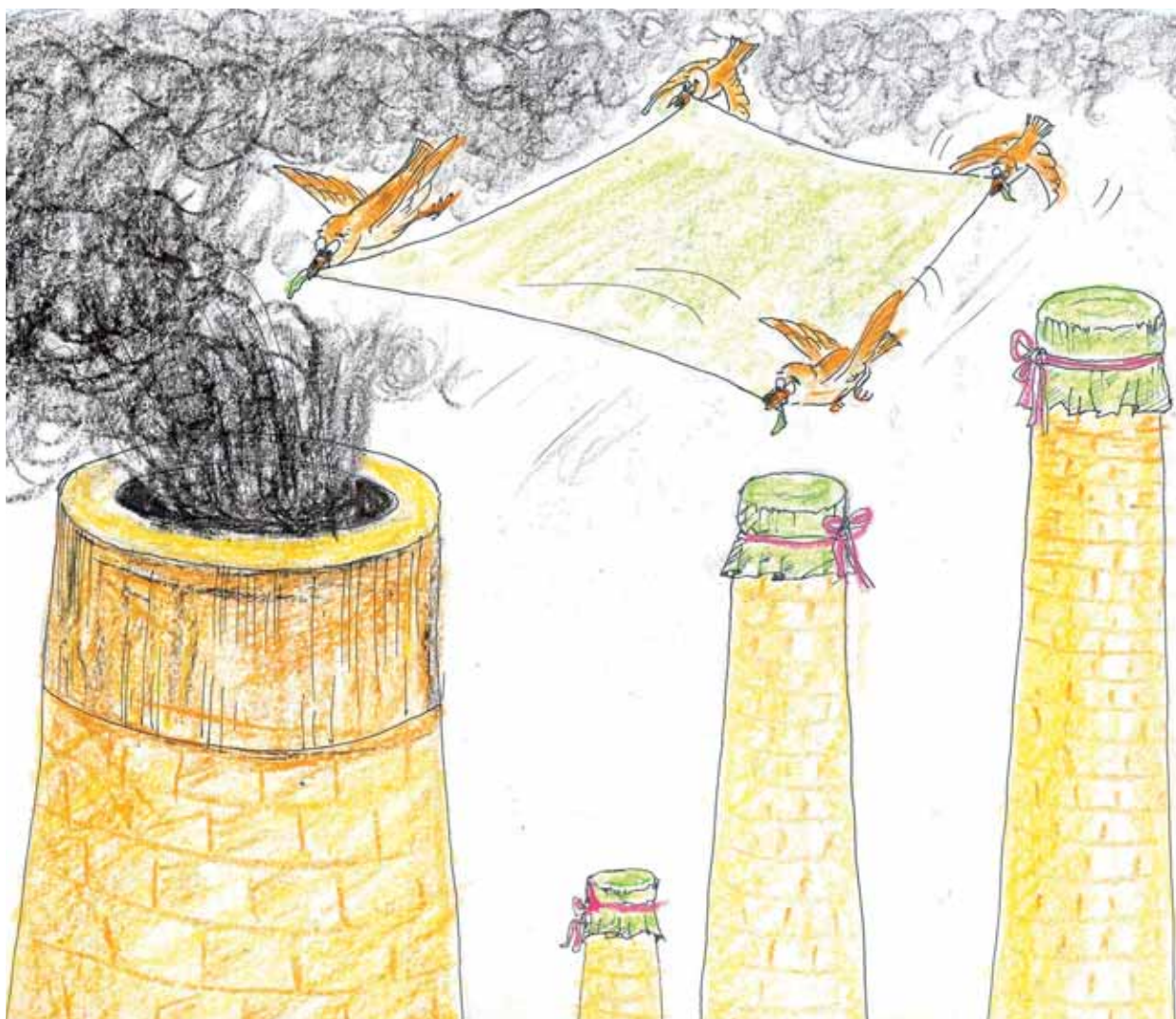
A special highlight of the Retreat was the review of the draft of the 2008–2014 Tunza Strategy. The initial Tunza Strategy came into force in 2003 and ends in 2008. The new strategy will

be presented to the UNEP Governing Council in February 2009. Other topics discussed at the Retreat included: climate change and the role of young people; the UNEP medium-term strategy; gender and the environment; and environmental education. Participants also visited sites in Kenya and participated in a tree planting activity linked to UNEP's Billion Tree Campaign. The Advisors also prepared short video messages on sustainable lifestyles targeting young people around the world, which are available on the UNEP website.

The Tunza International Children's Conference was held in Stavanger, Norway, in August under the theme Creating Change. Organised by UNEP and the Norwegian NGO Young Agenda 21, the

conference brought together 1,000 participants (700 children aged between 10 and 14 with 300 chaperones) from 105 countries. Each day began with a keynote speech followed by presentations from children on their environmental projects followed by workshops and field trips related to the daily themes of Energy, Water, Biodiversity, and Sustainable Consumption and Production. The four-day conference culminated in a set of commitments by the delegates on environmental actions they will undertake on returning home and the election of the 2008–2010 Tunza Junior Board of 11 children – seven from the UNEP regions and four from the Republic of Korea, which is the host for the next children's conference in 2009.

An unprecedented 1.5 million Chinese children participated in a painting competition on the topic of climate change, in a sign of the country's growing awareness of environmental issues. The competition saw the children collectively submit 200,000 paintings. The top three winners were announced on World Environment Day 5 June alongside the winners of UNEP's International Children's Painting Competition. The competition was sponsored by Luo Hong, a Chinese businessman, environmentalist and photographer. Painting by 12-year-old Fan Hui Chun, China.



OUTREACH

For the third consecutive year, the UNEP Champions of the Earth awards were given to seven outstanding environmental leaders from the six UNEP regions, plus a special award. The winners were: Balgis Osman-Elasha (Africa), Atiq Rahman (Asia and the Pacific), His Serene Highness Prince Albert II of Monaco (Europe), Liz Thompson (Latin America and the Caribbean), Timothy E. Wirth (North America), His Excellency Abdul-Qader Ba-

Jammal (West Asia), and Prime Minister Helen Clark of New Zealand. The gala ceremony was held in Singapore in April in conjunction with the Business for Environment (B4E) summit. For 2009, UNEP announced a new-look Champions of the Earth award, focusing on four categories: Policy, Civil Society, Corporate, and Science and Technology. With these categories, UNEP aims to highlight the urgency of cooperation between all players and all sectors of society to achieve a global Green Economy.

The UNEP Billion Tree Campaign continued to gather momentum during 2008. The year started with the launch of the Billion Tree Campaign booklet, *Plant for the Planet: The Billion Tree Campaign*, during the UNEP GC/GMEF in Monaco. The book highlights the energy and results inspired by the campaign and the wide range of partners that have been moved to act: from children to giant corporations, from women's groups to diplomats, from farmers to national governments. By May 2008, the Billion Tree Campaign had catalysed the planting of two billion trees, double its original target. As a result of this success, and by popular demand, UNEP raised the campaign's objective to seven billion trees, one tree for each person on the planet, by the time of the crucial climate change meeting in Copenhagen, Denmark, in late 2009.



The 2008 UNEP Sasakawa Prize recognised two projects that are bringing renewable energy to villages without access to grid electricity: Practical Action (Peru) and Sunlabob Rural Energy (Lao PDR). In Lao PDR, just 48 per cent of the population has access to grid electricity, mostly in cities and towns. Through Sunlabob, over 1,800 solar-home-systems and 500 solar lanterns are being rented to families in 73 different villages across Lao PDR. Practical Action, founded in 1966, is working in Peru's eastern Andes where 68 per cent of the population – around 5 million people – lack access to electricity. The project makes use of the region's vast potential for hydroelectricity. To date, 47 micro-hydro schemes have been installed, bringing clean power to about 30,000 people. The UNEP Sasakawa Prize, worth \$200,000, is awarded annually to individuals or institutions who have made a substantial contribution to the protection and management of the environment. Sponsored by the Japan-based Nippon Foundation, the Prize acts as an incentive for grassroots environmental efforts that are sustainable and replicable.

Innovative examples of local partnerships that display sustainable use of natural resources and ecosystem services can also be found in the Seed Initiative of UNEP, UNDP and IUCN. Five winners of the Seed Awards, now running on an annual cycle, were announced in August 2008. They present examples of local-level, multi-stakeholder governance and entrepreneurial approaches to organic farming, renewable energy and ecotourism coming from emerging partnerships in Brazil, Cameroon, India, Nicaragua, and Thailand.

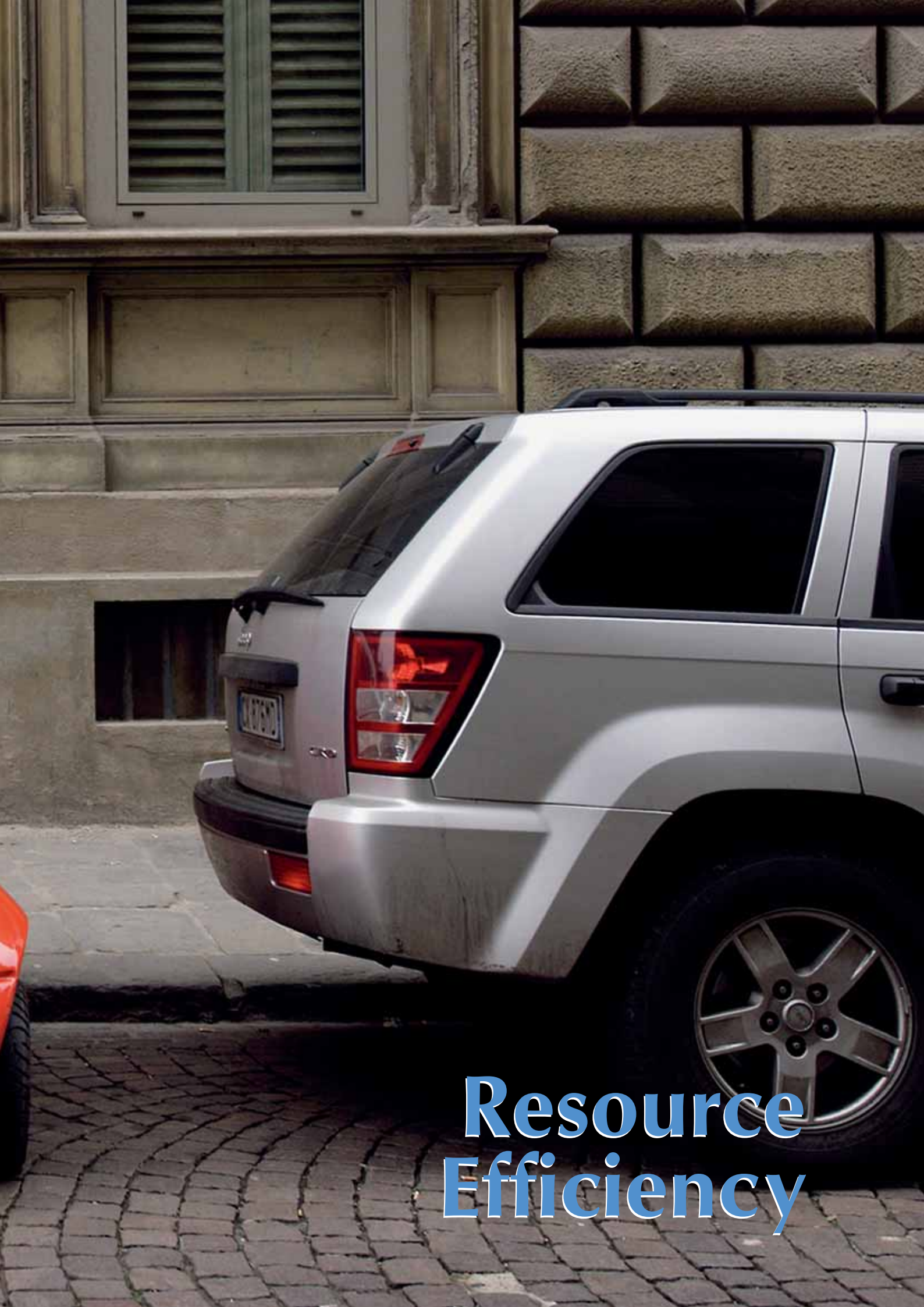
The UNEP website is one of the leading environmental online resources, and activity on www.unep.org continues to rise. From January to December 2008, www.unep.org registered 12,037,337 visits, 179,438,845 hits, and 59,138,648 page views. In 2008, an emphasis was placed on enriching multimedia materials on www.unep.org. The most popular sites in 2008 continued to be the News Centre, Global Environment Outlook (GEO), World Environment Day, Ask Today's Expert and the Billion Tree Campaign. Multilingualism is encouraged, and the World Environment Day, GEO and Billion Tree Campaign websites are offered in all six official UN languages.

SPORT AND ENVIRONMENT

As part of the cooperation arrangement with the International Olympic Committee (IOC), UNEP worked closely with the Beijing Organising Committee of the 2008 Olympic Games (BOCOG) on greening the Games. Prior to the Beijing Olympics, UNEP held several meetings with the organisers, provided technical advice on various environmental issues and made on-site visits to venues. A landmark of this partnership was the individual assessment of the environmental aspects of the Games undertaken by UNEP in October 2007 and shared with IOC, BOCOG and other key stakeholders. In August 2008 the UNEP Executive Director and UNEP representatives attended the Games to witness first-hand the environmental aspects implemented in the staging of the Games. While in Beijing, the UNEP Executive Director held a well-attended press conference with international media and participated in a number of interviews on UNEP's role in the greening of the Games and the support accorded to the organisers. In UNEP's view, the environmental measures undertaken by Beijing were significant. A post-Games assessment has been undertaken by UNEP to document progress as well as lessons learned. The report will be released at the UNEP Governing Council in February 2009. During the Games, UNEP also appointed its first Environmental Champion, Yao Ming, the Chinese basketball star, to assist in promoting environmental awareness among young people.

In October 2008, UNEP and the Global Sports Alliance of Japan hosted the Global Forum for Sport and the Environment (GForSE) in Alicante, Spain, in conjunction with the Volvo Ocean Race. The Volvo-sponsored Forum brought together 100 participants, comprising sports organisations, event organisers and the sporting goods industry. It provided a platform to discuss the role of sport in promoting environmental awareness, showcase best practices, create awareness of the link between sport and climate change, and inspire participants to take action to reduce their carbon footprint. The Forum Declaration commits participants to engage in measures to reduce their carbon footprint, and that of the organisations they represent, and integrate environmental issues into sport activities. The Declaration has been shared with stakeholders in the sport arena and is available on the UNEP website.





**Resource
Efficiency**

SUSTAINABLE CONSUMPTION AND PRODUCTION

A growing human population, using ever more resources, is presenting increasing challenges for the environment and the global economy. Sustainable development – including eradicating poverty and ensuring dignity for all, as targeted in the Millennium Development Goals – entails using natural resources in a manner that maximises the useful goods and services we derive, while minimising pollution and the depletion of natural capital. UNEP is developing a new organisation-wide strategy to enhance resource efficiency by stimulating both supply and demand for sustainable products. The strategy will combine activities that support the development and implementation of government policies and private sector actions that increase resource efficiency and reduce pollution over product life cycles and along supply chains. It will also promote investment in efficient, clean and safe industrial production.

The framework for promoting sustainable consumption and production is the Marrakech Process, a global effort called for by the Johannesburg Plan of Implementation agreed at the 2002 World Summit on Sustainable Development. It is a global multi-stakeholder process to develop a 10-Year Framework of Programmes on Sustainable Consumption and Production (SCP) which will be reviewed at the Commission for Sustainable Development (CSD) in 2010–11. The Marrakech Process Advisory Committee was launched in 2008. Regional and sub-regional consultations were held in Africa, Asia and the Pacific and Latin America. Important progress was also achieved in the Arab region and North America where the first regional consultations took place in identifying SCP priorities and building cooperation. The work of the Marrakech Task Forces continued with the launch of new SCP tools for capacity building and communication. The first public draft of the proposal for a 10-Year Framework of Programmes was completed and is open for consultation among all regions and stakeholders.

Closely linked to the Marrakech Process, UNEP is implementing a two-year project to demonstrate the potential of SCP as a tool for poverty reduction in developing countries, for example by reducing costs, creating price premiums,

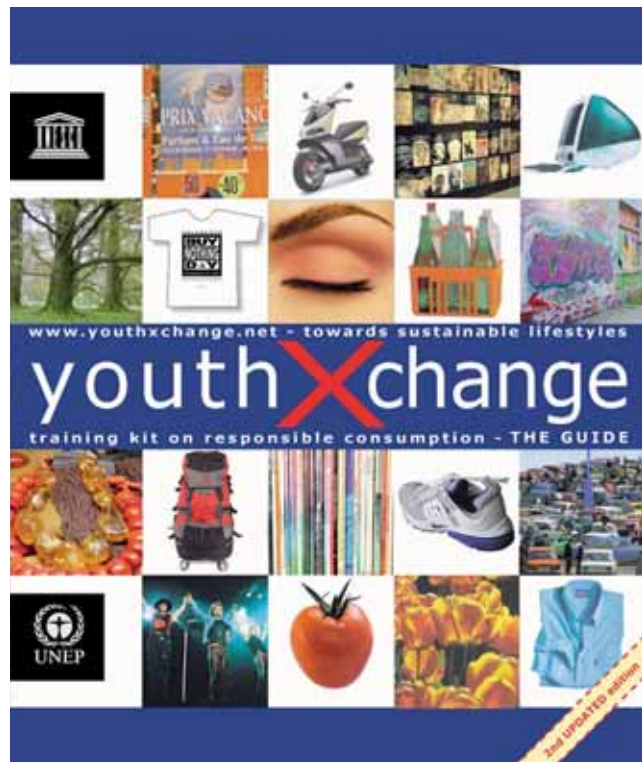
increasing access to basic needs or by securing access to new markets. Building on the UNEP publication *Planning for Change: Guidelines for National SCP Programmes*, the project supported the development of a guidance framework on SCP indicators for developing countries. This framework proposes a structured framework for understanding SCP and for developing indicators, crucial for monitoring and evaluation. The guidance framework will be particularly useful for countries that are developing SCP programmes. The project also developed a toolbox for analysing sustainable ventures from a life cycle perspective. This toolbox will help users to identify opportunities, understand determinants of success and assess the costs and benefits of initiatives.

