



# Capacity building for sustainable development:

AN OVERVIEW OF UNEP ENVIRONMENTAL  
CAPACITY DEVELOPMENT ACTIVITIES

Capacity Building for Sustainable Development:  
An overview of UNEP environmental capacity development initiatives.

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**AN OVERVIEW OF  
UNEP ENVIRONMENTAL CAPACITY  
DEVELOPMENT INITIATIVES**



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## Foreword by the UNEP Executive Director

**I**t is hard to overstate the importance of the environment to sustainable development. It is the bedrock on which our survival lies. Any global programme of development created without taking the environment into account will truly be a house built on sand.

Over the thirty years since the United Nations Conference on the Human Environment paved the way for the establishment of UNEP that message has been gradually, but surely, incorporated into the global development debate. While there is still much to be done to ensure that the environment features in all planning and decision making by governments, intergovernmental bodies and the private sector, it can now honestly be said that the environment is firmly on the development agenda.

The credit for that achievement should be broadly spread. The scientific community, civil society and non-governmental organisations have played a large part. So have the many organisations within the United Nations system, not least the special efforts of the current Secretary-General, Mr. Kofi Annan, through initiatives like the Global Compact and his report to the Millennium Assembly which informed the Millennium Declaration. Also deserving credit are the many governments and private sector organisations which are increasingly embracing the fundamental principles of sound environmental management: sustainable consumption, cleaner production, and the life-cycle and precautionary approaches which are central to the quest for sustainable development.

As the voice for the environment within the United Nations system, UNEP has played, and continues to play, an essential role, not only as catalyst, advocate and educator, but as a key facilitator. Turning words into actions is no easy task. Often tools need to be developed, new skills learned, institutional infrastructures evolved. That is the subject of this book. Capacity building is central to the work of UNEP. In whatever field UNEP finds itself working, whether in assessing global environmental trends and conditions, developing international or national legal instruments for environmental management, or encouraging new partnerships and mind-sets within civil society and the private sector, capacity building is, and has always been, an integral component.

As the international community prepares to face the challenges of sustainable development in a globalised world, with political will reinvigorated by the World Summit on Sustainable Development, UNEP capacity building work will be essential if we are to successfully attain the goals of a peaceful, prosperous and secure future for humankind.

*Klaus Toepfer, Executive Director,  
United Nations Environment Programme*



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## Preface

The following pages detail the broad scope of UNEP capacity building for wise environmental management. They are a resource for the growing family of UNEP partners. Within these pages governments, intergovernmental organisations, national, regional and global institutions, academia, civil society and the private sector will find ideas and examples of how UNEP can help make real their plans and aspirations for a better, more sustainable world.

This series of examples of areas in which UNEP works, and the activities it performs within those areas, is not exhaustive. Nonetheless, it gives a taste of how UNEP is supporting the environmental pillar of sustainable development. The purpose of such a compilation is twofold. First, UNEP wants to inform the governments, institutions and citizens of developing countries and countries with economies in transition about capacity building opportunities available from UNEP. Second, it wants to encourage donors and other partners to join UNEP in meeting the urgent needs of environmental capacity development.

Fulfilling those needs is essential for creating a sustainable future. The increasing impacts of climate change and urbanisation; the impending water crisis in much of the world; the over-exploitation of the world's oceans, forests and other natural resources: all demand innovative thinking, new approaches, and the capacity to implement them. Sometimes this means strengthening legal infrastructure, sometimes it means developing new institutional mechanisms, sometimes it means transferring appropriate technology to where it is needed. These are among the activities that UNEP, in collaboration with a growing family of partners, is supporting. By building capacity across the globe and in every sector where sound environmental management is an issue, UNEP is helping to fulfil the goals for a sustainable future set out in Agenda 21 and reinforced at the 2002 World Summit on Sustainable Development.

*Donald Kaniaru, Director,  
UNEP Division of Environmental Policy Implementation*





# 1

## **Capacity building for sustainable development: the role of UNEP**

## Capacity building for sustainable development: the role of UNEP



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Over the past several years it has become clear that capacity building is central to the quest for sustainable development. If society is going to realise the goals of Agenda 21, which were strongly reaffirmed at the World Summit on Sustainable Development (WSSD), the ability of regional organisations, national governments and civil society to address the principal challenges of sustainable development must be reinforced. Capacity building has therefore become a core goal of technical assistance provided by the United Nations system. Instead of being regarded as merely a component or by-product of development programmes and products, capacity building has become a principal and explicit priority of all United Nations activities.

Chapter 37 of Agenda 21 makes clear the nature and importance of capacity building. It is the key to the Agenda's successful implementation. Without the necessary capacity, developing countries and countries with economies in transition will be unable to identify and solve their own development problems. But, to acquire the necessary skills and institutional infrastructure these countries need assistance.

The three pillars of sustainable development—social progress, economic growth and environmental protection—are inextricably linked. Each depends on the others to support a sustainable future for humankind. Over the past three decades understanding of the role of the environment in our future, and its fragility under the growing pressure from human activity, has grown immensely. Yet the environment is still by no means an equal partner in the development debate. Long-term environmental considerations are still subjugated to the short-term demands of economic growth and social progress.

What is too frequently overlooked is how today's apparent socio-economic advances can

The primary function of UNEP in caring for the environment in the framework of sustainable development is to motivate and inspire.

UNEP's goal is to raise the level of environmental action and awareness at all levels of society.

UNEP coordinates the environmental activities of all United Nations entities and works in close partnership with governments, NGOs and the scientific and professional communities.

become tomorrow's disasters when their environmental impact is not taken into account. Increased climate variability, the growing global water crisis, the diminishing productivity of our soils and fisheries and the unprecedented loss of invaluable biological diversity across the globe are just a few examples of how the environment on which we all depend is coming under ever greater strain.

Because sustainable development involves a complex interplay between economic, environmental and socio-cultural considerations, it follows that for a country to achieve sustainable development it must consider all these issues in making short- and long-term development plans. However, environmental considerations cannot be appreciated if there is lack of up-to-date information, knowledge, tools and skills to address the various issues. Therefore, if the needs of the present generation are to be satisfied without compromising the ability of future generations to meet their own needs, capacity building should be central to the sustainable development agenda. This priority is strongly reflected in the Johannesburg Plan of Implementation, where capacity building, especially for developing countries and countries with economies in transition, features prominently throughout.

### **The UNEP approach to capacity building**

It is the mandated role of UNEP, as the voice for the environment within the United Nations system, to promote the incorporation of environmental protection into development planning at all levels. UNEP also has the responsibility of helping national, regional and global bodies to develop the capacity to do so. The UNEP mission statement is a manifesto for capacity building. The organisation's role 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." How UNEP fulfils its mandate is the subject of this book.