The UN Development Programme (UNDP) Growing Inclusive Markets Initiative also provided support to the development of the toolbox. The UNDP-UNEP Poverty and Environment Initiative expects this toolbox will help them show the productive side of environmental sustainability and intends to apply it at the country level. In Africa, a pilot activity on developing national and local level SCP programmes has been developed for four pilot African countries: Tanzania and Mauritius at the national level, and Maputo, Mozambique, and Cairo, Egypt, at the city level. In Latin America and the Caribbean, 28 countries have identified SCP as a key area of work, and Argentina, Costa Rica, Colombia, Ecuador and Uruguay have adopted National SCP policies.

SUSTAINABLE RESOURCE MANAGEMENT

The International Panel for Sustainable Resource Management was established to provide independent, coherent, authoritative and policy-relevant scientific assessments of the sustainable use of natural resources and, in particular, environmental impacts over a product or service's full life cycle. Two meetings (in Rome, Italy, in May, and Santa Barbara, USA, in November) resulted in important decisions on the Panel's work programme, membership and procedures, in particular peer review. Four Working Groups were brought together, focusing on decoupling, prioritisation, biofuels and global metals flows. They submitted their draft report to the Panel in November 2008. Following peer review of these documents, the Panel will publish its first assessment reports in early 2009. The membership

In October 2008, UNEP launched the second edition of the UNEP-UNESCO YouthXchange training guide on sustainable lifestyles. The guide is highlighted as a key tool on sustainable lifestyles by the UN Decade on Education for Sustainable Development (UNDESD) and more than 500,000 copies have been distributed in 19 languages. In 2008 the guide was translated for the Slovenian, Greek, Argentine, Japanese and Philippine markets. YouthXchange training sessions were carried out in Peru, Philippines (including a fashion show), France, Lebanon, United Arab Emirates and Kenya. The French postal service and UNEP have partnered to publish 7 million packs of letter stamps inspired by the project. The Carnet carries 10 lifestyle messages and features the UNEP logo. The stamps have a simple message encouraging people to consider their lives from a different angle (the sun as a source of heating, or the bicycle as transport of the future, etc.). UNEP also collaborated closely with partners such as the Italian Task Force on Education for Sustainable Consumption, the OECD, UNESCO and others to finalise and launch *Here and Now: Guidelines for Education for Sustainable Consumption*, a working paper that contributes to the Marrakech Process and the UNDESD by providing a road map for policy makers on integrating education for sustainable consumption in national curricula and practical guidance to teachers on how to teach such a complex concept.



of the Steering Committee has increased considerably and now includes the European Commission and the governments of Canada, China, Egypt, Finland, Germany, Hungary, Italy, Japan, Mexico, the Netherlands, Norway, Russia, South Africa and Tanzania, as well as key civil society organisations such as the World Business Council on Sustainable Development (WBCSD), the International Council for Science (ICSU) and the World Conservation Union (IUCN). UNEP also co-organised a well-attended International Conference on Resource Efficiency with the Organisation for Economic Cooperation and Development (OECD) in Paris in April.

UNEP works on sustainable procurement in collaboration with the UN Environment Management Group and the High-Level Committee on Management's Procurement Network. The UN Secretariat and agencies such as the UN Office for Project Services and the

International Labour Organisation (ILO) have provided expertise and contributed comments to the drafting and development of product specifications to assist UN procurers to purchase more energy-efficient and sustainable *information and communication technology* (ICT) products. This is the first of a series of 10 sustainable procurement product guidelines adapted to the different conditions of six world regions. A standard UN practice note for agencies wishing to implement sustainable procurement has been developed, and an awareness raising session on sustainable procurement was included in UN procurement training sessions in Nairobi, Kenya, and Brindisi, Italy.

In line with the priorities of the Forum of Ministers of Environment, the Latin America and Caribbean region has seen significant progress on sustainable public procurement, including the development of a proposal for inclusion of criteria



The two-year Marketing Assistance to Sustainable Tourism in Nepal (MAST NEPAL) project, funded by the European Commission and carried out with the Nepal Tourism Board and the Netherlands Development Organisation SNV has expanded business opportunities for tourism entrepreneurs in Nepal by enhancing their products to better reach the growing European sustainable tourism market. The project introduced sustainable tourism concepts and skills to 23 companies that were also given the opportunity to interact directly with European tour operators. Building Nepal's Private Sector Capacity for Sustainable Tourism Operations highlights the lessons learned and the environmental, social and economic benefits of sustainability. UNEP also launched an online campaign with green travel tips for the world's growing number of international tourists. The Internet-based Green Passport campaign, launched at the Berlin Tourism Fair in March, aims to raise tourists' awareness of how they can contribute to sustainable development by making responsible holiday choices. A website in English and French is accompanied by a pocket-size booklet for UNEP's partners in the tourism community on responsible tourism behaviour. The website is being translated into Greek, Portuguese, Spanish and Arabic.

in the MERCOSUR Procurement Protocol, the development of a training manual, a proposed information campaign and a training workshop for the four member countries (Argentina, Brazil, Paraguay and Uruguay). A training workshop on sustainable purchases was also conducted in Costa Rica for the Central America sub-region, in cooperation with the Comisión Centroamericana de Ambiente y Desarrollo and the Organisation of American States, including presenting recommendations to the Ministers of

Environment. The projects have been undertaken with the support of Mexico, thereby enhancing South-South Cooperation. The Government of Chile and the International Marrakech Task Force on Sustainable Public Procurement also agreed to conduct a Training for Trainers in the field in early 2009. Similarly, a Training for Trainers for UN agencies in the region, and specifically for Central America, will be conducted in 2009. In addition, the request and formal acceptance of Costa Rica and Mexico as pilot countries for the

implementation of sustainable public procurement was confirmed. A sustainable consumption and production information centre for the Caribbean sub-region has also been established, and an increasing number of companies are introducing sustainable business and finance initiatives, policies and practices based on principles promoted by UNEP.

LIFE CYCLE THINKING

Resource efficiency means reducing the environmental impact of the consumption and production of goods and services over their full life cycle. UNEP and the Society of Environmental Toxicology and Chemistry (SETAC) launched the UNEP/SETAC Life Cycle Initiative in 2002. It now has more than 1,000 registered members. In 2008, two new activities were launched: the development of a framework for life cycle assessment of use and depletion of water and one on land use impacts on biodiversity and ecosystem services. Results of the two projects are expected by 2010. In addition, the second edition of the Life Cycle Award was launched and 21 organisations from non-OECD countries were awarded free life cycle tools and publications to boost the development of more life cycle cases worldwide. UNEP co-organised the 2008 China Life Cycle Management Conference in Chengdu and two sustainable innovation meetings aimed at the identification of adequate solutions for technology transfer and sustainable business models in emerging countries.

Realigning how products and services meet the needs of consumers – be they individual households, businesses along the supply chain or public institutions – offers considerable potential for altering consumption and production patterns. UNEP has been active in identifying innovative concepts and how to apply them. Recent efforts support testing and replication of sustainable product design concepts at the national level to not only improve the products and services but also make necessary market linkages – no matter how supposedly sustainable a product is, it makes no difference if no one buys it.

Together with InWent–Capacity Building International and other partners, UNEP is implementing a four-year project co-funded by the European Commission and the German Federal Ministry of Economic Cooperation and

Development to promote eco-labelling in six emerging economies. Expected results include an increased number of export products labelled with the EU Eco-label. Products identified by local partners are textiles (India and South Africa), footwear (Mexico and Kenya), paper (Brazil) and televisions (China). The project also aims to develop a roadmap towards mutual recognition of eco-labelling schemes, and to foster cooperation among developed and developing country bodies to simplify the ‘eco-labelling universe’ to the benefit of both producers and consumers. In 2008, a national eco-labelling workshop was organised in each of the partner countries. Also with European Commission support, Cleaner Production for Better Products, a two-year project in Vietnam, is building the capacity of companies from the handicraft, food processing and furniture sectors to introduce sustainable product design for the European market.

CLEANER PRODUCTION

Building on a tradition of coordination and a Letter of Agreement between UNEP and the UN Industrial Development Organisation (UNIDO) to enhance cooperation on issues of cleaner production, waste management, persistent organic pollutants, sound chemicals management, biofuels and energy, an overall joint programme on Cleaner and Resource Efficient Production (CREP) was drafted in 2008 and is being finalised. The objective of the programme is to contribute to sustainable industrial development and SCP in participating countries. It integrates the results from the joint evaluation of the National Cleaner Production Centres Programme, launched in 1994, to increase the competitiveness and productive capacity of industry, specifically in small and medium enterprises (SMEs), through the implementation of cleaner production and the application, adaptation and diffusion of environmentally sound technologies (ESTs). In this context, UNIDO and UNEP have joined forces in Albania via the One UN effort to establish a National Cleaner Production Programme. Also under the CREP framework, UNEP initiated an 18-month project Promoting Resource Efficiency in SMEs. Participating SMEs will benefit from technical support that will be delivered in close cooperation with National Cleaner Production Centres and other partners. A tailored package of tools, based on existing material, will be prepared for SMEs.

Resource efficiency

In many developing countries and fast-growing economies, SMEs form the backbone of industrial sectors where hazardous chemicals are manufactured, transported, repackaged, stored and used. To promote safety along the value chain, UNEP has a two-year project Engaging Business and the Supply-Chain in Safer Production and Emergency Preparedness: A Commitment to Corporate Social Responsibility at the Site Level. Target groups include national authorities and SMEs in the chemicals and the mining industries. Larger companies are also engaged in the project to share best practices. In collaboration with the private sector and technical institutions, UNEP is developing a responsible production model for chemical safety management and product stewardship along SME value chains. A similar project, Promoting Safer Operations and Emergency Preparedness in the Value Chain of the Chemical Sector, is being implemented by UNEP, the Chinese Ministry of Environmental Protection and the Dow Chemical Company. The aim of this two-year project launched in late 2008 is to promote safer production, chemical safety and emergency preparedness in the chemical industry in China through community engagement and an inclusive multi-stakeholder approach based on the UNEP Awareness and Preparedness for Emergencies at Local Level (APELL) programme.

Most communities face risks which they have to assess and manage. Risks may arise from human activities, such as industrial accidents, or they may be of natural origin, such as floods and earthquakes. *Assessing the Vulnerabilities of Local Communities* was published in 2008 to help local communities improve risk awareness. Assessing risk is a complex but necessary task for reducing vulnerability. To address this need, UNEP has developed a Community Risk Profile tool with the French Institut National de l'environnement industriel et des risques, which helps communities estimate the risks they are exposed to and decide on necessary action.

GREEN BUSINESS

The UNEP Finance Initiative (UNEP FI) is a unique public-private partnership between UNEP and the global financial sector. Its mission is to identify, promote and realise the adoption of the best environmental and sustainability practices at all levels of operation in financial institutions. It is the largest global voluntary partnership of its kind,

with approximately 180 signatories to the UNEP FI Statements. In 2008, UNEP FI contributed to a series of pivotal international meetings to forge a new agenda and frame new challenges for the financial services sector in coming years. These meetings reflect increasing engagement by the policy community to look more directly at the role of private finance and capital markets in mobilising finance for sustainable development.

In late February, UNEP FI was invited to participate in a meeting co-convened by the OECD and the World Economic Forum (WEF), looking at the complex issues around Banking for Development. The focus of the two-day gathering was on how multilateral financial institutions and the finance-focused policy community can boost financial flows into effective development activities. In May, UNEP FI jointly convened a panel discussion at the ninth Conference of Parties of the UN Convention on Biological Diversity in Bonn. The diverse panel brought a rich blend of perspectives to the issue of integrating biodiversity and ecosystem services into financial decision making. Key areas explored included the findings of *The Cost of Policy Inaction*, one of five reports that fed into a first assessment of the European Union-commissioned study on The Economics of Ecosystems and Biodiversity (TEEB). This initiative is intended to demonstrate the immense importance of biodiversity and ecosystem services by estimating their financial value. Also presented was the Natural Value Initiative – a tool developed by UNEP FI for the finance sector to evaluate biodiversity and ecosystem services-related investment risks and opportunities in the food, beverage and tobacco sectors.

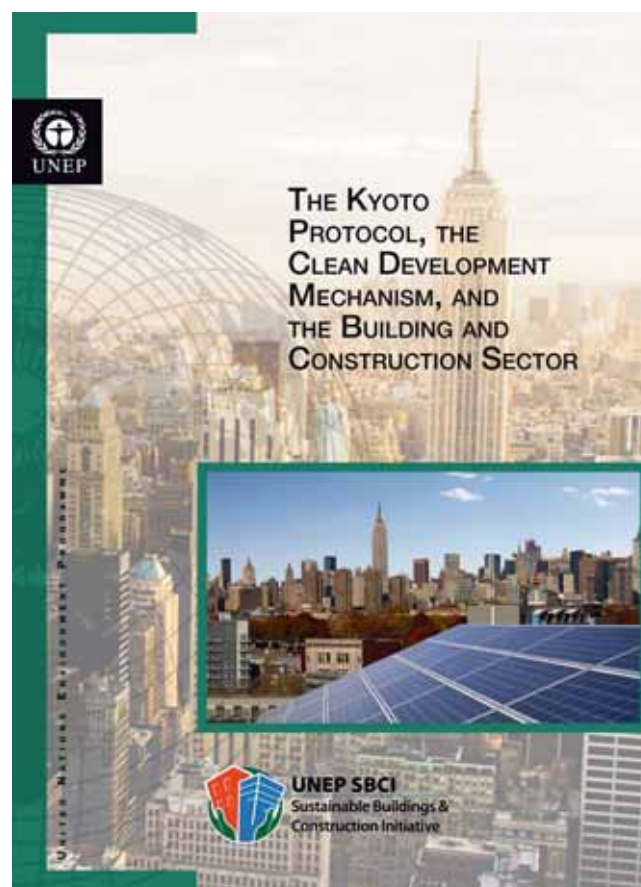
In early June, senior financiers from the banking, insurance, pensions and hedge fund sectors presented to a Special Session of the UN General Assembly in New York. The President of the UN General Assembly, H.E. Srgjan Kerim, convened the meeting as a follow-up to the third Investor Summit on Climate Risk convened by the UN Foundation and CERES in February 2008. UNEP FI moderated the final session of the event and made closing comments. Also in June, UNEP FI co-hosted the UNEP FI Conference on Sustainable Finance in Seoul, Republic of Korea. This event examined the latest trends and developments in sustainable finance and responsible investment. Sessions looked at: carbon finance; biodiversity and ecosystem services; water; environmental

and social credit risk; sustainability reporting; responsible property investment and microfinance. Through this event, UNEP FI teamed up with the Principles for Responsible Investment (PRI) and the UN Global Compact to offer a unique platform for dialogue between financiers, investors and business on the latest issues in the field of sustainable finance, responsible investment and corporate citizenship. Over 600 participants from South Korea and abroad, including leaders in the field of business, politics, academia and civil society attended the meeting.

Improved resource efficiency in industry and business operations requires the use of agreed and reliable indicators for measurement and reporting. UNEP supports work in this terrain through its ties with the Global Reporting Initiative (GRI),

a UNEP Collaborating Centre based in the Netherlands. In 2008, UNEP supported the GRI Amsterdam Global Conference on Sustainability and Transparency, including a panel discussion on the Role of Governments in Advancing Accountability and Reporting. UNEP FI and the GRI also launched the final version of the GRI Financial Services Sector Supplement. This set of indicators for reporting the environmental and social performance of financial products and services was developed over a five-year period and involved a large number of international and local financial institutions, NGOs, rating agencies, academia and other stakeholders. The new indicator set is the only detailed guide for disclosing sustainability impacts of the core business of the financial sector. It is the first GRI sector supplement to be finalised.

Buildings account for one-third of greenhouse gas emissions worldwide. The huge potential of the building and construction sector for combating climate change remains virtually untapped. Only 10 of an estimated 4,000 projects in the Clean Development Mechanism (CDM) – the main international carbon market scheme under the Kyoto Protocol – seek to reduce energy use. A report into the effectiveness of the CDM in supporting energy efficiency projects in the building sector was tabled at the Sustainable Building and Construction Initiative (SBCI) annual meeting in Martinique in April and completed in November. The report: *The Kyoto Protocol, the Clean Development Mechanism and the Building and Construction Sector* was launched at the Construction Counts for Climate side-event at the UNFCCC climate change meeting in Poznan, Poland, in December, to reinforce the importance of the building sector to achieving greenhouse gas emissions reductions. It will also assist the SBCI Climate Change Think Tank, in which the UNFCCC now directly participates, to provide input to the post-2012 greenhouse gas emissions protocol.



SUSTAINABLE CITIES

In recognition of the importance of cities to sustainable development – half the world's population is now urban – UNEP and UN-Habitat, the UN agency for human settlements, are building long-term collaboration to provide a better and wider range of services to local and national governments. In 2008, the two agencies developed a joint Partnership Framework for 2008–2013. Also in 2008, UNEP, UN-Habitat and the UN Economic Commission for Africa collaborated in producing the *State of African Cities Report 2008*. The report was launched in November in Nanjing, China, during the World Urban Forum.