Sustainable development is the goal. Capacity building is a means to achieving it. The definition of capacity building is broad. It is a holistic enterprise, encompassing a multitude of activities. It means building abilities, relationships and values that will enable organisations, groups and individuals to improve their performance and achieve their development objectives. It includes strengthening the processes, systems and rules that influence collective and individual behaviour and performance in all development endeavours. And it means enhancing people's technical ability and willingness to play new developmental roles and adapt to new demands and situations.

What does that mean in practical terms? UNEP develops environmental capacity in developing countries and countries with economies in transition in three principal ways:

- Facilitating and supporting environmental institution building by governments at regional, sub-regional, national and local levels.

### **Capacity building and Agenda 21**

Paragraph 137 of the WSSD Plan of Implementation states that UNEP and other United Nations agencies should "strengthen their contribution to sustainable development programmes and the implementation of Agenda 21 at all levels, particularly in the area of promoting capacity building."

The details of Agenda 21 were agreed at the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro, Brazil, in 1992. It remains the global blueprint for sustainable development. Chapter 37 of Agenda 21, 'National mechanisms and international cooperation for capacity building', notes that:

- "The ability of a country to follow sustainable development paths is determined to a large extent by the capacity of its people and its institutions as well as by its ecological and geographical conditions.
- "Specifically, capacity building encompasses the country's human, scientific, technological, organisational, institutional and resource capabilities.
- "A fundamental goal of capacity building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environmental potentials and limits and of needs as perceived by the people of the country concerned. As a result, the need to strengthen national capacities is shared by all countries.
- "The overall objectives of endogenous capacity building in this programme area are to develop and improve national and related sub-regional and regional capacities and capabilities for sustainable development..."

Environmental capacity building also features strongly in Agenda 21 chapters 34, 38, 39 and 40, and throughout the 2002 Johannesburg Plan of Implementation, which builds upon and reaffirms the priorities set out in Agenda 21. The full texts of Agenda 21 and the WSSD Plan of Implementation are available as downloads from the UNEP web site [www.unep.org](http://www.unep.org).

## The UNEP mandate for capacity building

UNEP is the designated authority of the United Nations system in environmental issues at the global and regional level. Its mandate is to coordinate the development of environmental policy consensus by keeping the global environment under review and bringing emerging issues to the attention of governments and the international community for action. The mandate and objectives of UNEP emanate from United Nations General Assembly resolution 2997 (XXVII) of 15 December 1972 and subsequent amendments adopted at UNCED in 1992, the Nairobi Declaration on the Role and Mandate of UNEP, adopted at the Nineteenth Session of the UNEP Governing Council, and the Malmö Ministerial Declaration of 31 May, 2000.

UNEP's responsibilities include:

- Promoting international cooperation in the field of the environment and recommending appropriate policies.
- Catalysing action to address major environmental threats.
- Monitoring the status of the global environment and gathering and disseminating environmental information.
- Facilitating the coordination of United Nations activities on matters concerned with the environment, and ensuring, through cooperation, liaison and participation, that their activities take environmental considerations into account.
- Helping, upon request, environment ministries and other environmental authorities, in particular in developing countries and countries with economies in transition, to formulate and implement environmental policies.
- Helping to develop international environmental law.
- Providing expert advice on the development and use of environmental concepts and instruments.
- Developing regional programmes for the environment.

The major results of UNEP activities should include:

- International arrangements to enhance environmental protection and policy advice to governments, multilateral organisations and others to strengthen environmental protection and incorporate the environment into the sustainable development process.
- Periodic assessments and scientifically sound forecasts to support decision making and international consensus on the main environmental threats and responses to them.
- More effective coordination of environmental matters within the United Nations system.
- Greater public awareness and capacity for environmental management and effective national and international responses to environmental threats.

The Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme further elaborated the existing UNEP policy mandate as follows:

- To provide policy advice based on the best scientific and technical capabilities available.
- To advance the implementation of agreed international norms and policies.
- To serve as an effective link between the scientific community and policy makers.
- To provide policy and advisory services in key areas of institution building to governments and other institutions.

The First Global Ministerial Environmental Forum, in May 2000, which resulted in the Malmö Ministerial Declaration, brought together the world's environment ministers to review important and emerging environmental issues and to chart a course for the future. Issues which relate to UNEP include:

- The importance of compliance, enforcement and liability.
- The need to pay attention to unsustainable consumption patterns and the impact of growing populations, including environmental threats from accelerating urbanisation.
- The need for resource-efficient technologies that avoid environmentally destructive practices.
- The need to intensify international efforts in developing preventive action and a concerted response—including national and environmental governance, the international rule of law, awareness raising and education.
- The need for governments and multilateral lending and credit institutions to take the environment into account when designing and assessing macro-economic policy.
- The need for integrated trade and environment policies in pursuit of sustainable development.

UNEP's mandate was also bolstered by the Seventh Special Session of the UNEP Governing Council, which adopted the report of the Open-ended Intergovernmental Group of Ministers or their Representatives on International Environmental Governance. The report recommended, among other things, an increased role for UNEP in country-level capacity building and training and national-level coordination of the environmental component of sustainable development. The report also recommended that international environmental governance should support regional and sub-regional efforts, with UNEP helping to strengthen regional environmental governance and improve coordination, implementation, capacity building and technology transfer in support of regional initiatives.

- Developing and testing environmental management instruments in collaboration with governmental and non-governmental partners, United Nations entities and major groups.
- Promoting public participation in environmental management and enhancing access to information on environmental matters.

UNEP assists in the formulation of policy, institutional streamlining and the implementation of multilateral environmental agreements. It provides technical assistance upon request from member states, develops and tests guidelines and manuals, undertakes pilot projects to test policy, and organises seminars, workshops, short courses and attachments to meet specific needs that have been identified in collaboration with country-level stakeholders.

To effectively address the environmental issues of the twenty-first century nations and institutions need to be able to understand, evaluate, predict and respond to emerging needs. A major facet of UNEP capacity building is the provision of up-to-date information for decision making. This includes reporting on the state of the environment (including building the capacity of local nationals to do so) and identifying and disseminating best practices and success stories so that they may be replicated elsewhere.

While UNEP puts a great emphasis on supporting and building assessment capacity at national, regional and global levels, in many instances, especially at national level, the environmental issues are already plain to see. What is often lacking is the institutional and legal framework to deal with them. Thus much UNEP work in the three decades since the organisation's foundation has concentrated on helping develop institutional and legal infrastructures to underpin environmental actions. UNEP capacity building at national level in the field of institution building and environmental law has been central to that effort.

Developing policy guidelines and supporting the establishment of global and regional environmental agreements is another major field where UNEP is active. Capacity building activities in this arena include enhancing the ability of the governments of developing countries and countries with economies in transition to participate meaningfully in negotiations for multilateral environmental agreements, and helping nations to comply with their obligations once they have signed up.

Another area where UNEP provides intellectual leadership and acts as a catalyst for environmental action is by disseminating environmental information and promoting public participation. A knowledgeable and engaged civil society often provides the initial impetus for government action on the environment. By building partnerships with non-governmental organisations (NGOs), the private sector and various groups within civil society, like religious communities or youth organisations, UNEP ensures that the message of wise environmental management for sustainable development reaches the widest audience.

### UNEP capacity building activities

Sustainable development is the goal; capacity building is the means to achieving it. UNEP capacity building activities broadly encompass:

- Facilitating and supporting environmental institution building and legislation by governments at regional, sub-regional, national and local levels.
- Developing and testing environmental management instruments in collaboration with selected partners, including other United Nations organisations, international organisations, NGOs, local authorities and other major groups.
- Promoting public participation in environmental management and access to information on environmental matters.

UNEP builds capacity in the field of the environment by:

- Helping develop policy at the national, regional and global level.
- Helping develop environmental law.
- Enhancing synergies between environmental conventions and multilateral environmental agreements.
- Building capacity to assess environmental conditions and changes.
- Building capacity to respond to and/or mitigate environmental changes.
- Facilitating technology transfer.
- Disseminating best practices.

Developing countries and countries with economies in transition need to be able to identify and solve their own development problems.

UNEP capacity building activities aim to inspire, inform and enable human, scientific, technological, organisational and institutional resources at country level, as well as sub-regionally and regionally.



## Developing and disseminating environmental knowledge products

The importance of UNEP as the global environmental authority is measured by the quality of the intellectual leadership it provides and its effectiveness in galvanising action to address global, regional and national environmental challenges. By developing appropriate environmental policy instruments and knowledge products UNEP mobilises environmental action and builds global and regional policy consensus.

UNEP knowledge products fall into two broad categories:

- Scientific assessments of natural and human-induced phenomena that affect the environment.
- The translation of such understanding and knowledge into environmental action and policy implementation.

The first category of knowledge products addresses the 'what' of environmental management; the second category deals with the 'how'.

Assessments of existing and emerging environmental issues are the basis from which UNEP influences the international community to take necessary mitigation measures. In this respect, UNEP knowledge products serve as environmental early warning mechanisms. The UNEP assessment strategy involves the development of a cooperative assessment framework involving networks of national, sub-regional, regional and global partners. Of necessity, targeted capacity building is central to all UNEP assessments because inputs, particularly in the case of the Global Environment Outlook (GEO), are based on the concept of compatible national and regional inputs feeding into a global assessment process. Through its overall strategic guidance UNEP ensures methodological harmonisation and scientific validity.

Capacity building within the UNEP early warning and assessment process is designed to fulfil three objectives:

- To ensure the undertaking of timely and relevant assessments of the state of the global environment, emerging issues, trends and potential environmental threats to support informed decision making.
- To ensure that reliable information on the state of the environment is available at national and international levels so UNEP can undertake assessments and issue early warning notices.

### Building capacity by enhancing environmental knowledge

UNEP provides the international community with environmental knowledge through appropriate tools, guidelines and policy instruments. To maintain and consolidate its intellectual leadership in the development of environmental knowledge products and policy implementation tools, UNEP is:

- Extending the application of its knowledge products as widely as possible, both thematically and geographically.
- Developing systematic monitoring and feedback mechanisms to assess the performance and effectiveness of these knowledge products in the light of experience gained through implementation.
- Giving a higher profile to its environmental knowledge production activities and products. These products are being publicised through the Internet and in other ways to ensure that their wider utilisation contributes to a better managed global environment.



- To ensure that customised and targeted environmental information products deriving from assessments are readily available and accessible to policy makers and other interested parties.

Capacity building, including technology and methodology transfer, is integral to each objective. The UNEP assessment programme is designed to ensure that participating institutions in developing and transitional economy countries are not just willing but are also able to contribute to UNEP assessments. Partners, who include collaborating scientific and technical bodies, national governmental bodies, intergovernmental organisations and NGOs, learn by participation as well as by receiving targeted training and technology transfer.

The second category of knowledge products is focused on developing and refining policies and other methods of responding to environmental problems at the national, regional and global level. The development of methodologies, technical guidelines and policy instruments is a major capacity building tool. UNEP develops these instruments in cooperation with relevant partners, including governments, national and regional institutions, NGOs, the private sector, international financial and development institutions, and international environmental organisations. The joint development and application of these instruments ensures consensus in the policy development process, the relevance of policies and the sustainability of environmental action.

### **Legal and institutional development and strengthening**

One of the most important ways UNEP is working towards the implementation of Agenda 21 is through capacity building in the field of environmental law. The development of environmental law has been a UNEP priority from its establishment in 1972. Since then, and especially since UNCED, recognition of the importance of environmental law as a tool for catalysing national and international environmental action has been growing. So too has recognition of the role UNEP is playing and should play. Paragraphs 120–122 of the WSSD Plan of Implementation note that sustainable development depends on an effective institutional framework and on good governance. In that context it calls on the international community to fully implement the UNEP Governing Council's call for a greatly strengthened institutional structure for international environmental governance to effectively address wide-ranging threats in a globalising world.

The UNEP mandate for capacity building in environmental law has been repeatedly strengthened since 1972. In December 1975 the United Nations General Assembly called upon the UNEP Executive Director to provide technical assistance to developing countries at their request in developing their environmental legislation and institutions. This mandate was buttressed by the UNEP Governing Council in April 1976, and during the 1981 Montevideo

### **Environmental law publications**



As well as targeted training in the form of expert assistance, professional attachments, symposia and workshops, UNEP builds capacity in the field of environmental law and policy through the production and dissemination of various publications that enhance public awareness and knowledge of environmental law.

In the last ten years UNEP has published many environmental law publications for governments and other relevant users in developing and developed countries. As well as legal information, they provide appropriately packaged experiences and knowledge in the area of environmental law. These publications include books, bulletins and other periodicals, and collections of official documents.

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Meeting of Senior Government Officials Expert in Environmental Law. The sixteenth session of the UNEP Governing Council in 1991 further upgraded the mandate of UNEP in the field of environmental law, to include:

- Assisting countries in the development, adoption and implementation of international legal instruments.
- Assisting developing countries, upon request, in enacting national environmental legislation and setting up environmental machinery.
- Collecting and disseminating information and promoting education and training in the field of environmental law.

Agenda 21, adopted at UNCED in 1992, reaffirmed the UNEP mandate and the organisation's role as the principal body within the United Nations system responsible for the development of environmental law. It gave UNEP the task of coordinating environmental conventions and helping developing countries, on their request, to strengthen their national legislation and institutions.