A project in São Paulo, Brazil, has engaged the city authorities, UNEP and 17 national co-implimenting agencies in a capacity building process to foster environmental preservation, conservation and rehabilitation and the promotion and protection of the public health. The Green and Healthy Environments Project has built capacity for approximately 5,000 Community Health

Agents and Social Protection Agents in the city and strengthened environmental management and policies in the health, housing and climate change-related sectors. Among the project outputs are: a *GEO Health* report for São Paulo City; a draft law on a climate change policy for São Paulo; technical assessments on the state of water resources, housing and sanitation, urban parks management, sustainable building; and environmental education training materials. The training activities were completed in July 2008 and the other project components were finalised at the end of November 2008, with the official launch of a set of six publications and training books.

In UNEP's host city, the Nairobi River Basin Programme continued its focus on restoring the environmental integrity of Nairobi's water catchments and its main rivers to improve livelihoods and health (especially for the poor), enhance biodiversity and ensure a sustainable supply of water for domestic, industrial, recreational and emergency use. The programme has four main objectives: to demonstrate how

UNEP and the FIA Foundation for the Automobile and Society have launched the global '10 per cent' campaign to improve how roads are planned, financed and built in growing African cities through the allocation of a percentage of road building funds (i.e. 10 per cent) to road facilities for non-motorised transport and for improved road safety. In developing countries, public and non-motorised transport often make up the largest share, particularly in urban and inter-urban areas. Cities with high rates of non-motorised transport use and good public transport networks usually have much lower transport-related energy use per capita than cities where infrastructure and urban planning promote vehicle use.



industrial and socio-economic factors contribute to polluting Nairobi's rivers; to increase awareness and access to information to address pollution and its causes; to strengthen capacity among stakeholders to tackle environmental challenges; and to improve water and environmental quality in the river basin.

EFFICIENT CITIES

By addressing local environmental issues, such as water and air pollution and energy provision, cities play an important role in global issues, such as coastal pollution, ecosystems management and climate change. For example, the construction and performance of buildings is a major contributor to global greenhouse gas emissions. Intelligently designed energy-efficient buildings can therefore have a considerable impact on climate change mitigation. The Sustainable Building and Construction Initiative (SBCI) benchmarking think tank is completing the first phase of development of a global benchmarking system, the Sustainable Buildings and Construction Index, which will provide a common basis for policy development and reporting on the performance of the building sector in relation to sustainable development goals. Several reports are now in draft form, including: *Buildings and Climate Change Regional Reports: Mexico, India and South Africa*; *Sustainable Buildings: the State of Play*; *The Knowledge-Base for Assessing Sustainable Buildings*; a *White Paper on a Global Benchmarking System for Sustainable Buildings and Construction*; and a *White Paper on Education for Eco-Cities, Towns and Villages in Asia-Pacific*. The report *Assessment of Policy Instruments for Reducing Greenhouse Gas Emissions from Buildings*, published in 2007, is being used as the basis for the development of an Internet-based Quick-Scan tool to help policy makers select appropriate policy packages that can reduce greenhouse gas emissions from the building sector. The pilot version of the tool was demonstrated during the SBCI Roundtables on Sustainable Building and Construction in Madrid in December 2008.

Another major contributor to greenhouse gas emissions is road transport. A projected tripling of the global vehicle fleet and a doubling of emissions by 2050 will require significant fuel economy improvements in road transport to stabilise and eventually decrease greenhouse gas emissions from this sector. With shifting

consumption patterns, non-OECD countries are expected to make up close to three-fifths of the global vehicle fleet by 2050. UNEP, in partnership with the International Energy Agency, the International Transport Forum (ITF), and the FIA Foundation for the Automobile and Society, has launched the Global Automotive Fuel Economy Initiative, which works to improve the understanding and application of automotive fuel economy policies and technologies, with a final target of a global doubling of vehicle fuel efficiency by 2050.

CLEAN AIR

CO₂ emissions are not the only environmental consequence of vehicle fuel consumption. For the past several years the UNEP-based Partnership for Clean Fuels and Vehicles (PCFV) has been working successfully to phase out lead in petrol in those countries that still permit it. In 2008, the PCFV supported national level events in Jordan, Laos and Mongolia and sub-regional events for Eastern Europe, Caucasus and Central Asia, the Arabian Gulf and North Africa to develop national policies and timelines to phase out leaded gasoline. As a result, an additional seven countries phased out, or committed themselves to phase out, leaded gasoline by end 2008. These are Jordan, Palestine, Laos PDR, Mongolia, Afghanistan, Morocco and Tunisia. The PCFV will continue to work with the remaining countries to complete the global phase out of leaded gasoline.

In Yemen, a commitment was made to abide by the Regional Ministerial Resolution to phase out leaded gasoline in the Arab States by end of 2008. In an innovative approach, a local hospital carried out blood tests to ascertain lead levels in willing participants at the conference venue, making the issue of leaded gasoline much more personal and real. The Partnership is also supporting Lebanon and Syria in developing pilot projects on clean fuels and vehicles, with meetings scheduled for early 2009.

Also in West Asia, the Gulf Cooperation Council (GCC) Policy Meeting on Clean Fuels and Vehicles met in March 2008. It involved a wide range of government ministries, including environment, health and education, as well as energy and transportation, and also involved representatives of the petroleum and transport industry, academia and NGOs. The meeting

UNEP around the world

UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

All UNEP Divisions are located at UNEP Headquarters with the exception of DTIE.

Internet access to all UNEP Divisions and additional e-mail addresses are available from the UNEP web site www.unep.org.

UNEP HEADQUARTERS

P.O. Box 30552
Nairobi 00100, Kenya
Phone: +254 20 762 1234
Fax: +254 20 762 3927 / 3692
Telex: 22068 / 22173
E-mail: cpiinfo@unep.org
Web: www.unep.org

UNEP DIVISIONS AND BRANCHES

DIVISION OF EARLY WARNING AND ASSESSMENT (DEWA)

Early Warning; Environmental Assessment

Division Headquarters

P.O. Box 30552
Nairobi 00100, Kenya
Phone: +254 20 762 3231 or 762 4028
Fax: +254 20 762 3943
E-mail: dewa.director@unep.org
Web: www.unep.org/dewa

UNEP World Conservation Monitoring Centre (UNEP-WCMC)

219 Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Phone: +44 1223 277 314
Fax: +44 1223 277 136
E-mail: director@unep-wcmc.org
Web: www.unep-wcmc.org

International Coral Reef Initiative (ICRI)

Designated Administrative Authority (for Japan and Seychelles Secretariat)

UNEP World Conservation Monitoring Centre
219 Huntingdon Road
Cambridge CB3 0DL
United Kingdom
Phone: +44 1223 277 314
Fax: +44 1223 277 136
E-mail: icri_secretariat@unep.wcmc.org
Web: www.icriforum.org

UNEP Global Environment Monitoring System/Water (GEMS/Water)

National Water Research Institute
Environment Canada
P.O. Box 5050, 867 Lakeshore Road, Burlington
Ontario L7R 4A6, Canada
Phone: +1 905 336 4919 / 4935 or +1 905 319 6908
Fax: +1 905 336 4582 / 6230
E-mail: gems@ec.gc.ca
Web: www.gemswater.org

Global International Waters Assessment (GIWA)

SE - 391 82 Kalmar, Sweden
Phone: +46 480 44 73 53
Fax: +46 480 44 73 55
E-mail: info@giwa.net
Web: www.giwa.net

UNEP/DEWA/GRID-Europe

International Environment House
11 chemin des Anémones
CH-1219 Châtelaine
Geneva, Switzerland
Phone: +41 22 917 82 94 / 95
Fax: +41 22 917 80 29
Email: infogrid@grid.unep.ch
Web: www.grid.unep.ch

UNEP/GRID-Sioux Falls

USGS EROS Data Center
47914 252nd Street, Sioux Falls, SD 57198-0001,
USA
Phone: +1 605 594 6117
Fax: +1 605 594 6119
Email: info@www.na.unep.net
Web: www.na.unep.net/index.php3

UNEP/GRID-Arendal

Teaterplassen 3
N-4836 Arendal
Norway
Phone: +47 47 64 45 55
Fax: +47 37 03 50 50
E-mail: grid@grida.no
Web: www.grida.no

United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)

Vienna International Centre
P.O Box 500
A-1400 Vienna, Austria
Phone: +43 1 26060 4330
Fax: +43 1 26060 4330
E-mail: unscear@unscear.org
Web: www.unscear.org

DIVISION OF ENVIRONMENTAL POLICY IMPLEMENTATION (DEPI)

Capacity Building; Global Programme of Action for the Protection of the Marine Environment (GPA); Regional Seas Conventions and Action Plans; Post Conflict Assessment; Disaster Management; Implementation of Environmental Law, Dams and Development Project

Division Headquarters

P.O. Box 30552
Nairobi 00100, Kenya
Phone: +254 20 762 3508
Fax: +254 20 762 4249
E-mail: depi@unep.org
Web: www.unep.org/depi

Global Programme of Action

P.O. Box 16227, 2500 BE
The Hague, The Netherlands
Phone: +31 70 311 4460 / 1
Fax: +31 70 345 6648
E-mail: gpa@unep.nl
Web: www.gpa.unep.org

Post-Conflict and Disaster Management Branch (PCDMB)

PCDMB Geneva:

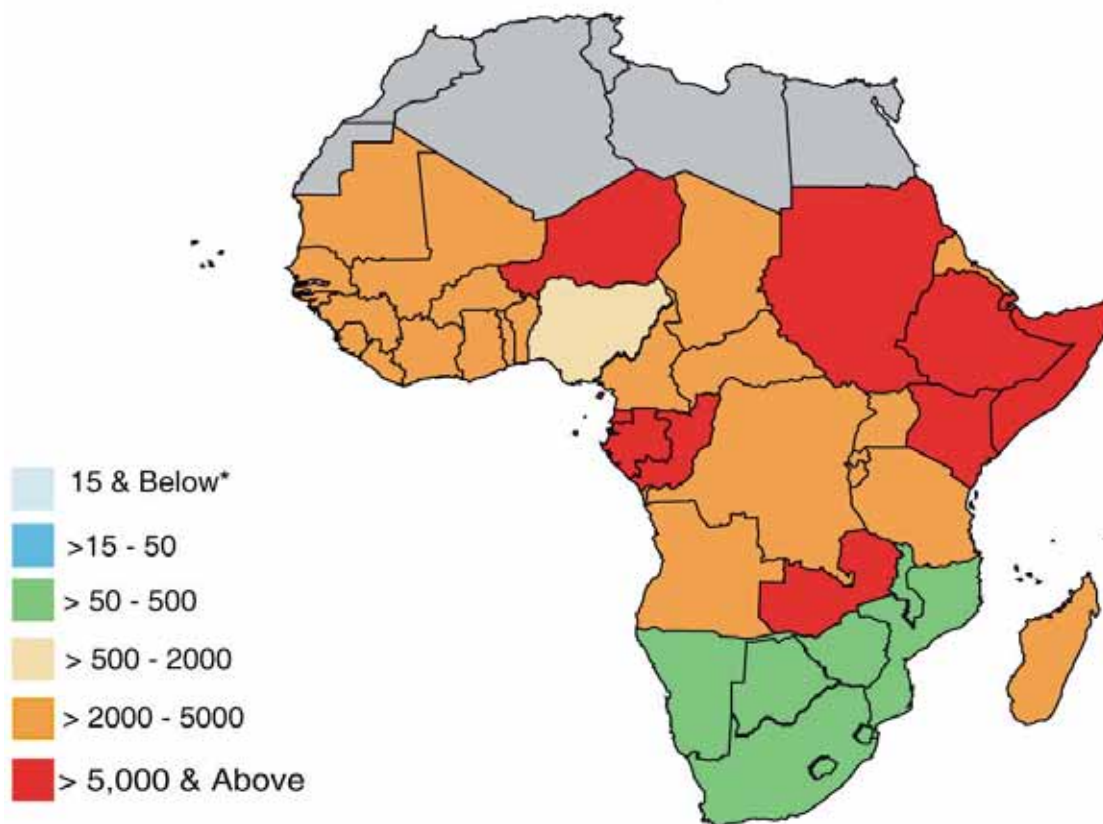
International Environment House
15 chemin des Anémones,
CH-1219 Châtelaine,
Geneva, Switzerland
Phone: +41 22 917 85 30
Fax: +41 22 917 80 64
E-mail: postconflict@unep.ch
Web: <http://postconflict.unep.ch/>
PCDMB Khartoum:
C/o UNDP Sudan
Gama'a Avenue, House 7, Block 5,
P.O. Box 913, Khartoum 11111, Sudan
Tel: + 249 1 83 783 820 / 773 121
Fax: + 249 1 83 783 764 / + 249 1 83 773 128

PCDMB Kabul:

UNEP Post-Conflict Branch
Darulaman
Kabul Afghanistan
Tel: + 93 (0)700 276 431



Diesel Fuel Sulphur Levels: Sub-Saharan Africa Status August 2008



* Information in parts per million (ppm)

A new target for the UNEP-based Partnership for Clean Fuels and Vehicles is to reduce sulphur levels in diesel fuel. The global low sulphur fuels campaign saw significant progress in 2008. High fuel sulphur levels cause emissions of harmful small particulates, contribute to climate change and prevent the introduction of cleaner and more efficient vehicles. In 2008 more than 40 developing and transition countries adopted targets with timeframes for the reduction of sulphur levels in their fuels, including a regional Ministerial Decision in Latin America and the Caribbean, and regional decisions in southern and eastern Africa. To date about half of all developing and transition countries have now set targets with timeframes.

supported the League of Arab States commitment to phase out lead in gasoline in the region by the end of 2008 and its endorsement for low sulphur fuels, requesting that a resolution be tabled with respect to a region maximum sulphur level by a specified date. It also called on the GCC to adopt a Gulf Cooperation Council standard for sulphur levels, alongside other vehicular emission standards as well as developing legislation concerning inspection and maintenance of vehicles to ensure that the standards are met. UNEP will be following up with the GCC in the implementation of these recommendations through the provision of technical and policy guidance as requested.

ENVIRONMENTALLY SOUND TECHNOLOGIES

One way UNEP is working towards sustainable urban environments and water use is through promoting ESTs. UNEP's International Environmental Technology Centre (IETC), in partnership with the UNEP Caribbean Regional Co-ordinating Unit, continued the implementation of a project to address the need for improved access to water and wastewater provision in rural communities in Jamaica. The project seeks to analyze local conditions of water and wastewater provision in a number of ecologically

sensitive rural sites in Jamaica, and to identify options that are both environmentally sound and manageable by communities. The project is being implemented with Rural Water Supply of Jamaica. Several interventions for environmentally sound water provision, including improvements in rainwater harvesting and disinfection, have been identified. Pilot-scale implementation of selected ESTs is ongoing at a rural community called Breadnut Walk. The project has also completed a preliminary analysis of 43 rural communities in ecologically sensitive areas in Saint Elizabeth Parish living without adequate water and wastewater provision. A planning tool based on the surveyed water supply systems that include rainwater harvesting systems has been drafted. The tool helps to assess water supply levels that can be attained from existing rainwater systems throughout the year and determine interventions to attain desired water supply levels. Results are expected to generate data for larger-scale interventions in Jamaica, as well as other Small Island Developing States.

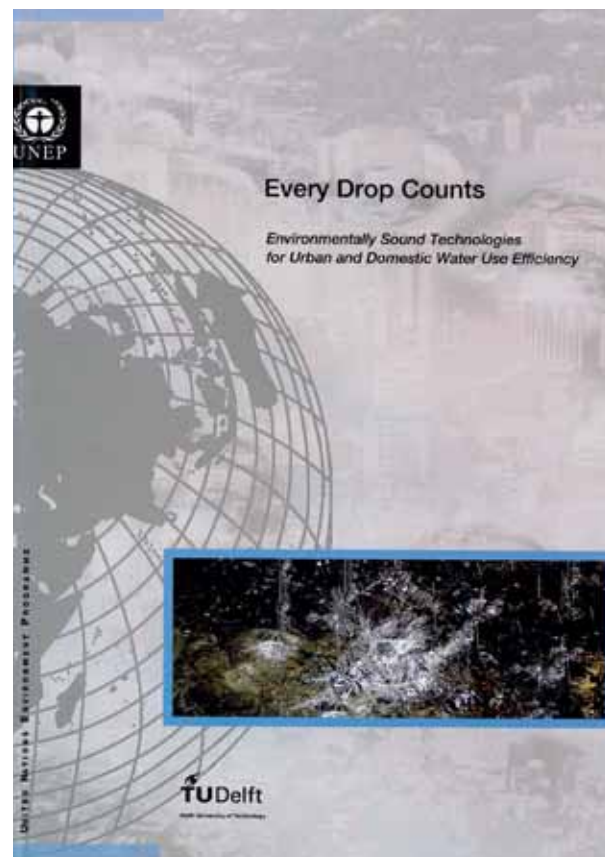
Another project is working to improve the quality of water discharged from the municipal wastewater treatment plant in the City of Bocaina, São Paulo, Brazil, to improve the water quality of the Bocaina river. A training workshop for local water experts on wetland management and the design of the wetland facility was undertaken. The artificial wetland, designed using IETC wetland modelling software SubWet 2.0, is expected to be operational by early 2009, thus reducing the pollution of the Bocaina and Jacare rivers.

Underscoring the importance of International Polar Year (IPY), IETC is developing an upgraded version of the SubWet 2.0 for 2009 that will allow for the inclusion of temperate and cold climates, in partnership with the Centre for Alternative Wastewater Treatment of the Fleming College in Canada. The upgraded version will help water practitioners in developing countries to design artificial wetlands for water quality improvement and sanitation in locations ranging from tropical climates to more extreme ones like those found in high altitudes. As a follow-up, production of an Interactive Training Package as a self-learning supporting tool for decision making is being planned, also in partnership with the Fleming College and the International Lake Environment Committee in Japan.


In partnership with Delft Technical University Faculty of Architecture Department of Urbanism and the Environmental Management Centre, India, IETC produced *Every Drop Counts: Environmentally Sound Technologies for Urban and Domestic Water Use Efficiency*. The publication highlights essential questions that will have different answers in different situations by looking at water use efficiency, with an emphasis on maximising safe and sufficient supply of water, and on articulating a key role for ESTs.