More recently, the Nairobi Declaration on the future role and mandate of UNEP, adopted during the nineteenth session of the UNEP Governing Council in 1997 and endorsed by the United Nations General Assembly in June 1997, reaffirmed UNEP as the global environmental authority. The reinforced UNEP mandate includes:

- Promoting greater awareness and effective cooperation among all sectors of society and actors involved in the implementation of the international environmental agenda.
- Serving as an effective link between the scientific community and policy makers.
- Providing policy and advisory services in key areas of institution building to governments and other relevant institutions.

## **Changes in environmental law since UNCED**

The 1992 Rio Conference on Environment and Development (UNCED) provided the international community and individual countries with stronger energy, clearer and more demanding objectives and more instruments to pursue the objective of sustainable development.

Since UNCED environmental law has undergone important changes.

- First, Agenda 21 itself has given an overall vision and direction to actions for sustainable development.
- Economic instruments, incentives and voluntary codes of conduct have gained in importance as alternative or complementary mechanisms to the traditional command and control approach.
- The growing importance of the ecosystem approach has seen framework environmental laws begin to replace fragmented and uncoordinated sectoral laws.
- Most developing countries have seen the establishment of specialised environmental institutions, mainly Ministries of Environment.
- The number of international environmental instruments has increased dramatically.
- Important new themes have emerged, such as access to environmental information; participation in decision making and access to environmental justice; Environmental Impact Assessment; environment and security; environmental impact of military activities; biodiversity and biosafety; climate change etc.
- A new category of countries in need of assistance in the field of environmental law has emerged, namely those countries with economies in transition, resulting from the dissolution of the USSR and former Yugoslavia and other political events in Eastern Europe.
- The involvement of civil society, directly or indirectly, in decision making in environmental matters at national and international level has increased.

In 2000, the Malmö Declaration, adopted at the first Global Ministerial Environment Forum, further affirmed the key importance of capacity building—especially institutional capacity building—and technical assistance to developing countries. It also underlined the importance of integrating environmental concerns into the decision making process, and increasing the environmental awareness of all sectors of society through information dissemination. This emphasis on national-level capacity building was further endorsed at the second Global Ministerial Environment Forum, held in Cartagena, Colombia, in February 2002, at the seventh Special Session of the UNEP Governing Council, as well as at WSSD, where it features throughout the Plan of Implementation.

In line with its mandate, UNEP capacity building in environmental law encompasses:

- Helping developing countries to build and strengthen regulatory and institutional capacity for developing, complying with and enforcing national environmental legislation, regulations and procedures.
- Helping developing countries to develop, adopt, implement, comply with and enforce international legal instruments.
- Providing appropriate training and support to enhance the participation of representatives, including civil society, from developing countries, small island developing states and countries with economies in transition in international meetings and negotiations related to environmental law.
- Training in environmental law matters.
- Promoting greater awareness and effective cooperation among all sectors of society and actors involved in the implementation of the international environmental agenda, with an emphasis on integrating environmental concerns into decision making.
- Promoting education and training in domestic, international and comparative environmental law in universities and law schools, and developing teaching materials.
- Producing and disseminating environmental law publications as capacity building tools.
- Collecting and disseminating information, particularly on comparative environmental legislation.

In the ten years since UNCED, UNEP has assisted in the development of environmental legislation and institutions in nearly 100 developing countries and countries with economies in transition. During that time UNEP assistance programmes have evolved away from the use of external experts towards the current focus on building endogenous capacity. To accomplish that objective, result-oriented activities have been the focus of virtually all assistance programmes, with an emphasis on direct involvement and training of nationals, strengthening internal follow-up and streamlining processes. This new approach, with UNEP staff members or UNEP-sponsored consultants working with national experts, is bringing better results, especially in terms of follow-up and of effective capacity building.

Overall, UNEP technical assistance in environmental law in developing countries and those with economies in transition has resulted in:

- Creation of new environmental legislation and institutional regimes.
- Coordination, harmonisation, updating and strengthening of existing environmental legislation.
- Strengthened and enhanced coordination of environmental institutions.
- Promotion of the use of environmental impact assessment procedures.
- Enhanced ability to adopt decisions on the basis of strong knowledge.
- Improved capacity to participate in international negotiations for environmental legal instruments, and therefore enhanced partnership in international environmental conventions.

In line with chapters 8, 38 and 39 of Agenda 21, UNEP gives priority to building endogenous legal and institutional capacity.

Chapter 8.13 of Agenda 21 notes that country-specific laws and regulations are among the most important instruments for transferring sustainable development policies into action.

UNEP has responded by making more use of national legal experts to draft laws, instead of relying on outside consultants. These laws have a better chance of implementation once they are adopted.



## Multilateral environmental agreements and conventions

Central to UNEP work in the field of environmental law is the development and implementation of multilateral environmental agreements (MEAs). Internationally, the network of UNEP-sponsored environmental treaties and conventions is having an ever increasing effect, largely because UNEP capacity building and institutional strengthening activities have been building national-level expertise for effective enforcement of and compliance with MEAs.

The historic Montreal Protocol, for instance, negotiated under UNEP auspices in 1987, has drawn attention to the damage being done to the stratospheric ozone layer which shields life on Earth from harmful ultraviolet rays. Due to action under the Montreal Protocol, probably the most successful of all the MEAs, the ozone layer is predicted to start to recover in the next two decades, and should be restored to full health by the middle of the century.

Other effective MEAs include the Basel Convention, negotiated under UNEP auspices in 1989, which provides controls on the international movement and disposal of hazardous wastes, and the Convention on International Trade in Endangered Species (CITES). CITES, for which UNEP provides the secretariat, is universally recognised for its achievements in controlling the trade in endangered species and products derived from or containing them. More recently UNEP paved the way for the United Nations Framework Convention on Climate Change and the resulting Kyoto Protocol, the adoption of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and the successful completion of intergovernmental negotiations on persistent organic pollutants (Stockholm Convention).

Another area where UNEP is making an impact is in the sustainable management of the marine environment. The UNEP Regional Seas programmes have been praised the world over, both for their effectiveness and for the original ways in which they have combined to tackle common issues. More than 140 countries take part in 13 of these programmes, each tailored to the specific needs of its participants. UNEP has been responsible for forging agreements to eight international conventions and fifteen protocols and agreements on the protection of regional seas.

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)—an important soft law instrument for which UNEP provides the secretariat—has also gained significant momentum since its inception in 1995. It received unanimous support at the first Intergovernmental Review Meeting, which met in October 2001 to hear about the advances made, lessons learned and successes achieved in the first five years of the GPA's implementation. A core element of the GPA is an information and data clearing-house to mobilise experience and expertise for effective scientific, technical and financial cooperation and capacity building. The clearing-house provides a rapid and direct referral system to relevant information and data so governments can receive appropriate and timely advice and assistance.