Realising the importance and potential of waste agricultural biomass as a source of materials and energy, a compendium of technologies to convert waste biomass into a material and energy source has been developed. A pilot project in the Philippines for converting rice straw and husk into an energy has also been developed. The Development Academy of the Philippines is the local partner for this project.

Every Drop Counts: Environmentally Sound Technologies for Urban and Domestic Water Use Efficiency looks at water use efficiency, with an emphasis on environmentally sound technologies.





A person wearing a yellow protective suit is handling a large number of blue hazardous waste drums. The drums are stacked and arranged in a grid-like pattern. The person's hand is visible, touching one of the drums. The background is dark, making the blue drums stand out.

Harmful Substances and Hazardous Waste

SOUND CHEMICALS MANAGEMENT

UNEP plays a leading role in the UN system for activities related to the sound management of chemicals and hazardous waste. The aim is to promote a life cycle approach with a focus on providing policy advice, technical guidance, information and capacity building to developing countries and countries with economies in transition.

UNEP Chemicals – the main catalytic force in the UN system for the sound management of chemicals – is assisting towards the World Summit on Sustainable Development (WSSD) Johannesburg Plan of Implementation goal that, by 2020, chemicals are used and produced in ways that minimise significant adverse effects on human health and the environment, and working for the implementation of the Strategic Approach to International Chemicals Management (SAICM). SAICM, which was adopted and endorsed by the UNEP Governing Council in 2006, provides a policy framework for all stakeholders and sectors involved in the sound management of chemicals.

UNEP's activities in implementing the environmental component of SAICM relate generally to capacity building, risk assessment and management and communication, as well as to specific chemicals, such as mercury, lead and cadmium, and chemicals covered by multilateral environmental agreements (MEAs), including the Montreal Protocol on Ozone Depleting Substances, the Stockholm Convention on Persistent Organic Pollutants (POPs), the Rotterdam Convention on the Prior Informed Consent for Certain Hazardous Chemicals in International Trade, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

During 2008, the SAICM secretariat, based within the UNEP Chemicals Branch and staffed by UNEP and the World Health Organisation (WHO), continued to facilitate SAICM implementation in all sectors. As the initial phase of SAICM draws to a close, the focus has increasingly been on preparations for the second session of the SAICM governing body, the International Conference on Chemicals Management (ICCM2), which will take place in Geneva in May 2009. Meetings were organised during 2008 for European and JUSSCANNZ countries (Japan, United States,

Switzerland, Canada, Australia, Norway and New Zealand), Latin American and the Caribbean and the Central and Eastern European region. In addition, a meeting of the SAICM Open-ended Legal and Technical Working Group and informal discussions were held in Rome in October 2008 to finalise the ICCM2 agenda, prepare rules of procedure and give preliminary consideration to key topics such as finance, emerging issues and reporting. 2008 was another busy year for the SAICM Quick Start Programme, the Trust Fund of which is now supporting 74 projects valued at \$14 million and involving 73 countries.

CAPACITY BUILDING

UNEP and the United Nations Development Programme (UNDP) have developed a partnership to facilitate the integration of sound chemicals management into national development planning processes, as part of the two organisations' Poverty-Environment Initiative. The object is to support developing countries and countries with economies in transition to:

- identify specific areas of chemicals management likely to result in demonstrated environment, health and economic benefits, and begin addressing identified gaps
- assess national development strategies relating to protecting the environment and human health from the adverse effects of chemicals
- improve, where relevant, the integration of chemicals management priorities into national development plans.

With funding secured through the SAICM Quick Start Programme Trust Fund, the initiative has been launched in Uganda and the Former Yugoslav Republic of Macedonia, while activities in Belarus, Belize, Ecuador, Honduras, Liberia and Mauritania will start in the first quarter of 2009. In addition, with support from the Swedish Government, two more countries have been added: Zambia, where implementation started in 2007 and Cambodia, where activities began in 2008. UNEP has also initiated activities, supported by the Government of Sweden, to develop guidance on legal and institutional infrastructures for the sound management of chemicals. The guidance should be finalised in 2009 and will be tested in a number of countries under the partnership. UNEP has also supported development of country proposals for the SAICM Quick Start Programme in Armenia and the Republic of Moldova.



An internationally publicised hazardous waste dumping incident in Abidjan in August 2006 emphasised the need for strengthening national and municipal waste management systems in Côte d'Ivoire, including systems for dealing with hazardous waste. A joint project between UNEP and the Secretariat for the Basel Convention was launched in June 2008 to prepare a hazardous waste management plan for the District of Abidjan, build hazardous waste management capacity in the Port of Abidjan, and build capacity in West Africa for the monitoring and control of transboundary movements of hazardous waste.

In 2007, UNEP established an initiative to promote the development of a Flexible Framework for prevention and preparedness related to major chemical accidents. This initiative complements UNEP's efforts in promoting chemical safety in fast-growing rapidly industrialising economies. In order to coordinate the development and discuss the contents, needs and implementation mechanisms of this Flexible Framework, a UNEP Expert Working Group has been created involving selected experts and institutions in the fields of chemical safety and the prevention of major industrial accidents. The Working Group comprises representatives from the European Commission, the OECD Working Group on Chemical Accidents, the International Labour Organisation (ILO), the UN Industrial Development Organisation (UNIDO), the UN Economic Commission for Europe (UNECE), WHO and the Asian Disaster Preparedness

Centre, among others. It has already met three times and guidance has been drafted and will be implemented in two countries – Cambodia and Philippines – in 2009. Further to this, UNEP will pursue its work with the Expert Working Group to develop more supporting material for capacity building and for promoting the approach in several developing countries.

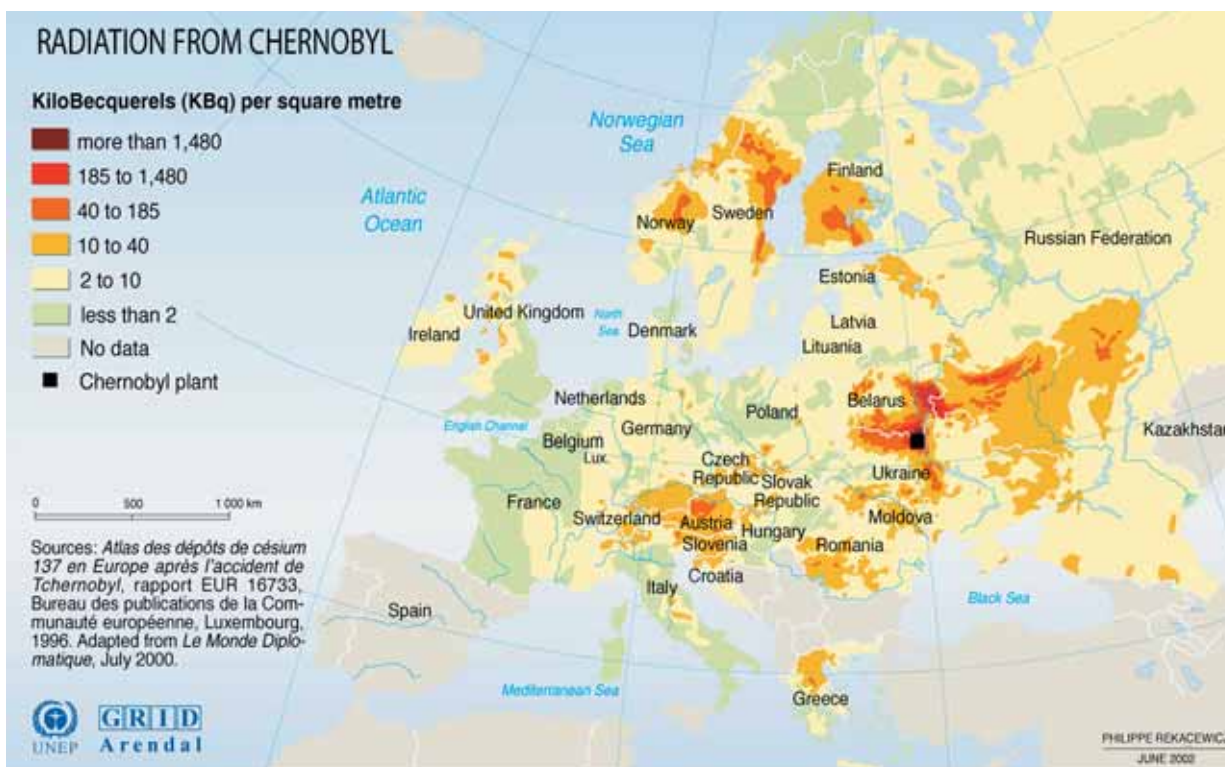
MITIGATING RISK

In a rapidly globalising economy, access to scientific and technical information has a critical role to play in sustainable development. In line with the objectives of the 2002 Johannesburg Summit to ensure the sound management of chemicals by 2020, UNEP Chemicals provides expertise on the management of chemicals at all stages of their life cycle. It aims to reduce the information gap between countries and strengthen

Harmful substances and hazardous waste

At its 56th session, the Vienna-based UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), whose secretariat is provided through UNEP, adopted a report (A/63/46) to the General Assembly, summarising its most recent findings:

- Human beings have always been exposed to ionising radiation from natural sources, principally from cosmic radiation and natural radionuclides in soil and rocks. Exposures due to inhalation of the radioactive gas radon account for about half the average human exposure to natural sources, but vary dramatically with locality.
- The global radioactive fallout from atmospheric nuclear weapons tests conducted in the periods 1952–1958 and 1961–1962 represents a source of continuing exposure even today, albeit at very low levels. There is concern regarding the reoccupation of nuclear test areas because radioactive residues are considerable at some sites. Populations are also exposed near sites where nuclear materials and weapons were produced. The military use of depleted uranium, especially in armour-piercing munitions, has raised concerns about residual contamination, however radiation exposures are generally negligible.
- Exposure from the peaceful uses of radiation are by far dominated by medical exposures. Medical uses of radiation continue to increase worldwide, with about 3.6 billion radiological examinations conducted every year. In some countries the population exposure from medical uses is now greater than that from natural sources.
- Generation of electrical energy by nuclear power plants has grown steadily since 1956. The doses to members of the public vary widely from one type of fuel cycle installation to another, but are generally small and decrease markedly with distance from a specific facility. Discharges from power reactors and the associated exposures of local and regional populations have fallen with time.
- A small number of accidents associated with the nuclear fuel cycle have attracted widespread publicity. However more than a hundred accidents causing injuries among workers or members of the public have occurred with industrial and medical sources.
- The 1986 Chernobyl accident was the most severe in the history of civilian nuclear power. Two workers died in the immediate aftermath, and 134 plant staff and emergency personnel suffered acute radiation syndrome, which proved fatal for 28 of them. Subsequently, several hundred thousand workers were involved in recovery operations. Among those exposed to higher radiation doses in 1986–1987, there are some reports of increased incidence of leukaemia and of cataracts; otherwise to date there is no consistent evidence of other radiation health effects. The radioactive cloud deposited substantial radioactive material over large areas of the USSR and other parts of Europe, contaminating land, water and biota, and causing particularly serious social and economic disruption for large populations in Belarus, the Russian Federation and Ukraine. Among people who were children or adolescents in affected areas of the USSR in 1986, more than 6,000 thyroid cancers have since occurred (to date only a small number have been fatal), of which a substantial fraction could be attributed to drinking milk contaminated with the short-lived radionuclide iodine-131. In the longer term, the general population was also exposed to low-level chronic radiation, but there has been no consistent evidence as yet of any other radiation health effects in the general population.



Sources: UNEP/GRID-Arendal, European Environment Agency; AMAP Assessment Report : Arctic Pollution Issues, Arctic Monitoring and Assessment Programme (AMAP), 1998, Oslo; European Monitoring and Evaluation Programme (EMEP); Co-operative programme for monitoring and evaluation of the long range transmission of air pollutants in Europe, 1999. Adapted from *Le Monde Diplomatique*, July 2000.

capacity in environmental monitoring and assessment. With support from the Government of Switzerland, more than 10 countries in Africa, Asia and Latin America received training and technical assistance to access and exchange information related to risk assessment and management, including through the Chemicals Information Exchange Network (CIEN).

The CIEN project has improved access to information on chemicals and facilitated national and sub-regional networking. It has strengthened the capacity of countries to manage chemicals in an environmentally sound manner by providing:

- skills on access and exchange of information using the Internet
- training on the use of ESTIS (a web-development tool created by UNEP's International Environmental Technology Centre (IETC) as a cost-effective way to create a national Internet portal for chemical information exchange
- computer and telecommunications equipment to facilitate access to the Internet
- an opportunity to meet and strengthen collaboration among stakeholders, including the focal points of different chemical-related MEAs at the country level
- forums for national focal points to strengthen their ties and foster regional and international collaboration.

Collaboration with WHO and the UN Food and Agriculture Organisation (FAO) continued in the areas of pesticides management, including development and dissemination of guidelines and training materials. Electronic discussion forums allowed countries to exchange views and discuss upcoming issues, including on POP candidate chemicals. Also, with support from the Swedish and Japanese governments, an initial step to address stakeholders' needs for information on chemicals contained in products was taken through a workshop in December 2008. The issue is closely linked to both SAICM and the Marrakech Process on Sustainable Consumption and Production. The outcome of the workshop will feed into ICCM2 for consideration in discussions on emerging issues.

ENVIRONMENT AND HEALTH

Since WSSD, issues related to environment and health have become increasingly prominent

on the international agenda, including at the Ministerial level. UNEP and WHO have a long-standing relationship addressing the interaction between health and environment in the context of sustainable development. Recent cooperation on children's environmental health and in strengthening health and environment linkages have further highlighted the two organisations' different perspectives and comparative advantages.

To address the crucial environment and health-related challenges that are hindering Africa's socio-economic advancement, and to further promote policy coherence in line with the multi-sectoral dimension of SAICM, UNEP and WHO, in partnership with the Government of Gabon, organised the first Inter-Ministerial Conference on Health and Environment in Africa, in August, in Libreville, Gabon. The Libreville Declaration on Health and Environment in Africa commits governments to stimulate necessary institutional, policy and investment changes to maximise synergies between the health, environment and socio-economic sectors. The conference also launched the joint WHO-UNEP Health and Environment Linkages Initiative (HELI) toolkit and synthesis report, a management method to make better use of available evidence and existing knowledge through linked assessment of health and environment impacts and cost and benefit methodologies which support evidence-based economic development policies. The Ministers agreed to meet again before the end of 2010 to review progress.

In the Asia-Pacific region, UNEP and WHO have been working on the development and implementation of a Regional Charter for environment and health. Activities so far include a Ministerial Regional Forum on Environment and Health in August 2007 in Bangkok, a Regional Charter on Environment and Health in Southeast and East Asia, and a Ministerial level Declaration on Environment and Health. Thematic Working Groups have been established, and corresponding work plans have been completed for six priority areas: air quality; water supply, hygiene and sanitation; solid and hazardous waste; toxic chemicals and hazardous substances; climate change, ozone depletion and ecosystem changes; and contingency planning, preparedness and response in environmental health emergencies.

PERSISTENT ORGANIC POLLUTANTS

The UNEP/GEF project Assessment of Existing Capacity and Capacity Building Needs to Analyse Persistent Organic Pollutants (POPs) in Developing Countries has the overall objective to assess country needs under the Stockholm Convention for laboratory analysis and the conditions necessary for conducting them in a sustainable manner, including on a regional basis if appropriate. A survey of operational POPs laboratories has collected and evaluated information from 204 laboratories from all continents. A number of gaps in analysis capacity with respect to POPs chemicals (dioxins, furans, mirex, toxaphene) or matrices (smoke stack emissions, mothers' milk, human blood) was identified in a number of sub-regions. The databank is accessible via the Internet. Capacity building was a major part of the project and is being implemented through on-site training at nine laboratories in seven countries. A report, *Lessons Learned from Laboratory Projects*, has been published, as well as several sectoral reports, including a final technical project report. Agreed criteria for all aspects of POPs analysis, including sampling, transport, storage, identification, quantification and reporting were established, and criteria were adopted by countries and applied by laboratories and international organisations.

UNEP is also executing two projects under the SAICM Quick Start Programme in the Caribbean. The multi-country project submitted by the Bahamas, Barbados and Haiti is building analytical capacity for POPs by enabling them to design monitoring networks for the core matrices of Global POPs Monitoring under the Stockholm Convention: ambient air and mother's milk. The project includes training laboratory staff in POPs analysis and the provision of spares and consumables to enable them to analyse POPs in these matrices according to international standards. The second project will assess and improve the analytical capacity of POPs laboratories in Cuba, a country that only recently became party to the Stockholm and Rotterdam Conventions. The project will identify laboratories that can undertake POPs analysis and what their capacity building, training and equipment needs are.

Other capacity building for countries to meet their obligations under the Stockholm Convention

included a workshop on continuing PCB management in Panama City, Panama, in February 2008, attended by over 100 participants from governments, intergovernmental organisations, NGOs and the private sector. Focus was on identifying needs and advancing initial progress in the management of PCBs in three main activity areas: legislative and institutional measures to ensure a sound framework when addressing PCB problems and management; identifying PCB problems through PCB inventory efforts and subsequent management planning; and handling PCB problems by enacting PCB management plans and identifying requirements associated with the elimination of PCBs (e.g. handling, transport, storage and disposal). Countries identified areas where they required assistance and where they could provide assistance in the form of lessons learned, case studies, source materials applicable to training, etc.