As we progress into the twenty-first century, a major emerging issue that needs to be addressed by organisations such as UNEP is the proliferation of MEAs. Creating synergies among related agreements and harmonising national reporting mechanisms to ease the growing burden on parties are two growing UNEP priorities. In this regard UNEP capacity building work will increasingly focus on the ability of parties, especially the least developed countries, to follow through on their commitments and obligations under MEAs. It will also address the issue of the burdens these agreements impose on compliance and enforcement.

The growing network of international environmental agreements and conventions is increasingly effective due to UNEP's capacity building and institutional strengthening activities.



## UNEP in the Global Environment Facility

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UNEP is one of the Implementing Agencies of the Global Environment Facility (GEF). Launched as a pilot programme in 1991 and formalised by international agreement in 1994, the GEF provides new and additional grant and concessional funding to developing countries and those with economies in transition to meet, within the framework of sustainable development, the agreed incremental costs of measures designed to achieve global environmental benefits in six focal areas:

- Biological diversity.
- Climate change.
- International waters.
- Ozone layer depletion.
- Land degradation.
- Persistent organic pollutants.



Land degradation—primarily desertification and deforestation—and persistent organic pollutants (POPs) were designated as focal areas at the GEF Assembly held in October 2002 in Beijing, China.

The GEF has been the financial mechanism to the Convention on Biological Diversity (CBD) and to the United Nations Framework Convention on Climate Change (UNFCCC) since 1994 and 1995 respectively, and since 2001 has been the principal entity operating the financial mechanism of the Stockholm Convention on Persistent Organic Pollutants.

GEF support is provided through a variety of activity types. Full-size and medium-sized projects (the latter requiring no more than \$1 million GEF funding) within thirteen operational programmes; short-term response measures of high priority, not specifically related to one of the operational programmes but that may yield short-term benefits at low cost; and so-called “enabling activities”.

### Enabling activities

Enabling activities support countries—and build their capacity—to meet the obligations of being Party to the CBD, UNFCCC, the Stockholm Convention and the Cartagena Protocol on Biosafety. They support fulfilment of national communication requirements to the various conventions, the assembly of basic information upon which to formulate policy and guide strategic decisions, and the planning processes for identifying national priorities.

In addition, through its Capacity Development Initiative (CDI), the GEF supports cross-thematic National Capacity Self-Assessments to identify country level priorities and needs for capacity building to address global environmental issues (in particular biological diversity, climate change, and land degradation) with the aim of catalysing domestic and/or externally assisted action to meet those needs in a coordinated and planned manner.

Another category of GEF enabling activities will commence early in 2003, to support the Least Developed Countries prepare National Adaptation Programmes of Action to climate change.

In 2002, UNEP is implementing more than 227 enabling activities that help more than 144 GEF eligible countries meet their legal commitments under the global environmental conventions for which the GEF is the financial mechanism, in particular in the areas of biodiversity, biosafety, climate change, POPs and capacity building needs assessment.

## **Strengthening regional and national environmental management capacity**

To help implement its global mandate on environmental stewardship UNEP has six regional offices—one each in Africa, Asia and the Pacific, West Asia, Latin America and the Caribbean, North America and Europe—and out-posted and liaison offices in France, the Netherlands, Japan, Ethiopia, Switzerland and the United States. In addition, UNEP services a number of regional ministerial forums dealing with the environment, for instance the African Ministerial Conference on the Environment (AMCEN), whose secretariat is provided by the UNEP Regional Office for Africa. The regional presence of UNEP ensures that regional priorities are adequately represented in the UNEP work programme and that global concerns are reflected in environmental work at all levels in the regions. It also provides full programme coordination during implementation in the regions and policy coherence during planning and implementation.

To enhance the organisation's scientific authority UNEP is also building an ever larger network of research and monitoring centres with demonstrated competency in their areas of specialisation. A major example is the establishment by UNEP and the World Meteorological Organisation (WMO) in 1988 of the influential Intergovernmental Panel on Climate Change (IPCC). Two recent additions to the network include the World Conservation Monitoring Centre in the United Kingdom and the UNEP Collaborating Centre on Energy in Denmark. By creating collaborative relationships with other organisations, United Nations entities, NGOs, research institutions and universities UNEP is also able to target its environmental capacity building activities at all levels, from the regional to the national.

Another strategy for effective national outreach is the establishment of national committees and focal points at country level, traditionally located in departments of environment but with broad representation. National focal points, for instance, relay information to and from countries through the Infoterra resource of UNEP. People seeking technical environmental information can easily obtain it from the national focal points, or from the wider INFOTERRA network if the information is not available at country level. UNEP places great emphasis on training national committees and focal points so that they can actively and effectively participate in monitoring and reporting on the state of the environment at the local level thus providing better means for authenticating data.

## **UNEP and the media: engaging civil society**

To make environmental information as widely available as possible, UNEP uses a variety of media. The UNEP web site [www.unep.org](http://www.unep.org) is a growing resource for the general public, providing information on all areas of UNEP activity as well as links to specialist environmental information sites like the interactive environmental information portal UNEP.Net. Also on the Internet is the quarterly UNEP magazine *Our Planet* and the UNEP online bookshop [www.earthprint.com](http://www.earthprint.com), with over 800 titles on environmental subjects ranging from *Accounting and Financial Reporting for Environmental Costs and Liabilities* to *Zero Tillage Development in Tropical Brazil: the Story of a Successful NGO Activity*. The bookshop also provides links to a further 9,000 or so environmental titles via the bookshops of some 15 other partner agencies, most of which are affiliated to the United Nations or are non-profit partners, for instance many of the World Bank's Consultative Group on International Agricultural Research (CGIAR) centres.

A population that has no information on the environment has neither the incentive to act nor the power to give impetus to government action. Therefore the more widely UNEP can disseminate environmental information which is readily understood by the general

UNEP has six regional offices—one each in Africa, Asia and the Pacific, West Asia, Latin America and the Caribbean, North America and Europe

UNEP's regional representation enables it to be a good listener, a strong partner and a quick and knowledgeable actor.

public, the more likely it is that its message will be heard and its initiatives bear fruit. In that sense creating public awareness is not only central to capacity building, but is a capacity building exercise in itself.

While UNEP press releases help keep the world's media abreast of world environmental concerns and UNEP activities, perhaps the most effective medium for change remains television. The UNEP partnership with the independent Television Trust for the Environment produces a bi-weekly environmental showcase *Earth Report* which reaches millions of people worldwide. As with many capacity building exercises, it is often hard to quantify the impact of television coverage of the environment, but the success of a programme on electric mopeds in Kathmandu, which revolutionised the city's public transport almost overnight, is an indicator of the power of targeted environmental information for changing behaviour.