The Information System on DDT, jointly maintained with WHO and the Stockholm Convention Secretariat, was further developed and updated with relevant information, and the Information System on POP Termiticides, developed with members of the UNEP/FAO Global Termite Expert Group was further elaborated and updated. In collaboration with the Stockholm Convention Secretariat, technical support was also provided to countries for management of POP chemicals, including their global monitoring. A CIEN online platform has been built to support regional POPs Review Committee activities, including activities of the Regional Organisation Group for evaluating the effectiveness of the Stockholm Convention. A regional workshop was organised in Lomé, Togo, to train the Group in data collection and compilation under Article 16 of the Stockholm Convention on Effectiveness Evaluation. Workshops have also been planned for Cambodia, Kenya and Sierra Leone. The CIEN training programme was also held in Djibouti and Kenya.

HEAVY METALS

UNEP is leading the process to develop an overarching framework for the UNEP Global Mercury Partnership, which has been developed in consultation with partners and stakeholders, including governments, representatives of industry and environmental organisations. The goal for the Partnership is "to protect human health and



At its 24th meeting in February 2007, the UNEP Governing Council acknowledged the progress made to address the global mercury issue. It also recognised that current efforts to reduce risks from mercury are not sufficient, and that further international action is required. It agreed that there was a need for updated information on global mercury emissions, and asked UNEP to undertake the responsibility of collecting it. Mercury is linked with a wide range of health effects including irreversible damage to the human nervous system, including the brain, and scientists have concluded there is no safe limit when it comes to mercury exposure. Every person alive today is thought to have at least trace levels of this heavy metal in their tissues, with major emissions resulting from burning of fossil fuels and from waste incineration, as well as the use of mercury in gold mining and in production processes. Scientists are also testing suggestions that climate change may be triggering releases of new deposits of mercury and re-activation of old deposits as a result of rising lake temperatures; erosion and the accelerated melting of permafrost, ice sheets and icebergs at the poles.

the global environment from the release of mercury and its compounds by minimising and, where feasible, ultimately eliminating global anthropogenic mercury releases to air, water and land.” Operational guidelines for the partnership have been developed, which include clear roles for the partnership advisory group, partnership leads and the procedure for joining the partnership or a partnership area. Further progress has been made with the development of formal business plans for each of the partnership areas, as well as the identification of clear goals for each.

In addition to the original five partnership areas (artisanal and small-scale gold mining, coal combustion, the chlor-alkali sector, products, air transport), a new area on waste has been established. Discussions have also been held on the role of partnerships in addressing the issues of vinyl-chloride monomer production, non-

ferrous metals mining and cement production. The need for work on the area of mercury supply has also been highlighted. These areas will be integrated in the overall partnership programme following further discussions.

A number of major projects are under way both within and parallel to the partnership projects. Building on the pilot project on inventories, a project to assist five countries to manage their mercury-containing waste and provide input to draft management guidelines has been initiated. Work has also been undertaken to investigate the possibility of closing the last remaining mine exporting mercury, which is located in Kyrgyzstan. A preliminary assessment has been completed, and work is continuing on an analysis of the potential socio-economic impact of closing the mine. Another project will address mercury storage in two regions, commencing with an analysis of options.

Harmful substances and hazardous waste

The second approach to the mercury challenge identified by the UNEP Governing Council is the need to review and assess options for enhanced voluntary measures and new or existing international legal instruments. An ad hoc Open Ended Working Group was established by the Governing Council to undertake this task. Following the first meeting, the secretariat prepared a number of reports providing an update on the current state of mercury supply and demand, the availability of alternatives, the costs and benefits of mercury management, and the logistics and feasibility of various options. These reports were available for consideration by the second meeting of the Working Group in October 2008. Discussions at the meeting focused initially on the possible elements of a policy framework to address the mercury challenge, with broad agreement being reached. The meeting then developed two options for implementing this policy framework, including a stand-alone legally binding instrument and a voluntary programme of action. It was agreed that the report, including the options for implementation and the policy framework, would be forwarded to the Governing Council for consideration at its 25th session in February 2009.

Further work has also been undertaken to finalise scientific reviews of lead and cadmium and to compile an inventory of existing risk management measures. The updated reviews were circulated for comments, and will be forwarded to the UNEP Governing Council. UNEP, with the support of the Government of Sweden, has also undertaken a study on the effects on human health and the environment of the movement of products containing lead, cadmium and mercury in trade in Africa. The lack of information on such trade had been identified as a data gap of concern during the process of developing the interim reviews. The need for further studies in other regions has also been identified.

HAZARDOUS WASTES

The ninth Conference of Parties to the Basel Convention on Transboundary Movements of Hazardous Wastes, which took place in June in Bali, Indonesia, under the theme Waste Management for Human Health and Livelihood, provided an opportunity for Parties to explore how environmentally sound waste management contributes to the implementation of national poverty reduction strategies and the achievement

UNEP has been working with the World Health Organisation (WHO) to develop projects for investigating options for recycling and disposing of obsolete insecticide-treated nets. Among different programmes and funds for controlling malaria it is expected that around 250 million nets will have been distributed in Africa by 2010. Long-lasting insecticide-treated nets are one of the most promoted alternatives to DDT use in indoor malaria control. WHO and UNEP have developed a demonstration project with the Government of Madagascar to look at infrastructure issues for collecting obsolete nets and technical options for their recycling or disposal. The project was initiated in late 2008 and will be fully implemented during 2009 and 2010. Other projects are expected to follow with Global Environment Facility support.



of a number of the Millennium Development Goals. In the lead-up to the Bali meeting, and at the request of the Government of Indonesia, UNEP's Division of Environmental Law and Conventions (DEL/C), in partnership with UNEP's International Environmental Technology Centre (IETC) and the Non Aligned Movement Centre for South-South Technical Cooperation, conducted a South-South cooperation workshop on Waste Management, Law and Governance, in Bali. The lessons learnt from the Integrated Solid Waste Management projects carried out at Pune, Maseru and Matala were shared with the participants. The workshop was also reported in the Ninth Meeting of the Conference of the Parties to the Basel Convention.

The Government of Sweden and the Chlorine Chemistry Division, USA, are the main donors to a project that will for the first time generate emission factors for polychlorinated dibenzo-*p*-dioxins and dibenzofurans from open burning of waste in developing countries. This two-year project, which started in 2007 and will be concluded in spring 2009, is being implemented by UNEP in China and Mexico and with the assistance of dioxin laboratories in Sweden and USA. The open burning of waste and of biomass in agriculture or forest fires has been identified as the major source of dioxin furan release in the inventories from developing countries. However, so far, no measured data are available from waste disposal practices in developing countries. This project will determine the influence of the chemical composition through major waste fractions typically found in developing countries and their potential to release toxic chemicals when burned in the open. Emission factors will be determined by taking samples from burning events in China and Mexico. The project will build capacity in developing countries to design and implement studies for determining toxic chemicals from waste management practices, identify the main drivers for high emissions and provide initial recommendations on best practices to reduce the formation and release of these toxic chemicals and reduce exposures to the environment and the general population. The results will feed directly into the Stockholm Convention methodology for the identification and quantification of dioxin and furan releases.

A sister project is being financed by the Stockholm Convention Secretariat and executed by UNEP

Chemicals to undertake parallel measurements using a high volume sampler and using an indoor burn hut to develop globally applicable sampling protocols for open biomass fires such as forest fires or agricultural burns. The project started in fall 2008 and will run through 2009. This project also contributes to the Stockholm Convention Toolkit methodology and will develop emission factors for dioxins and furans. The second and third meetings of the Toolkit Expert Group were jointly organised by UNEP Chemicals and the Secretariat of the Stockholm Convention in Geneva in December 2007 and 2008, respectively. The experts agreed on priority issues to improve the Toolkit and will send their report to the fourth Conference of Parties to the Stockholm Convention in May 2009.

SOLID WASTE MANAGEMENT

UNEP IETC has completed the implementation of a project on Integrated Solid Waste Management (ISWM) in Wuxi New District of the People's Republic of China, Pune, India, and Maseru, Lesotho, with support from the Government of Norway and the Japanese Trust Fund. Integrated solid waste management plans and an implementation strategy for Wuxi, Pune, and Maseru have been completed and pilot activities in Maseru are being implemented. The plans cover all municipal and industrial waste sources, and all stages of waste management chain, including minimisation, segregation for reuse and recycling, collection and transportation, sorting for material recovery, treatment and energy recovery and final disposal. In line with the Bali Strategic Plan for Technology Support and Capacity Building, the emphasis was on capacity building for local partners during the implementation of each activity to enhance replication of such projects. The projects have already attracted the attention of other cities and local authorities. Another ISWM project has been completed in Matala, Sri Lanka, following a request from the town's mayor. The project had additional features such as the techno-economic feasibility of a recycling industry park, a bio-methanation system for organic compostable waste, and the establishment of a waste exchange facility.

The results from the projects have been very encouraging. For example, in Pune, a proposed Community Sorting Centre scheme, even if implemented in 50 per cent of households, would



In Maseru, Lesotho, a UNEP project has demonstrated that of the annual 210,000 tons of waste estimated to be generated by 2020, implementing the actions defined in the Integrated Solid Waste Management Plan could result in avoiding 40,000 tons of waste through waste reduction measures, reusing another 45,000 tons as animal feed or compost, and recycling 55,000 tons. Thus the remaining waste which would have to be landfilled would be only 70,000 tons or just 30 per cent of the original estimate. As landfilling costs about \$6.50 a ton, the reduction in land filling quantity alone will give an economic benefit of about \$910,000 a year.

provide jobs to 2,500 rag pickers with an average earning of \$75 each per month. Furthermore, even 50 per cent recycling of dry waste (i.e. paper, plastic, metal, glass, etc.) would result in reduced greenhouse emissions of 40,000 metric tonnes of CO₂ equivalent a year. A training package for policy makers and waste management practitioners has been developed to enable others to develop integrated solid waste management plans.

New waste streams, such as e-waste, are becoming very important due to increasing quantity, economic value and the hazards posed by unsafe recovery and disposal methods. To assist policy makers and practitioners, IETC has prepared two guidance manuals on e-waste inventorying and on e-waste management. In addition, UNEP is providing technical assistance to the Ministry of Environment and Energy in Costa Rica for the drafting of a new national regulation on management and disposal of solid wastes. In West Asia, e-waste is one of the fastest growing segments of the waste stream. Agencies responsible for waste management in the region have inadequate knowledge of e-waste composition and management. In addition, the status of e-waste in most countries of the region is unknown and the region lacks standardised

methodologies and guidelines to conduct such an assessment. To tackle this issue, UNEP's Regional Office for West Asia is working with the International Telecommunications Union (Arab Region) and the Basel Convention Regional Centre in Cairo, Egypt, to promote better e-waste management by initiating capacity building and a pilot project for the region.

OZONE DEPLETING SUBSTANCES

UNEP has gained considerable experience of cradle-to-grave management of ozone depleting chemicals (ODS) in developing countries through its ongoing work as an implementing agency of the Multilateral Fund for the Implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer. Since 1991, UNEP's OzonAction programme has worked to strengthen the capacity of developing countries to comply with their requirements under the Montreal Protocol to phase out chlorofluorocarbons (CFCs) and other ODS. Through a unique regionalised Compliance Assistance Programme (CAP), OzonAction delivers support to key stakeholders, such as National Ozone Officers, customs officers and refrigeration technicians, which provides them with the knowledge, skills and access to information that they need to

comply with this MEA. The CAP services include Regional Networking of ODS Officers, a global Information Clearinghouse, direct assistance to countries with policy setting and technology issues, development of sectoral strategies, such as Refrigerant Management Plans and Total Phase-out Management Plans, and capacity building

The 100 per cent phase-out of the major ODS controlled by the Montreal Protocol – CFCs and halons – must take place by 31 December 2009 in developing countries. This presents a number of challenges to countries and their international partners in ensuring they are on course to reach this milestone and to achieve compliance. The OzonAction CAP provides the necessary support

and technical and policy advice. This is all the more important in the context of the additional challenges ahead, as Parties to the Montreal Protocol committed in 2007 to bring forward the date to cease production and consumption of hydrochlorofluorocarbons (HCFCs), chemicals that were adopted as replacements for the more ozone-damaging CFCs, but which can have a global warming potential of up to about 2,000 times that of CO₂. This decision will present a challenge to many countries to prepare for the first steps in achieving this commitment. OzonAction is providing direct assistance and support through the CAP and is implementing HCFC Phase-out Management Plans in 70 developing countries to facilitate compliance.

Several UN agencies have banded together for a new educational initiative to raise awareness among secondary school students on preserving the ozone layer. The scheme, called High Sky, was announced during International Ozone Day on 16 September by UNEP, the UN Educational, Scientific and Cultural Organisation (UNESCO), the UN Children’s Fund (UNICEF) and WHO. The education pack, which includes a teacher’s guide, a student’s book and the Ozzy and Zoe Ozone collection, uses an innovative and interactive approach – ‘learning by playing’ – to engage students. The reader assumes the role of a journalism student about to get a job in an important news agency and he or she is challenged to write an article to tell the world about the current situation of the ozone layer, the links with climate change, and practical tips for children to help protect our planet. The package is available in English, French and Spanish, and is being distributed through UNESCO’s Associated School Network, UNICEF’s Child-friendly Schools and Eco-schools, and Environment Online (ENO) schools. Developed by OzonAction as part of UNEP’s Work Programme under the Multilateral Fund for the Implementation of the Montreal Protocol, this comprehensive module is designed to be integrated into national educational curricula and help contribute to the long-term sustainability of ozone layer and climate protection.







Disasters and Conflicts



Sichuan Province, China, May 2008. The environmental impacts of disasters and conflicts on human health, livelihoods and security can stall economic and social development, exacerbate inequalities and cause massive population displacement. UNEP has responded to crisis situations in more than 25 countries since 1999, from Kosovo to Sudan, from the countries affected by the Indian Ocean tsunami to China and Myanmar. As the international community has shifted its focus from post-crisis intervention to crisis prevention, UNEP has expanded its operational range, adding disaster risk reduction and environmental cooperation for peacebuilding to its core services of environmental assessment and recovery. In February 2008, the 10th special session of UNEP's Governing Council in Monaco authorised the Executive Director to use the Medium Term Strategy for 2010–2013 in planning UNEP's activities and operations to address emerging global environmental challenges. Disasters and Conflicts was identified as one of six priority areas of work for the organisation. This development reflects not only an increased global awareness of the environmental causes and consequences of conflicts and disasters, but also a recognition of the comparative advantage UNEP has built during the past decade in this area.

RESPONDING TO DISASTERS

In 2008, a year marked by several major disasters, UNEP continued to fulfil its mandate to assist vulnerable or crisis-affected countries and communities by providing high-quality environmental expertise for assessments, and integrating environmental concerns in emergency response, post-crisis reconstruction, recovery projects and long-term sustainable development. In addition to these core services, UNEP further developed capacity and expertise under its disaster risk reduction and environmental cooperation pillars.

On 12 May 2008, the Sichuan Province of China was struck by an 8.0 magnitude earthquake.

The quake destroyed almost 6.5 million homes and affected approximately 70 million people. Some 15 million people were evacuated and it is estimated that more than 5 million people were forced to live in temporary shelter. As of December 2008, the death toll had reached more than 100,000, with over 374,643 injured and 17,923 missing. As the primary international environmental actor on the ground, UNEP was immediately involved with the post-disaster recovery effort, coordinating the environmental response to the earthquake. After identifying emerging environmental risks in the rescue phase, UNEP provided rapid environmental assessment and advisory support for the prevention and control of secondary disasters in the early stages of recovery, and has since been assisting

the Chinese central and local governments to mainstream environmental considerations in the recovery and reconstruction phase for the long-term.

The \$33.5 million China Appeal for Recovery Support, launched by the UN in July 2008, recognised the critical importance of addressing environmental issues such as water and soil contamination and hazardous waste management, and requested an envelope of nearly \$6 million from the donor community for environmental issues. One of the most challenging issues was related to the management of the vast quantities of building rubble generated by the quake, much of which may have been contaminated with hazardous materials such as asbestos, hydrocarbons and toxic chemicals. To respond to the challenges, UNEP strengthened its office in Beijing with international technical experts in domestic, industrial and hazardous waste management, including asbestos and hazardous healthcare waste, enabling UNEP to provide environmental expertise to both the UN Country Team and the relevant Chinese authorities.

At the request of the national government, UNEP also facilitated training workshops on post-disaster environmental management for Chinese civil servants, environmental experts, government representatives and international organisations based in Beijing. As part of the longer-term recovery and reconstruction effort in 2009–2011, UNEP will work with the national and local governments in the affected areas to help ‘green’ the reconstruction and ‘build back better’, while also addressing environmental improvements across the industry, social, education and agriculture sectors. A review of the existing waste management infrastructure will be also undertaken, and recommendations made regarding the construction of new engineered landfill sites and hazardous waste treatment centres. Finally, UNEP is expected to play a key role in promoting a low carbon approach in the restoration and reconstruction period, with a view to achieving energy efficiency and a more environmentally friendly economy in the affected area.

UNEP has also been supporting the environmental recovery of Myanmar from the impacts of the Category 3 cyclone Nargis, which struck the country on 2 May. Major damage was reported, particularly in the low-lying delta region where the

cyclone’s impact was compounded by a storm surge. With an estimated 2.4 million people affected, official figures reported over 77,000 people killed and nearly 56,000 people missing. Following an assessment of the immediate risks stemming from the environmental damage conducted by an expert deployed by the Joint UNEP/OCHA Environment Unit, UNEP deployed an environmental expert to work on the UN disaster recovery programme as part of the UN Country Team. UNEP is currently working with the Myanmar Ministry of Health and the National Commission of Environmental Affairs to establish a system for testing water quality in old and new sources of drinking water in the cyclone-impacted areas.

NEW PARTNERSHIP FOR DISASTER RISK REDUCTION

Over the last decade, the global community has come to recognise that the ever-increasing impact of natural hazards such as floods, hurricanes and earthquakes is eroding and in many cases reversing decades of development efforts, not to mention the increasing the toll in human lives and suffering. As a result, guided by the Hyogo Framework for Action 2005–2015, the global community is moving to reduce disaster risk as an integral and necessary component of sustainable development and climate change adaptation. In addition, adopting an integrated approach to climate change, disaster reduction and ecosystem services is unquestionably a priority if development programmes are to achieve their goals.