UNEP also works with selected civil society groups to communicate the environmental message. This ranges from partnerships with the private sector to working with the world's religious entities. UNEP places special emphasis on working with children and youth organisations, both to educate them and to give them a voice. For instance, under its Children And Youth Programme, established in 1985, UNEP organises a biennial Global Youth Retreat which elects a Youth Advisory Council to address the world's governments via the UNEP Governing Council and Global Ministerial Environment Forum. Representatives from the Youth Advisory Council addressed the delegates at WSSD, making such a strong impression that their voice was acknowledged in the Johannesburg Declaration on Sustainable Development.

Another example of UNEP work with youth is the Youth for Sustainable Consumption campaign. One output from the campaign, the *Youth for Sustainable Consumption Handbook*, includes guidelines for sustainable living and examples of action from around the world, such as the Quit India Polybag campaign that aims to reduce the severe impact caused by the growing use of polythene bags in the developing world.

### **Sustainable management of natural resources**

The continued growth in human populations and the rapid pace of industrial and economic development is placing increasingly heavy demand on the world's finite natural resources. Improving standards of living are changing consumption and production patterns, and the demand for land for crops, livestock and human settlements is growing, as is the demand for clean water, more energy, minerals and timber. In addition, conflicts, disasters and environmental emergencies are putting further pressure on the limited natural resource base.

The over-exploitation of the earth's natural resources is so severe that it threatens the balance of many ecosystems around the world. In many countries forests are rapidly being cleared for timber and human settlements, and drought due to climate change is increasing land degradation and desertification. Biological diversity is particularly threatened. The routes of transboundary migratory species are being disturbed and countless species are threatened with extinction. To counter this scenario,

UNEP is helping give children and youth a voice in the highest forums, such as the World Summit on Sustainable Development:

"At the beginning of this Summit, the children of the world spoke to us in a simple yet clear voice that the future belongs to them, and accordingly challenged all of us to ensure that through our actions they will inherit a world free of the indignity and indecency occasioned by poverty, environmental degradation and patterns of unsustainable development."

*Rio Declaration, 2002.*

### **Key themes for sustainable development**

- Advancing the principles of Agenda 21.
- Eradicating poverty and promoting human development.
- Making globalisation work for all: creating an equitable trade environment.
- Sustainable production and consumption.
- Integrated management of natural resources.
- Addressing the growing issues of health and the environment.
- Finance for sustainable development.
- Technology transfer, capacity building and education.
- Governance and participation.
- Creating a new global deal based on equity, rights, sustainable limits to resource use, justice, democracy and ethics.

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UNEP has worked over the years, and continues to work, to create and sustain a variety of multilateral environment agreements that promote the sustainable use of natural resources.

Examples include:

- A multitude of treaties related to preserving the diversity of life on the planet, including the Convention on Biological Diversity, the Convention of International Trade in Wild Species of Fauna and Flora (CITES) and the Convention on Migratory Species and its numerous regional agreements, like the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora.
- The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and the related Regional Seas agreements and action plans.
- The Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol.
- The United Nations Framework Convention on Climate Change and its Kyoto Protocol.

Within, or complementary to, these agreements UNEP engages in a large number of capacity building and institutional development activities to help developing countries and countries with economies in transition to practice sustainable use and management of natural resources. These activities range from monitoring and reporting on the state of the world's natural resources at global, regional and national levels to pilot projects that test management policy.

Working with partners at regional and national levels, UNEP also identifies and disseminates cases of success stories and best practices so that these can be replicated and adapted elsewhere. An example is the work of the UNEP International Environmental Technology Centre in Japan, which assists developing countries and countries with economies in transition to use environmentally sound technologies to address urban and freshwater basin environmental problems.

Central to the question of the sustainable management of natural resources is how we limit their consumption. Perhaps the greatest resource-based question the world needs to answer over the next several years is the energy question. Society's development relies on energy consumption; how we generate it and how we limit its consumption will determine to a large extent the sustainability of all our development initiatives. The WSSD Plan of Implementation notes that access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services is integral to sustainable development and achieving the Millennium Development goals, including halving the number of people living in poverty by 2015.

Currently the world relies almost exclusively on fossil fuels and, to a much lesser degree, hydropower for its energy needs. Society's reliance on renewable forms of energy is negligible. UNEP has a broad-based energy programme to address the environmental consequences of energy production and use such as global climate change and local air pollution.

UNEP is concerned with renewable energy, energy efficiency, transport, energy finance and policy issues, and within that remit has a number of capacity building initiatives. One example is the new African Rural Energy Enterprise Development (AREED) initiative, which is designed to help set up private sector energy companies in Africa based on renewable energy technologies. Another example is the Solar and Wind Energy Survey Assessment, which is creating a global information archive and technical review service to help investors in renewable energy to identify where they can expect to get a good rate of return. UNEP also launched a Global Clean Energy Network in September 2002 at WSSD. This pioneering global network of sustainable energy centres will ultimately facilitate the provision of environmentally sound energy services to billions of people around the world.

The continued growth in human populations and the rapid pace of industrial and economic development is placing increasingly heavy demand on the world's finite natural resources.

UNEP engages in a large number of capacity building and institutional development activities to help developing countries and countries with economies in transition to practice sustainable use and management of natural resources.



## **Integrating economic development and environmental protection**

The success of any sustainable development initiative depends on the willing participation of all sectors of society. UNEP continues to encourage decision makers in government, industry and business to develop and adopt environmentally sound policies, strategies, practices and technologies. This involves raising awareness, building international consensus, developing codes of practice and economic instruments, strengthening capability, exchanging information and initiating demonstration projects.

The implementation of a cleaner and safer production programme in all regions is a high priority. UNEP is supporting the establishment of a global network of cleaner production centres—21 to date—to promote strategies, policies and practices to prevent pollution from processes, products and services. UNEP has also initiated the adoption of the International Declaration on Cleaner Production, a voluntary but public statement of commitment to the strategy and practice of cleaner production, and is now supporting its implementation. Another initiative aims to promote investment in sustainable businesses and cleaner production in developing countries by demonstrating to financial institutions the financial and environmental benefits inherent in cleaner production investments and helping entrepreneurs develop creditworthy cleaner production investment proposals.

Because the financial services sector can make a huge impact—negative or positive—on development through its insurance, lending and investment policies, the UNEP Finance Initiative is working to reach the global business community by forging partnerships, and through working groups, workshops and a variety of publications and bulletins. Recent publications include: *Industry as a Partner for Sustainable Development: Finance and Insurance*; an introduction to sustainable finance: *Your Financial Institution and the Environment*; a new UNEP quarterly publication: *Innovative Financing for Sustainability*; and a key resource for investors and firms: *Inventory of Sustainable Energy Funds*. Related initiatives involving the global business community in sustainable development include the Tour Operators Initiative for Sustainable Tourism Development, the Global Reporting Initiative and UNEP support for the Global Compact.

An emerging, and controversial, issue that is taking centre stage in the sustainable development debate is the issue of trade and development in the context of our rapidly globalising world. To deal with the issue UNEP has an economics and trade programme engaged in research, consensus building, assessment of trade-related policies, and capacity building on integrating trade, environment and development policies. Activities range from country projects to international meetings which enhance synergies between multilateral environmental agreements and the rules of the World Trade Organisation.

As the pace of globalisation accelerates, developing countries and countries with economies in transition are confronted with a diverse set of trade, environment and development challenges stemming from enhanced trade and investment flows. It is now widely recognised that capacity building is urgently needed to assist decision makers to successfully address these challenges. In response, UNEP and the United Nations Conference on Trade and Development have launched the UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development to strengthen the capacities of developing countries and countries with economies in transition to address issues related to trade, environment and development.

### **Some capacity building techniques**

UNEP capacity building projects are aimed at improving the capacity of individual institutions and the overall enabling environment in which organisations operate and interact. Capacity building interventions must therefore be designed with flexibility, and be open to adaptation during implementation.

A range of approaches, techniques and institutional arrangements can be used to support capacity building in the environment. For example:

- Locally controlled trust funds and small scale funding mechanisms that are transparent and that require only simple accounting.
- Building up local organisations to take over institution building support.
- Improved evaluation frameworks that move beyond the checklist approach.
- Building individual, organisational and institutional skills, ability and professionalism.



## Emerging issues and challenges for sustainable development

The issues of sustainable development are growing more, not less, complex. Therefore the response of UNEP to the needs of its clients and partners must reflect that. The capacity building needs of developing countries and countries with economies in transition are growing rapidly. The demands placed on their natural resources are increasing due both to their own development, as living standards, aspirations and resource consumption increase, and external factors such as climate change.

As we progress into the twenty-first century, a number of existing and emerging environmental issues present themselves as key causes for concern, and for increased action by UNEP. These include:

- Globalisation, trade and development.
- Coping with climate change and variability.
- Poverty, health and environment.
- The growth of megacities.
- Human vulnerability to environmental change.
- Freshwater depletion and degradation.
- Marine and coastal degradation.
- Population growth.
- Rising consumption in developing countries and those with economies in transition.
- Biodiversity depletion.
- Biosafety.

Furthermore, in the run-up to WSSD, stakeholders identified ten key themes that dominate the sustainable development agenda (*page 19*). All have an environmental dimension, and UNEP is already involved, to a lesser or greater degree, in capacity building activities in all the thematic areas. To make an impact on all these issues, UNEP will have to expand and adapt its capacity building activities.

UNEP and its global partners will also have to address the issues that are hampering the quest for sustainable development. Foremost among these is the widening poverty gap between the developed and the developing world. Although this issue is out of the control of a small organisation like UNEP, it does not mean that UNEP work, in the form of policy advice and capacity building, cannot have an influence on global trends. By ensuring that environmental and sustainable development considerations are incorporated into the policies of the bodies that wield the greatest global influence—for instance the World Trade Organisation, the World Bank and various multinational organisations—UNEP will be a major contributor to a more equitable and sustainable society.

However, before UNEP can genuinely claim that its voice is being heard, and that it is truly fulfilling its mandate, it will also have to confront the other major stumbling block to sustainable development, namely the slow implementation of existing environmental agreements, and the apparent inability or unwillingness of the world's major governments and institutions to translate commitments into action. Although major commitments were made at WSSD to address some of the most pressing concerns of poverty and the environment, including promises to halve the proportion of people without adequate sanitation by 2015, to increase energy efficiency and phase out perverse energy subsidies, and to reduce biodiversity loss, many sectors of civil society and the NGO community felt let down by WSSD. Their view was that WSSD had promised much and delivered little.

The United Nations view, on the other hand, was that WSSD was a qualified success, and that the WSSD Plan of Implementation is a practical plan to implement the goals of Agenda 21 and provide a path for reducing poverty and protecting the environment. In the

UNEP promotes environmentally sound development activities for developing countries and countries with economies in transition to enhance the long-term productivity of the natural resource base, the protection of forests and species, and the preservation of soils.

words of the UNEP Executive Director, Klaus Toepfer, the action plan agreed in Johannesburg reflected the feeling among many nations that “they no longer want to promise the Earth and fail.” That sense of practicality, coupled with the many partnership initiatives by and between governments, business and civil society, provides the grounds for cautious optimism that the goals of Agenda 21 may yet become a foreseeable reality.

The concept of sustainable development has undoubtedly now entered the mainstream of political parlance. The challenge remains to make it more than just a catch-phrase for large sectors of society. As can be seen by the contents of this book, UNEP capacity building activities are addressing the challenges of sustainable development at all levels of society and in all regions of the globe. It is too early to judge their success, but not too early to gauge their potential.

The following sections of this book look at a broad selection of UNEP capacity building activities across the globe, presenting them both as examples and as inspiration, in the hope that readers will be encouraged to seek similar assistance in fulfilling their capacity building needs, or to offer their expertise, experience or financial support. The capacity building activities of UNEP and its partners and collaborators are the foundation of a sustainable future. As such, they deserve the fullest support so their successes can be replicated for the benefit of developing communities worldwide.

Many nations have initiated far-reaching environmental programmes as a result of catalytic work by UNEP. Not only does UNEP work with governments and international organisations, it also collaborates with parliamentarians, industry, the media, women’s groups, youth and children, and other public groups to promote participation in environmental management.

### **Capacity building: the challenge for donors**

The challenge for donors who want to support environmental capacity building lies in changing the conceptual, organisational and financial framework of aid to coincide with the needs of the recipients. A common complaint of countries and organisations on the receiving end of assistance projects is that they are too often short-term, output-driven and dependent on outside expertise.

The challenge for donor agencies and countries is to evolve their support to recognise that successful sustainable development projects often need long-term investment where the outputs are not always immediately apparent. By creating a solid base of local expertise donors can ultimately wean developing nations from aid dependency.

Donors therefore need to:

- Design country-driven multi-stakeholder programmes that are loosely structured, open and flexible.
- Broaden financial mechanisms to make them more flexible to include longer-term financial commitments, programmatic approaches to funding and support for trust funds and umbrella agreements.
- Be willing to promote programme funding that involves fewer clear-cut outputs and targets that are less easily monitored and quantified.
- Encourage greater adaptability to local conditions through delegation and decentralisation.
- Allow for longer and more flexible time horizons.
- Enhance internal capacity through training and broadening skills in specialist subjects related to environmental capacity development, from mediation to environmental economics.
- Devise new indicators for capacity development in the environment and develop new tools for achieving it.