In 2008, UNEP, in cooperation with the UN International Strategy for Disaster Reduction, established the Partnership for Environment and Disaster Risk Reduction to advance an integrated approach to climate change, disaster reduction and ecosystem services. The Partnership is a global-level practical working forum where UN agencies, NGOs and specialist institutes can share information and ideas and coordinate efforts in pursuit of a common goal of concurrent disaster risk reduction and sustainable development. Bringing together nine members with distinct added value and substantive technical capacity, the Partnership aims to coordinate at the global and regional levels to more efficiently enable large-scale implementation at country and local levels. Over

Disasters and conflicts

the next two years, the Partnership will focus on developing the awareness and capacity of several hundred organisations worldwide to design and implement national and local policies, plans and programmes in pursuit of this common goal.

A publication, *Disaster Risk Management for Coastal Tourism Destinations: A Practical Guide for Decision-Makers* is part of the UNEP Manuals on Sustainable Tourism series. It provides tourism destinations with a practical approach for developing preparedness for climate-related disasters. Climate change will exacerbate the intensity of extreme weather events and consequently will put many coastal tourism destinations at risk. By following the guidelines,

In November 2007, a severe storm in the Black Sea grounded four Russian tanker ships in the Kerch Strait, causing the release of more than 1,300 tonnes of fuel oil causing property loss, contamination of marine and coastal flora and fauna, high clean-up costs and significant revenue losses for local industries. The European Commission invited UNEP to coordinate a comprehensive multi-sectoral Post-Disaster Needs Assessment, with the participation of the Government of Ukraine. In addition to the scientific assessment of the damage caused to the coastal and marine environment, the study also examined the institutional and economic mid- to long-term needs of Ukraine related to the oil spill. The *Oil Spill in the Kerch Strait – Ukraine Post-Disaster Needs Assessment* report, released in November 2008, details the findings and provides a series of recommendations for recovery and disaster risk reduction in Ukraine.



tourist destinations can develop adaptation policies to secure their long-term future.

Another project, Disaster Risk Reduction in Tourism Destinations, brought together UNEP, the Swedish Rescue Services Agency, the National Safety Council of India, the Department of Disaster Prevention and Mitigation of Thailand, the Municipality of Patong and of Phi-Phi Island, and the International Hotel and Restaurant Association in a joint effort aimed at increasing the disaster management capacity of the main stakeholders in three tourism destinations hit by the 2004 Indian Ocean tsunami: Kanniyakumari in Tamil Nadu State of India, Patong, Phuket, Phi-Phi Island, Krabi, in Thailand. This was achieved by improving local authority and the private sector capacity to manage natural and man-made disasters and by training local authorities, responders, residents and tourists on how to properly prepare for and react to disasters. Each tourism destination developed an integrated emergency plan and tested it through an awareness raising drill event.

BUILDING BACK BETTER

With funds from the European Union, UNEP's International Environmental Technology Centre (IETC) completed implementation of its DEBRI project (Demonstrating Environmentally Sound Technologies (ESTs) for Building Waste Reduction in Indonesia) in 2008. Developed in the aftermath of the Indian Ocean tsunami of December 2004, the aim of the project was to demonstrate a waste management mechanism, which was first applied to tsunami-generated debris and subsequently used for day-to-day construction and demolition waste in rehabilitation and reconstruction efforts in Banda Aceh, Indonesia. The project looks at technology support, capacity building and economic instruments as pillars of a comprehensive long-term approach to reuse, recycle and otherwise manage debris. Innovative and appropriate ESTs are at the core of the approach, along with training programmes for local and national stakeholders.

In the same region, the Capacity Building to Integrate Disaster Risk Reduction into Coastal Zone Management project, led by UNEP's Post Conflict Disaster Management Branch, aims to integrate disaster risk reduction into coastal zone management through developing

guidance material in ecosystems management and training coastal zone managers at regional level in the target countries of India, Indonesia and Sri Lanka. Coastal ecosystems and associated watersheds provide a wide range of services to coastal communities, and are fundamental to community resilience to hazards. However, these services are under threat from a variety of sources even while global climate change is expected to increase the frequency and intensity of climate-related hazards. While there are many coastal zone managers in Indian Ocean countries, there is still a limited understanding of the principles of reducing underlying risk factors and only limited engagement with national disaster reduction mechanisms and resources. The first regional guidance manual for disaster risk reduction in coastal zone management has been developed and will be refined through consultations and collaboration with the three target countries in the first half of 2009. Efforts have also started on country-tailored manuals for India, Indonesia and Sri Lanka.

SUPPORT FOR IRAQ

In light of the post-conflict situation in Iraq and the long-term degradation of the Mesopotamian Marshlands, UNEP has undertaken a range of activities to assist Iraq to both rehabilitate its natural environment and rejoin the global community through the ratification of a number of Multilateral Environmental Agreements (MEAs). Since 2004 UNEP IETC and the Regional Office for West Asia (ROWA) have been jointly implementing the project Support for Environmental Management of the Iraqi Marshlands. The project is funded by the Governments of Italy and Japan and was initiated to address the draining of vast areas of the marshlands. As a result of UNEP's engagement, the marshlands are now recovering, with water cover back to almost 60 per cent of pre-1970s levels.

Other highlights of the Iraqi Marshlands Project include design and installation of photovoltaic-augmented systems to supplement energy for providing drinking water, a reverse osmosis-based drinking water system for a seventh community of 3,000 persons, engineered wetlands for water quality improvement and wetland rehabilitation, hardware for the Marshland Information Network to facilitate the collection and dissemination of

data on basic public services in the Marshlands, and an environmental awareness programme targeting women from nine communities.

A Sustainable Management of Iraqi Marshlands training course was conducted in cooperation with the UNEP Regional Office for West Asia (ROWA) and the Arab Centre for the studies of Arid Zones and Dry Lands (ACSAD), focusing on wetland and water resource management, biodiversity management and solid waste management. In the evaluation meeting held on this Project in September 2008, the Minister of Environment of Iraq indicated the Ministry's pleasure with the benefits generated from the project, especially regarding the implementation of environmentally sound technologies and capacity building for ministry staff. The Minister urged further support from the UN to mainstream environment in reconstruction and nation building, particularly through establishing a management structure in the Iraqi Marshlands with assistance from UNEP and UNESCO through the World Heritage inscription process, strengthening the environmental management of the Kurdistan region, and further building Iraqi capacity on multilateral environmental agreements.

UNEP has supported the Government of Iraq in the process of accession to several MEAs, the first of these being the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer. Iraq also joined the Ramsar Convention on Wetlands, the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, as well as the Convention on Biological Diversity (CBD).

UNEP is also extending capacity building support to Iraq for climate change responses, including practical sessions on the preparation of greenhouse gas inventories, developing Clean Development Mechanism projects and conducting climate change vulnerability assessments. It is helping with the design and development of an Air Quality Monitoring Network, and with providing satellite imagery to assess land cover, particularly in terms of desert and marginal lands. Training is also under way on integrated environmental assessment towards the preparation of a State of the Environment Report and assistance is being given towards the establishment of an Environmental Information Network.

AFGHANISTAN

In its fifth year of operation, UNEP's Capacity Building Programme for Afghanistan entered a third phase, thanks to a €4.9 million grant from the European Commission for 2008–2010. In this new phase, the programme will continue to support the National Environmental Protection Agency (NEPA) and other environmental authorities to implement their plans and projects, but reach out beyond the central government to provincial and local levels to further the processes of environmental restoration and community-based management.

UNEP also commissioned an external evaluation of the programme in 2008 to identify lessons learned that might be applied to future UNEP country-level operations. The programme was found to have succeeded beyond all expectations, achieving remarkable results under particularly difficult circumstances. Key achievements have included establishing a solid institutional architecture and mandate for NEPA, developing a framework environmental law and associated sector laws on forests, water and rangelands, as well as regulations on environmental impact assessments, providing office and technical equipment to NEPA and delivering more than 100 training sessions on a wide range of topics.

In 2008, UNEP participated in the development of the new UN Development Assistance Framework (UNDAF) for Afghanistan, as part of the UN Country Team, while continuing to support NEPA in fulfilling its reporting requirements with regard to implementing the Afghanistan National Development Group Environment benchmark. Significant progress was also made regarding the development of all legislation championed by UNEP, including the Rangeland Law, Forest Law, Protected Areas Regulations, EIA Regulations and Environment Law. Other developments include the finalisation of Afghanistan's 2008 State of Environment Report and outreach publications including the *Biodiversity Profile of Afghanistan 2007*.

SUDAN

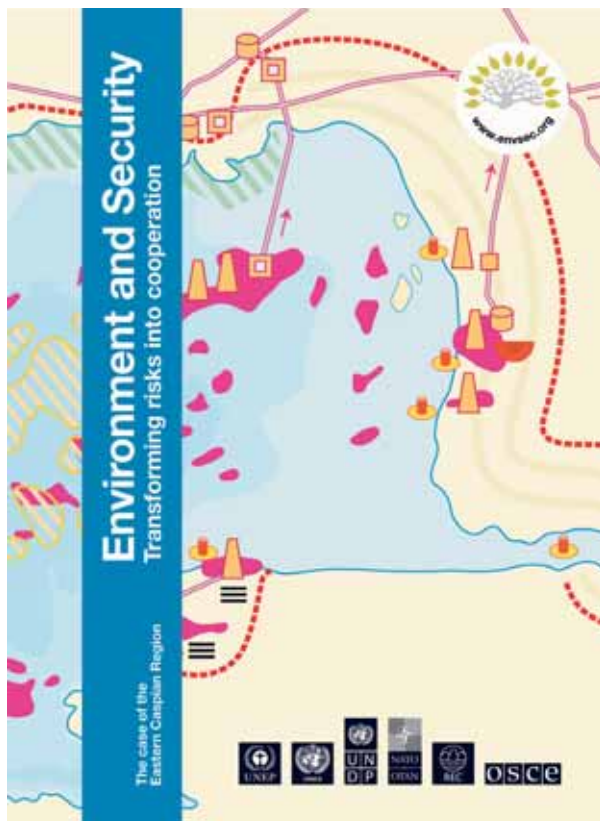
Following the publication of the *Sudan Post-Conflict Environmental Assessment*, UNEP established a programme office in Khartoum in late 2007 to help build the capacity of national

authorities and the UN community for the sustainable use of natural resources and the rehabilitation of degraded areas. Despite a deterioration in security conditions in Northern Sudan, 2008 was marked by strong programme development and the successful implementation of four established projects.

Under the Timber and Energy project, which includes a reforestation programme and the promotion of alternatives to timber use for energy and construction, 1.2 million saplings were successfully planted in Darfur, in a joint effort between UNEP and Sudan's Forests National Corporation. Within the Integrated Water Resource Management project, focusing on technical assessments of water resources and on governance and sustainable management of groundwater, a major study was completed on *Water Resource Management in Humanitarian Programming in Darfur*.

The report identified 23 camps vulnerable to drought and presented a four-phase strategy for drought preparedness, which was incorporated into the 2009 UN Work Plan for Sudan. Under the Aid and Environment project, a substantial report on livelihoods and an analysis of the timber trade and markets were published in November, following on from field missions undertaken earlier in the year.

Additionally, UNEP's ongoing advocacy for mainstreaming environment and natural resources in the overall aid programme met with considerable success, as Environment was included as a major theme in the 2009 Humanitarian and Early Recovery Work Plan for Sudan. Finally, under the Capacity Building project, UNEP worked with the Ministry of Environment and Physical Development to define a proposal to strengthen its information technology and provide access to Internet resources and office support. In 2009, the programme focus will remain on capacity building, water, livelihoods and forestry, with a waste-related project in Juba and a greater emphasis on climate change adaptation. To address the strong demand for UNEP's presence in Southern Sudan and consolidate and strengthen UNEP projects in Darfur, the new proposed programme could see UNEP coordination offices established in Juba and El Fasher, in addition to Khartoum.



Environment and Security: Transforming Risks into Cooperation examines the role and impact of environmental factors in securing human safety and sustainable development in the eastern Caspian Sea region, including the parts of Kazakhstan and Turkmenistan opening onto the Caspian Sea. It also looks into the potential impacts of climate change on the vulnerable Caspian Sea ecosystem and on the region's potential for tourism.

The final part of the year was dedicated to analysis and drafting of the final report, which is expected to be released by mid-2009. The key sectors addressed include: agriculture and land degradation; forestry; water resources; energy; wildlife and protected areas; urban environment and industry. Environmental governance, including the ongoing decentralisation process, is also examined. Finally, cross-cutting issues, such as the links between environment, conflict and peacebuilding, the environmental impacts of population displacement and resettlement, the complex dynamics between population growth, poverty and the environment, the growing risks of climate change and disasters, and gender-related issues, are also being considered.

RWANDA

Following a series of consultative and scoping missions in 2006 and 2007, UNEP commenced environmental assessment work in Rwanda in March 2008. Requested by the national government, the assessment aims to develop an environmental roadmap within the overall context of Rwanda's long-term development plans and the Millennium Development Goals by developing strategic and prioritised recommendations for remedial environmental interventions over the next five years.

A national consultation workshop to review a UNEP-commissioned environmental desk study prepared by national experts was organised with the Rwanda Environment Management Authority in August 2008 and attended by over 80 stakeholders. This consultation was immediately followed by two weeks of fieldwork, carried out by a multi-disciplinary team of eleven UNEP experts. Travelling throughout the country with national counterparts, they undertook site inspections, collected soil and water samples, interviewed local authorities and conducted rapid household surveys and focus group discussions with local communities.

ENVIRONMENT AND SECURITY INITIATIVE

UNEP coordinates the Environment and Security Initiative (ENVSEC), which seeks to facilitate a process whereby key public decision makers in Southeastern and Eastern Europe, Central Asia and the Caucasus are able to motivate action to advance and protect peace and the environment at the same time. ENVSEC, launched in 2003, is a partnership between the UN Development Programme (UNDP), UNEP, the Organisation for Security and Cooperation in Europe (OSCE), NATO, the UN Economic Commission for Europe and the Regional Environmental Centre for Central and Eastern Europe. In the field, UNEP continued to support the ENVSEC partnership through participatory assessments of environment and security challenges faced by countries of the pan-European region.

Building cooperation to combat environmental degradation in conflict zones is a key focus for the UNEP and the ENVSEC Initiative in

the South Caucasus. Prior to the conflict in Georgia in August 2008, ENVSEC had worked to open public environmental information centres as well as to facilitate joint Georgian-Ossetian environmental assessments on wastewater treatment, irrigation infrastructure, solid waste management and forest management in South Ossetia. Following the events in August, UNEP participated in a Joint Needs Assessment conducted by the World Bank, the UN and the European Commission. UNEP provided technical assistance on environmental considerations in the immediate post-conflict period and contributed to the section on Environment and Natural Resources in the final *Georgia Joint Needs Assessment* report.

In-country, UNEP focused on three main areas of impact: the explosion of a fuel train on the outskirts of Gori, the sinking of a number of vessels in the Port of Poti, and a pollution incident arising from conflict damage to a transformer unit in Poti. A further assessment was made of damaged apartment blocks in Gori. The scope of activities was determined by reported areas of concern and excluded fire damage to forests, for which the World Bank undertook a technical review. The UNEP team undertook site inspections and collected water, soil and asbestos samples which were then sent for laboratory analysis. While localised in nature, the team noted that possibly significant future environmental damage could be expected if various mitigating actions were not put in place quickly.

UNEP has also been working with OSCE in supporting dialogue towards a resolution for the 'frozen conflict' in the Transnistrian region of Moldova. UNEP has contributed to conflict settlement by facilitating negotiations related to environmental issues and by providing proposals for concrete collaboration on environmental management. International and inter-agency field missions for the Amu Darya River also took place in Tajikistan, Turkmenistan and Uzbekistan. As the major portion of what used to be the Aral Sea has now disappeared, the three countries are keen to preserve the water still left. The ENVSEC partners are developing a work programme for addressing environment and security risks in collaboration with the national governments.

IN THE PIPELINE

At the request of the Government of the Democratic Republic of Congo, UNEP's planned engagement in the country was expanded beyond the delivery of an environmental assessment to a multi-component post-conflict environmental recovery programme. A series of planning and consultation missions was conducted throughout the year to evaluate needs and gaps in the existing UN and partners' assistance programme, consult with the government, and to advance programme design. Spanning four of six UNEP Medium Term Strategy (MTS) priority themes and involving a wide range of UNEP divisions and offices, the UNEP Democratic Republic of Congo programme is set to become a model of how the MTS will be implemented by UNEP at country level.

As part of the wider environmental recovery programme, preparations also continued in 2008 for a detailed national-scale integrated assessment covering environment and ecosystems, natural hazards, climate change impacts and associated social linkages, including poverty, health, migration and conflict. The assessment work, which is expected to commence in early 2009, will last approximately 18 months.

At the request of the Government of Nigeria, UNEP agreed in 2006 to undertake an environmental assessment of oil contamination in Ogoniland. Following a significant administrative delay in Abuja, project preparations resumed in late 2008, with a view to starting implementation in early 2009.

ENVIRONMENTAL COOPERATION FOR PEACEBUILDING

In the last 60 years, at least 40 per cent of all intrastate conflicts have had a link to natural resources and the environment. From Darfur to the Middle East, and from the Democratic Republic of Congo to Nepal, violent conflict has been directly or indirectly fuelled by the scarcity of key resources, such as fertile land and water, or the abundance of valuable commodities like timber and minerals. The growing impacts of climate change now threaten to not only exacerbate existing tensions, but create new ones. On the other hand, the sound management of natural resources in post-conflict settings can provide a foundation for addressing livelihood

and governance challenges that are critical to sustaining peace.

In light of these important links between environment and conflict, peacebuilding efforts are increasingly focusing on institutionalising transparent, effective and sustainable management of key natural resources to help post-conflict countries achieve stability and development. Much remains to be done to translate this commitment into concrete action, but the establishment of the UN Peacebuilding Commission provides a crucial opportunity to address these issues more systematically and coherently both within and outside the UN system.

Established in 2007, the UNEP project on Environment, Conflict and Peacebuilding aims to prevent natural resources and environmental stress from undermining peacebuilding processes, while at the same time using environment as a platform for dialogue, cooperation and confidence building in countries affected by or vulnerable to conflict. During 2008, the project focused on establishing an intellectual foundation and the required partnerships to extend UNEP's operational capacity and expertise, and began to pilot-test new analytical tools and approaches in the field. To provide technical expertise on the links between environment, natural resources and conflict to the UN Peacebuilding Commission and the wider peacebuilding community, UNEP recruited and seconded an environmental advisor to the Peacebuilding Support Office in New York for a two-year period starting in March 2008.

UNEP also established an Expert Advisory Group on Environment, Conflict and Peacebuilding in February 2008. Comprised of leading academics, think tanks and NGOs with combined experience from over 30 conflict-affected countries, the Group provides policy inputs, develops tools, and identifies best practice for using natural resources and the environment in ways that contribute to peacebuilding and prevent relapse into conflict. The Group's first output was *From Conflict to Peacebuilding: the Role of Natural Resources and the Environment*, which will be launched during the 2009 UNEP Governing Council.

In other developments, UNEP participated in a high-level mission conducted in June 2008 by Jan Egeland, Special Advisor to the Secretary-General, to the Sahel region. The purpose of the mission

was to assess how climate change threatens to increase conflict vulnerability by changing the distribution of and access to natural resources. A clear role was identified for UNEP in using natural resources for environmental cooperation and peacebuilding in the region, with follow-up planned in 2009.

CLIMATE CHANGE AND ENVIRONMENTALLY INDUCED MIGRATION

It is now increasingly recognised that environmental degradation and climate change are major drivers in both forced and voluntary migration, and that this trend is set to continue and substantially increase in coming decades. While the consequences of mass migration are not *de facto* negative, its main impacts overwhelmingly are. These include escalating humanitarian crises, rapid urbanisation and associated slum growth, and stalled development.

Poverty, failing ecosystems, vulnerability to natural hazards and gradual climate-driven environmental changes are all linked to migration. It is expected that climate change will significantly affect migration in three distinct ways. First, the effects of warming and drying in some regions will reduce agricultural potential and undermine ecosystem services, such as clean water and fertile soil. Second, the increase in extreme weather events – in particular, heavy precipitation and resulting flash or river floods in tropical regions – will affect ever more people and generate mass displacement. Finally, sea-level rise will permanently destroy extensive and highly productive low-lying coastal areas that are home to millions of people who will have to relocate permanently.

Recognising the need to address these issues in a proactive manner, UNEP formally initiated work in this area in early 2008. UNEP advocates that long-term solutions for environment- and climate change-induced migration must include work to reverse or at least halt environmental degradation in vulnerable regions. Further, the strong links between stressed and degraded ecosystems and subsequent forced migration indicate a clear role in the further development of early warning and environmental assessments, a role that UNEP can positively contribute to with its wealth of expertise as the UN's environmental agency. Programme target regions include coastal zones in South and Southeast Asia and the Sahel belt in Africa.

FINANCIAL PERSPECTIVE: CONTRIBUTIONS TO THE ENVIRONMENT FUND

Governments remain the most important factor in the process of ensuring adequate, stable and predictable financial resources for UNEP. The priority in resource mobilisation is therefore to secure timely and adequate contributions to the Environment Fund from all UN Member States. In 2008, annual contributions to the Environment Fund continued to increase, reaching the record high level of close to \$89 million. This was the second successive year with the biggest annual growth in financial support to UNEP. As a result, the target for the first year of the biennial budget of \$152 million for 2008–2009, as approved by the Governing Council at its 24th session in 2007, was successfully exceeded.

A majority of the donor countries increased or maintained their level of contributions in the first year of the biennium following the voluntary indicative scale of contributions (VISC) for 2008–2009. Fifty-five countries increased their contributions, including six countries that resumed payments and one UN Member State that contributed for the first time. All major donors continued supporting UNEP, with a majority of them increasing annual contributions and paying close to or above the VISC. Unfortunately, some donors could not sustain their contributions and a few others delayed annual payments, as more than 40 per cent of income was received in the last quarter and towards the end of the year. More than 20 countries that supported UNEP in previous years did not pay during 2008, although some of them may still make a delayed contribution in 2009.

Following decision GC.24/1, UNEP continued inviting countries to move towards contributions to the Environment Fund in preference to contributions to earmarked trust funds, with a view to enhancing the role of the Governing Council in determining the Programme of Work and priorities of UNEP. In 2008, several major donor countries redirected all or part of their earmarked support towards the Environment Fund, making additional contributions well above the level invited by VISC. The Netherlands was one of the first main donors that decided to shift its earmarked support within a partnership agreement towards the Environment Fund in 2007. In 2008, The Netherlands further increased its contribution and became number one donor to the Environment Fund. Italy and Spain were other countries with the most substantial increases, as they more than doubled their contributions and paid well above the

VISC. Furthermore, UNEP invited several other major donors that provide substantial earmarked support to particular programme areas to consider redirecting part or all of their earmarked contributions towards the Environment Fund.

During the past six years (2003–2008), contributions to the Environment Fund increased by more than 85 per cent, as 157 countries from all regions made their payments. As of 31 December 2008, UNEP received contributions from 92 countries and payments continue to arrive. The highest contributions were received from the European region, followed by North America, and Asia and the Pacific.

About 75 per cent of countries made their payments in accordance with the VISC. However, using VISC only cannot guarantee adequate income as contributions remain voluntary. The Environment Fund remains vulnerable to exchange rate fluctuations, unpredictable decreases and even non-payment or delayed payments, including by major donors, which affect the Programme's cash flow and its ability to finance programme activities. The important factors contributing to strengthening the financial situation at UNEP include the improved strategic vision, focus and management of the organisation and the goodwill of donor Governments making additional voluntary payments. UNEP should continue building donor confidence through efficient planning, timely delivery of programme results, improved reporting and more efficient use of available funds.

SUPPLEMENTARY FUNDS AND EARMARKED SUPPORT

While mobilising adequate contributions to the core Environment Fund remains a top fund raising priority for UNEP, supplementary funds, including trust funds, trust fund support and earmarked contributions, are also important to the organisation as they allow UNEP to fully implement the work programme approved by the Governing Council. Partnerships with major donor countries have played a significant role in improving the financial situation in UNEP over the last six years and will be maintained as an important tool in mobilising additional contributions. In 2008, UNEP continued its work within existing partnership agreements with Belgium, Ireland, Norway, Sweden and Spain, and mobilised approximately \$35.5 million in earmarked support to UNEP priority programme areas, excluding payments to MEAs.

REGIONAL CONTRIBUTIONS TO THE ENVIRONMENT FUND IN 2008

	Africa	Asia and Pacific	Europe	Latin America and Caribbean	North America	West Asia	Total
Number of UN Member States in the region	53	43	50	33	2	11	192
Number of countries that paid/pledged	12	22	36	16	2	4	92
Contributions and Pledges	132,085	4,530,230	75,111,456	649,767	8,200,000	358,853	88,982,391

ENVIRONMENT FUND CONTRIBUTIONS (US\$) 2008

Country*	USD	Country*	USD
Albania	1,400.0	Liechtenstein	7,600.0
Algeria	10,000.0	Lithuania	14,000.0
Andorra	42,233.0	Luxembourg	906,960.0
Angola	1,200.0	Madagascar	1,000.0
Armenia	1,300.0	Malaysia	40,000.0
Australia	686,160.0	Mauritius	5,000.0
Austria	584,880.0	Mexico	321,000.0
Bahamas	2,500.0	Monaco	22,930.0
Bangladesh	571.0	Mongolia	1,000.0
Barbados	2,500.0	Montenegro	1,000.0
Belarus	12,500.0	Mozambique	760.0
Belgium	909,586.0	Netherlands	12,532,000.0
Belize	760.0	New Zealand	195,000.0
Bhutan	1,450.0	Nigeria	40,000.0
Brazil	228,019.0	Norway	2,886,740.0
BurkinaFaso	5,075.0	Oman	19,000.0
Cambodia	2,000.0	Pakistan	9,992.0
Canada	2,400,000.0	Panama	10,000.0
Chile	20,000.0	Philippines	10,449.0
China	250,000.0	Poland	150,000.0
Colombia	31,288.0	Portugal	50,000.0
Croatia	33,000.0	Romania	52,000.0
Cyprus	33,500.0	Russia	500,000.0
Czech Republic	276,974.0	Saudi Arabia	132,853.0
Denmark	3,227,083.0	Senegal	2,000.0
Ecuador	3,200.0	Seychelles	1,200.0
Fiji	4,500.0	Slovak Republic	46,000.0
Finland	4,539,370.0	Solomon Islands	760.0
France	5,100,000.0	South Africa	54,000.0
Germany	8,473,749.0	Spain	5,115,600.0
Greece	250,000.0	Sri Lanka	1,698.0
Grenada	760.0	Surinam	760.0
Guatemala	4,900.0	Swaziland	10,000.0
Honduras	1,000.0	Sweden	4,123,663.0
Hungary	100,000.0	Switzerland	3,780,074.0
Iceland	27,000.0	Syria	7,000.0
India	101,163.0	Tajikistan	1,500.0
Indonesia	30,000.0	Thailand	25,000.0
Ireland	406,394.0	Trinidad and Tobago	10,000.0
Italy	11,632,000.0	Turkey	250,000.0
Jamaica	3,080.0	Turkmenistan	1,500.0
Japan	2,963,807.0	Uganda	1,850.0
Korea Republic	200,000.0	UK	9,008,420.0
Kuwait	200,000.0	USA	5,800,000.0
Kyrgyzstan	1,680.0	Uruguay	10,000.0
Lao	2,000.0		
Latvia	13,500.0	TOTAL in USD	88,982,391.0

Countries that paid/pledged for 2008 & Future as at 31.12.08

UNEP funding 2008

ENVIRONMENT FUND: COUNTRIES INCREASING CONTRIBUTIONS/PLEDGES 2008 vs 2007

Country	Contributions and Pledges in 2007 (A)	Contributions and Pledges in 2008 (B)	Increase (B-A)
	US\$	US\$	US\$
Andorra	36,493	42,233	5,740
Angola	0	1,200	1,200
Australia	508,080	686,160	178,080
Austria	523,040	584,880	61,840
Bahamas	2,000	2,500	500
Belarus	2,200	12,500	10,300
Belgium	818,514	909,586	91,072
Belize	700	760	60
Bhutan	1,350	1,450	100
Brazil	192,670	228,019	35,349
Burkina Faso	1,000	5,075	4,075
Canada	2,025,000	2,400,000	375,000
Croatia	23,000	33,000	10,000
Cyprus	22,000	33,500	11,500
Czech Republic	242,907	276,974	34,067
Denmark	2,881,189	3,227,083	345,894
Ecuador	3,000	3,200	200
Fiji	4,478	4,500	22
Finland	3,873,012	4,539,370	666,358
France	4,340,000	5,100,000	760,000
Germany	7,526,939	8,473,749	946,810
Greece	200,000	250,000	50,000
Grenada	600	760	160
Guatemala	4,300	4,900	600
Hungary	82,000	100,000	18,000
India	100,000	101,163	1,163
Indonesia	25,000	30,000	5,000
Italy	4,122,900	11,632,000	7,509,100
Kyrgyzstan	1,200	1,680	480
Latvia	9,500	13,500	4,000
Liechtenstein	3,900	7,600	3,700
Luxembourg	546,161	906,960	360,799
Madagascar	0	1,000	1,000
Monaco	20,000	22,930	2,930
Mozambique	0	760	760
Netherlands	10,280,338	12,532,000	2,251,662
New Zealand	160,000	195,000	35,000
Norway	2,381,444	2,886,740	505,296
Oman	10,000	19,000	9,000
Pakistan	9,987	9,992	5
Philippines	5,000	10,449	5,449
Portugal	20,000	50,000	30,000
Romania	32,000	52,000	20,000
Slovak Republic	30,000	46,000	16,000
Solomon Islands	0	760	760
Spain	1,984,528	5,115,600	3,131,072
Surinam	700	760	60
Swaziland	0	10,000	10,000
Sweden	2,769,000	4,123,663	1,354,663
Switzerland	3,080,175	3,780,074	699,899
Tajikistan	1,007	1,500	493
Turkey	125,000	250,000	125,000
Turkmenistan	0	1,500	1,500
UK	8,576,820	9,008,420	431,600
Uruguay	0	10,000	10,000
USA	5,750,000	5,800,000	50,000
TOTAL	63,359,132	83,542,450	20,183,318

Number of new contributors 12

ENVIRONMENT FUND: TOP 10 DONORS IN 2008

	Country	2008 USD
1	Netherlands	12,532,000
2	Italy	11,632,000
3	United Kingdom	9,008,420
4	Germany	8,473,749
5	United States	5,800,000
6	Spain	5,115,600
7	France	5,100,000
8	Finland	4,539,370
9	Sweden	4,123,663
10	Switzerland	3,780,074
	TOTAL	70,104,876

ENVIRONMENT FUND CONTRIBUTIONS 2006-2008: TOP 20 DONORS FOR THE LAST 3 YEARS

	Country	2006 USD	2007 USD	2008 USD	TOTAL USD
1	Netherlands	6,269,453	10,280,338	12,532,000	29,081,791
2	United Kingdom	7,875,000	8,576,820	9,008,420	25,460,240
3	Germany	7,005,762	7,526,939	8,473,749	23,006,450
4	United States	5,750,000	5,750,000	5,800,000	17,300,000
5	Italy	—	4,122,900	11,632,000	15,754,900
6	France	4,340,000	4,340,000	5,100,000	13,780,000
7	Finland	3,648,788	3,873,012	4,539,370	12,061,170
8	Switzerland	2,914,219	3,080,175	3,780,074	9,774,468
9	Sweden	2,769,000	2,769,000	4,123,663	9,661,663
10	Japan	3,020,198	2,963,807	2,963,807	8,947,812
11	Spain	1,836,940	1,984,528	5,115,600	8,937,068
12	Denmark	2,603,511	2,881,189	3,227,083	8,711,783
13	Norway	2,221,597	2,381,444	2,886,740	7,489,781
14	Canada	2,025,000	2,025,000	2,400,000	6,450,000
15	Belgium	776,741	818,514	909,586	2,504,841
16	Luxembourg	416,745	546,161	906,960	1,872,866
17	Ireland	1,001,039	430,613	406,394	1,838,046
18	Australia	413,050	508,080	686,160	1,607,290
19	Austria	497,438	523,040	584,880	1,605,358
20	Russian Federation	500,000	500,000	500,000	1,500,000
	TOTAL	55,884,481	65,881,560	85,579,486	207,345,527
	WORLD TOTAL	59,009,642	69,103,716	89,113,000*	217,226,358

UNEP/OCHA Environmental Emergencies Section

OCHA-Geneva
Palais des Nations
CH-1211 Geneva, Switzerland
Phone: +41 22 917 11 42
Fax: +41 22 907 02 57
E-mail: ochaunep@un.org
Web: www.reliefweb.int/ochaunep

UNEP Collaborating Centre on Water and Environment (UCC-Water)

Agern Alle 5
2970 Hoersholm, Denmark
Phone: +45 45 16 92 00
Fax: +45 45 16 92 92
Email: ucc-water@dhi.dk
Web: www.ucc-water.org

Regional Seas Coordinating Office

UNEP-administered Regional Seas Programmes: Mediterranean (Barcelona Convention); West and Central Africa (Abidjan Convention); Wider Caribbean (Cartagena Convention); Eastern Africa (Nairobi Convention); North West Pacific; Asian Seas; North East Pacific (interim/partial administration by UNEP); Caspian Seas (Tehran Convention—interim administration by UNEP)

P.O. Box 30552
Nairobi, Kenya
Phone: +254 20 762 4544 or 762 4033
Fax: +254 20 762 4618
E-mail: Ellik.Adler@unep.org
Web: www.unep.ch/seas

DIVISION OF TECHNOLOGY, INDUSTRY AND ECONOMICS (DTIE)

Sustainable Consumption and Production; Energy; OzonAction; International Environmental Technology Centre (IETC); Chemicals; Economics and Trade

UNEP DTIE

15 rue de Milan
75441 Paris Cedex 09, France
Phone: +33 1 4437 1450
Fax: +33 1 4437 1474
E-mail: unep.tie@unep.fr
Web: www.unep.fr

UNEP-IETC

2-110 Ryokuchi Koen
Tsurumi-ku, Osaka 538-0036, Japan
Phone: +81 6 6915 4581
Fax: +81 6 6915 0304
E-mail: ietc@unep.or.jp
Web: www.unep.or.jp

UNEP Chemicals

International Environment House
11-13 Chemin des Anémones
CH-1219 Châtelaine
Geneva
Switzerland
Phone: +41 22 917 81 92
Fax: +41 22 797 34 60
E-mail: chemicals@unep.ch
Web: www.chem.unep.ch

UNEP ETB

International Environment House
11-13 Chemin des Anémones
CH-1219 Châtelaine
Geneva
Switzerland
Phone: +41 22 917 82 43
Fax: +41 22 917 80 76
E-mail: etb@unep.ch
Web: www.unep.ch/etb

UNEP/UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF)

International Environment House
11-13 chemin des Anémones
CH-1219 Châtelaine,
Geneva, Switzerland
Phone: +41 22 917 82 98
Fax: +41 22 917 80 76
E-mail: cbtf@unep.ch
Web: www.unep-unctad.org/cbtf

UNEP Collaborating Centre on Energy and Environment (UCCEE)

Risoe National Laboratory, Bldg. 142
Frederiksborgvej 399
P.O. Box 49 DK 4000 Roskilde, Denmark
Phone: +45 46 32 22 88
Fax: +45 46 32 19 99
E-mail: John.Christensen@risoe.dk
Web: www.uccee.org

DIVISION OF REGIONAL COOPERATION (DRC)

Coordination of Regional Activities; Poverty and Environment Centre; South-South Cooperation; Major Groups and Stakeholders; Regional Offices: Africa; Europe; Asia and the Pacific; West Asia; Latin America and the Caribbean; North America

Division Headquarters

P.O. Box 30552
Nairobi 00100, Kenya
Phone: +254 20 762 3519
Fax: +254 20 762 4270/3695
E-mail: oicdrc@unep.org
Web: www.unep.org/drc

Regional Office for Africa (ROA)

P.O. Box 30552
Nairobi 00100, Kenya
Phone: +254 20 762 4284
Fax: +254 20 762 3928
E-mail: mounkaila.goumandakoye@unep.org
Web: www.unep.org/roa
Liaison Office with the African Union
ECA New Building
54th Floor, No. 4NC4-4N13
P.O. Box 3001, Addis Ababa, Ethiopia
Phone: +251 11 544 5402
Fax: +251 11 552 1633
E-mail: unepoffice@unepa.org

Regional Office for Asia and the Pacific (ROAP)

2nd Floor, United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand
Phone: +66 2 281 6101 or 288 1870 / 1893
Fax: +66 2 280 3829
E-mail: surendra.shrestha@rrcap.unep.org
Web: www.roap.unep.org

UNEP China Office

2 Liangmahe Nalu Road
Beijing 100600, P. R. China
Phone: +86 10 8532 0921
Fax: +86 10 653-22567
E-mail: unep@public.un.org.cn
Regional Office for Europe (ROE)
International Environment House
15 chemin des Anémones
CH-1219 Châtelaine,
Geneva, Switzerland
Phone: +41 22 917 8291 / 8276
Fax: +41 22 797 3420
E-mail: roe@unep.ch
Web: www.unep.ch/roe

UNEP around the world

UNEP Liaison Office to the European Union

14 rue Montoyer, 2nd floor
B-1000 Brussels, Belgium
Phone: +32 2 2133050
Fax: +32 2 213 30 51
E-mail: info@unep.be

UNEP Moscow Office

9, Leontyevsky side-street,
125009 Moscow, Russia
Tel.: +7 (495) 787-2156
Fax: +7 (495) 787-7763
E-mail: gudyma.unep@undp.ru

UNEP Vienna Office

Interim Secretariat of the Carpathian Convention
UNEP, Vienna/ISCC – Room L-339
Vienna International Centre
P.O. Box 500
A-1400 Vienna, Austria
Phone: +43 1 260 60 4545
Fax: +43 1 260 60 7 4545
E-mail: unep@unvienna.org

Regional Office for Latin America and the Caribbean (ROLAC)

Edificio No. 103, Ave Morse, Ciudad del Saber,
Clayton, Ancon
Panama City, Panama
P.O. Box: PNUMA 03590-0843 Balboa
Phone: +507 305 3135/305 3130
Fax: +507- 305 3145/305 3105
E-mail: mara.murillo@pnuma.org
Web: www.rolac.pnuma.org

UNEP Brazil Office

EQSW 103/104
Bloco C - 1 andar
Setor Sudoeste
Brasília, Brazil
Phone: +55 61 30 38 92 33 / 5561 30 38 92 35
Fax: +55 61-30 38 92 39
E-mail: pnuma.brasil@pnuma.org

UNEP Mexico Office

Presidente Mazaryk No. 29, Piso 10
Col. Chapultepec Morales, Polanco
11570, México, D.F., México
Phone: +52 55 52 63 97 49 /52 63 97 40
Fax: +52 55 52 63 96 23
E-mail: ruben.marquez@pnuma.org

Regional Office for North America (RONA)

UNEP, 1707 H St. NW, Suite 300
Washington D.C. 20006, USA
Phone: +1 202 785 0465
Fax: +1 202 785 2096
E-mail: info@rona.unep.org
Web: www.rona.unep.org

Regional Office for West Asia (ROWA)

Villa 2113, Road 2432
Block 324 – Al Juffair
P.O. Box 10880
Manama, Kingdom of Bahrain
Phone: +973 17 812 777
Fax: +973 17 825 110 / 825 111
E-mail: uneprowa@unep.org.bh
Web: www.unep.org.bh

Arab League Liaison Office (ALLO)

28 Adly str., 7th Floor
P.O. Box 22
Cairo, Egypt
Phone: +20 2 393 4046 or 392 9733
Fax: +20 2 395 0119
E-mail: unep-allo@link.net

UNEP New York Office

Two United Nations Plaza, Room DC2-803,
New York, NY 10017, USA
Phone: +1 212 963 8210
Fax: +1 212 963 7341
E-mail: info@nyo.unep.org
Web: www.nyo.unep.org

DIVISION OF ENVIRONMENTAL LAW AND CONVENTIONS (DELIC)

Policy Analysis, Development and Partnerships; Environmental Law; Policy Coordination and Inter-Agency Affairs; Environmental Management Group; Global Environmental Conventions

Division Headquarters

P.O. Box 30552
Nairobi 00100, Kenya
Phone: + 254 20 762 4011
Fax: +254 20 762 4300 / 3926
E-mail: delc@unep.org
Web: www.unep.org/delc

Information Unit for Conventions (Geneva)

International Environment House
11-13 chemin des Anémones
CH-1219 Châtelaine
Geneva, Switzerland
Phone: +41 22 917 82 44
Fax: +41 22 797 34 64
E-mail: iuc@unep.ch
Web : www.unep.ch/iuc

Secretariat of the Environmental Management Group

International Environment House
11-13 chemin des Anémones
CH-1219 Châtelaine
Geneva, Switzerland
Phone: +41 22 917 86 93
Fax: +41 22 797 34 20
E-mail: emg@unep.ch

Intergovernmental Panel on Climate Change (IPCC) Secretariat

C/o WMO 7bis, Avenue de la Paix
C.P. No 2300, 1211
Geneva 2, Switzerland
Phone: +41 22 739 8208 8254
Fax: +41 22 739 8025 or 8013
E-mail: ipcc_sec@gateway.wmo.ch
Web: www.ipcc.ch

UNEP-ADMINISTERED CONVENTION SECRETARIATS

Secretariat of the Convention on Biological Diversity (CBD)

413 St Jacques Street, Suite 800
Montréal, Québec, H2Y 1N9, Canada
Phone: +1 514 288 2220
Fax: +1 514 288 6588
E-mail: secretariat@biodiv.org
Web: www.biodiv.org

Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

International Environment House
11-13 chemin des Anémones
CH-1219 Châtelaine,
Geneva, Switzerland
Phone: +41 22 917 81 39 / 40
Fax: +41 22 797 34 17
E-mail: cites@unep.ch
Web: www.cites.org

Secretariat of the Multilateral Fund for the Implementation of the Montreal Protocol

1800 McGill College Avenue, 27th Floor
 Montreal, Quebec, Canada H3A 3J6
 Phone: +1 514 282 1122
 Fax: +1 514 282 0068
 E-mail: secretariat@unmfs.org

Secretariat of the Vienna Convention and the Montreal Protocol (Ozone Secretariat)

Located at UNEP HQ
 Phone: +254 20 762 3851
 Fax: +254 20 762 3601 / 762 3913
 E-mail: ozoneinfo@unep.org
 Web: www.unep.org/ozone

Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS)

United Nations Campus
 Hermann-Ehlers-Str.10
 53113 Bonn, Germany
Phone: +49 228 815 2401 / 2
 Fax: +49 228 815 2449
 E-mail: secretariat@cms.int
 Web: www.cms.int

Secretariat of the Agreement on the Conservation of Bats in Europe (EUROBATS)

United Nations Campus
 Hermann-Ehlers-Str. 10
 53113 Bonn, Germany
 Tel: +49 228 815 2420 / 1
 Fax: +49 228 815 2445
 E-mail: eurobats@eurobats.org
 Web: www.eurobats.org

Secretariat of the Agreement on the Conservation of Small Cetaceans of the Baltic & North Seas Accord (ASCOBANS)

United Nations Campus
 Hermann-Ehlers-Str. 10
 53113 Bonn, Germany
 Tel: +49 228 815 2416
 Fax: +49 228 815 2440
 E-mail: ascobans@ascobans.org
 Web: www.ascobans.org

Secretariat of the African-Eurasian Waterbirds Agreement (AEWA)

United Nations Campus
 Hermann-Ehlers-Str.10
 53113 Bonn
 Tel: +49 228 815 2413
 Fax: +49 228815 2450
 E-mail: aewa@unep.de
 Web: www.unep-aewa.org

Secretariat of the Basel Convention

International Environment House
 11-13 chemin des Anémones
 CH-1219 Châtelaine
 Geneva, Switzerland
 Tel: +41 22 917 82 18
 Fax: +41 22 797 34 54
 E-mail: sbc@unep.ch
 Web: www.basel.int

Secretariat for the Rotterdam Convention United Nations Environment Programme (UNEP)

International Environment House
 11-13 chemin des Anémones
 CH-1219 Châtelaine,
 Geneva, Switzerland
 Tel: +41 22 917 8296 Fax: +41 22 917 8082
 Email: pic@pic.int
 Web: www.pic.int

Secretariat of the Stockholm Convention on Persistent Organic Pollutants

International Environment House
 11-15 chemin des Anémones
 CH-1219 Châtelaine
 Geneva, Switzerland
 Tel: +41 22 9178729
 Fax: +41 22 917 80 98
 E-mail: pops@unep.ch
 Web: http://chm.pops.int/

DIVISION OF COMMUNICATIONS AND PUBLIC INFORMATION (DCPI)

Media Services; Audio-visual and Graphics; Outreach and Special Events; Children and Youth / Sports and the Environment; Library and Documentation; Publishing

Division Headquarters

P.O. Box 30552
 Nairobi 00100, Kenya
 Phone: +254 20 762 3293
 Fax: +254 20 762 3927 / 3692
 E-mail: cpiifo@unep.org
 Web: www.unep.org

UNEP Publications

SMI (Distribution Service) Ltd
 P.O. Box 119
 Stevenage
 Herts SG1 4TP United Kingdom
 Tel: 44 1438 748111
 Fax: 44 1438 748844
 Email: orders@earthprint.com
 Web: www.earthprint.com

DIVISION OF GLOBAL ENVIRONMENT FACILITY COORDINATION (DGEF)

Biodiversity/Biosafety; International Waters; Persistent Organic Pollutants; Climate Change/Ozone Depletion; Land Degradation; Medium Size Projects; Scientific and Technical Advisory Panel (STAP) Secretariat

Division Headquarters

P.O. Box 30552
 Nairobi 00100, Kenya
 Phone: +254 20 762 4165
 Fax: +254 20 762 4041
 E-mail: gefinfo@unep.org
 Web: www.unep.org/gef

UNEP/DGEF Climate Change

15 Rue de Milan
 75009 Paris
 Tel: +33 1 44 37 18 58
 Email: Bernard.Jamet@unep.fr

UNEP/DGEF Liaison Office, Rome

FAO Headquarters
 TCAP Unit , D708
 Viale Delle Terme di Caracalla
 00153 Rome, Italy
 Tel: +39 06 5705 5969
 FAX: +39 06 5705 4351
 E-mail: Marieta.Sakalian@unep.org

UNEP/DGEF Office of Regional Latin America and Caribbean

Edificio No. 103, Ave Morse, Ciudad del Saber,
 Clayton, Ancon
 Panama City, Panama
 P.O. Box: PNUMA 03590-0843 Balboa,
 Tel: +507) 305-3171
 E-mail: robert.erath@pnuma.org

UNEP around the world

UNEP/DGEF Regional Programme Coordinator Asia Pacific

UNEP Regional Office Asia Pacific, Bangkok
Tel.: +66-2-2882101
Email: zieren@un.org

UNEP/GEF Liaison Office, Washington DC

900 17th Street, NW, Suite 506
Washington, DC 20006
Phone: +1 202 974 1312
Fax: +1 202 223 2004
E-mail: kristin.mclaughlin@rona.unep.org

UNEP/GEF Project on Development of National Biosafety Frameworks

International Environment House
11-13 chemin des Anémones
CH-1219 Châtelaine
Geneva, Switzerland
Phone: +41 22 917 84 10
Fax: +41 22 917 80 70
E-mail: biosafety@unep.ch
Web: www.unep.ch/biosafety

UNEP/GEF Project on Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand

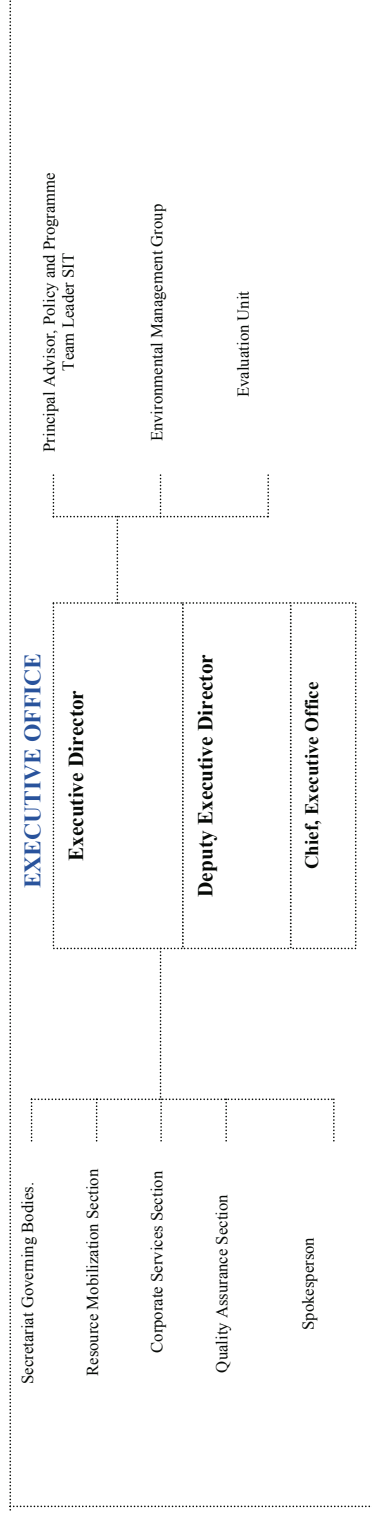
UNEP/GEF Project Co-ordinating Unit
United Nations Building 2nd Floor, Block B
Rajdamnern Avenue, Bangkok 10200, Thailand
Phone: +66 2 288 1886
Fax: +66 2 288-1094 or 281 2428
E-mail: pernetta@un.org
Web: www.unepscs.org

GEF Scientific and Technical Advisory Panel (STAP) Secretariat

UNEP, 1707 H St. NW, Suite 300
Washington D.C. 20006, USA
Phone: +1 202 974-1311
Fax: +1 202 223-2004
E-mail: dt@rona.unep.org
Web site: <http://stagef.unep.org>



The first joint meeting of the UNEP Senior Management Team, the MEA Management Team and UNEP Regional Directors took place in April, 2008.



	Division of Early Warning and Assessment (DEWA)	Division of Environmental Law and Conventions (DELC)	Division of Technology, Industry and Economics (DTIE)	Division of Regional Cooperation (DRC)	Division of Environmental Policy Implementation (DEPI)	Division of Communication and Public Information (DCPI)	Division of GEF Coordination (DGEF)	
• Scientific Assessment	• Inter-linkages and Synergies	• Production & Consumption	• Africa - <i>Nairobi</i>	• Coastal and Marine	• Media	• Biodiversity/Land Degradation	Secretariat of the Convention on Biological Diversity (CBD)	
• Early Warning Branch	• Chemicals and Waste Law and Governance	• Energy	• Asia & Pacific – <i>Bangkok</i>	• Fresh water and Terrestrial Ecosystems	• Speech-writing & Editing	• International Waters	Secretariat of the Convention on International Trade in Endangered Species (CITES)	
• Regional Coordination	• Climate and Energy Law and Governance	• IETC (Japan)	* Europe – <i>Geneva</i>	• Climate Change Adaptation	• Internet	• Climate Change	Secretariat of the Convention on Migratory Species (CMS)	
• UNEP-WCMC	• Biodiversity and Land Law and Governance	• Chemicals	• Latin America & Caribbean - <i>Panama City</i>	• Ecosystem Services	• Publishing	• POPS/Ozone	Secretariat of the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer	
• UNSCEAR	• Freshwater and Marine Law and Governance	• Economics & Trade	• North America <i>Washington DC</i>	• Conflict & Disaster Management	• Audio-Visual	• Fund Management	Secretariat of the Multilateral Fund for the Implementation of Montreal Protocol (MFS)	
		• Ozone-Action	• West Asia - <i>Manama</i>	• Environmental Education Training	• Library	• STAP	Interim Secretariat of the Rotterdam Convention on PIC, together with FAO	
		• Urban Unit	• Liaison Offices <i>New York</i>	• Programme Planning	• Special Events		Interim Secretariat of the Stockholm Convention on POPs	
			<i>Addis Ababa</i>		• Coordination of Regional & Out-posted Information Officers			
			<i>Cairo</i>		• Children & Youth/Sport & Environment			
			• Country Offices <i>Moscow</i>					
			<i>Beijing</i>					
			<i>Brasilia</i>					
			• Major Groups & Stakeholders					
			• UNEP / UNDP Poverty & Environment Facility					



www.unep.org

United Nations Environment Programme
P.O. Box 30552, Nairobi 00100, Kenya
Tel: +254-(0)20-762 1234
Fax: +254-(0)20-762 3927
Email: unepub@unep.org
web: www.unep.org



ISBN: 978-92-807-2997-9
DCP/1133/NA