# **Legal and institutional development and strengthening**

## Environmental law: the Montevideo Programme

A key UNEP activity since its establishment has been the development of international environmental law. In its first decade UNEP involvement was largely on an ad hoc basis. Then, in 1981, a group of senior officials expert in environmental law representing governments from around the world met in Montevideo, Uruguay, to develop a long-term, strategic plan for UNEP in the field of environmental law. The Montevideo Programme for the Development and Periodic Review of Environmental Law was adopted by the UNEP Governing Council in 1982 and successfully implemented between 1982 and 1992. In 1993 the Montevideo II Programme was adopted to respond to the requirements of Agenda 21. This ran through to 2001 when the third Montevideo Programme was adopted by the twenty-first session of the UNEP Governing Council.

Under the Montevideo Programme a number of global environmental conventions have been developed under UNEP auspices, covering such things as ozone depletion, hazardous wastes, biodiversity, and persistent organic pollutants. At the regional level UNEP has facilitated the development of several regional agreements, including over thirteen regional seas conventions and action plans.

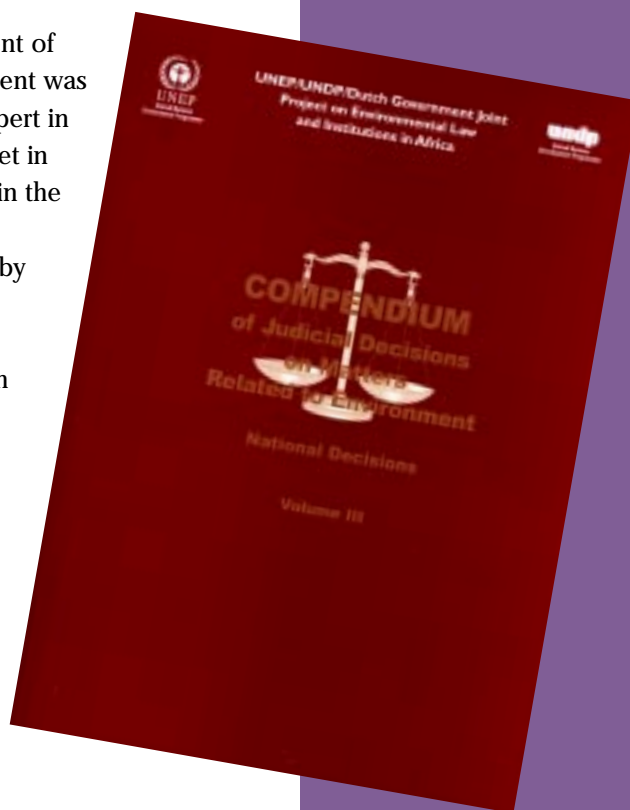
Among its programme areas the Montevideo Programme addresses the need for capacity building, so nations can take legal and institutional measures to protect their environment, achieve sustainable development, and participate fully in the negotiation and implementation of international environmental legal instruments. To this end UNEP assists states to develop laws and helps develop and strengthen relevant institutions. Since UNCED over 100 countries have used UNEP legal advisory services to enhance their national environmental legislation.

### Montevideo Programme III

The third Montevideo Programme for the Development and Periodic Review of Environmental Law defines the broad strategy for the activities of UNEP in the field of environmental law for the first decade of the twenty-first century. One of its elements deals specifically with capacity building to strengthen the regulatory and institutional capacity of the least developed countries, small island developing states and countries with economies in transition to develop and implement environmental law.

Capacity building is to be achieved through appropriate technical assistance, education and training, based on needs assessments. Requested actions under the Montevideo III Programme include:

- Assisting the development and strengthening of national environmental legislation, regulations, procedures and institutions.
- Arranging seminars, workshops and exchange programmes for government officials, the judiciary, the legal profession and others on environmental law and policy, including on the implementation of international environmental agreements.
- Providing appropriate training and support to enhance the participation of representatives from developing countries in international meetings and negotiations related to environmental law.
- Producing and disseminating environmental law publications to serve as tools of capacity building.
- Promoting the teaching of domestic, international and comparative environmental law in



The evolving framework of international environmental laws, and the complementary development of national laws provide the basis for a sustainable future.

While national governments are ultimately responsible for taking legal and related measures to address environmental problems and achieve sustainable development, organisations like UNEP have an important role to play, especially in supporting the development and implementation of legal instruments related to the environment.



- universities and law schools and developing teaching materials.
- Collaborating with governments and relevant international bodies in facilitating national and regional educational programmes in environmental law.
- Strengthening coordination among relevant international organisations and institutions, including those that provide financing, on educational projects and programmes related to the underlying causes of environmental damage and the implementation and enforcement of environmental law.

### **Collecting and disseminating information on environmental law**

UNEP promotes access to information on environmental law to increase worldwide knowledge on these issues and to provide actors directly involved in environmental law development or implementation with the information they need to adopt rational and carefully considered decisions. Much of that information comes in the form of publications like the *Compendium of Environmental Laws of African Countries*; the *Compendium of Judicial Decisions on Matters Related to Environment*; and the *Handbook on Implementation of Conventions Related to Biological Diversity*.

A more recent tool for disseminating environmental law is the ECOLEX Environmental Law Information Service. ECOLEX, freely accessible on the Internet at [www.ecolex.org](http://www.ecolex.org), is a global database on environmental law information, which ensures better access to such information, particularly in developing countries and countries with economies on transition where environmental law information is not easily available. A partner project between UNEP, the World Conservation Union (IUCN) and the United Nations Food and Agriculture Organisation (FAO), with funding from the government of the Netherlands, ECOLEX is targeted at government officials, lawyers, academics, NGOs and researchers to enable them locate and analyse legal instruments and materials related to environmental management.

ECOLEX provides a coherent knowledge base on environmental law, enabling UNEP to meet a growing number and variety of requests for data and assistance to develop environmental law. ECOLEX is a major capacity building tool for environmental and natural resources management in the context of sustainable development in accordance with Principle 10 of the Rio Declaration on access to information and chapters 8, 38 and 40 of Agenda 21. ECOLEX will help to improve the quality of decision making in environmental matters and it will empower institutions of learning in environmental law through increased transparency, access to information and public participation. It will also strengthen issues related to enforcement and compliance. Overall, ECOLEX should help to improve environmental governance at the national, regional and global level.

The construction of the database is ongoing. Substantial progress has been made to develop its contents, and a proposed merger with the FAO database FAOLEX, for which fund raising is ongoing, will further improve the efficacy of ECOLEX. Phase II of the ECOLEX project covers activities for improving the ECOLEX computer system, merging FAO legal data into ECOLEX, organising regional data collection and updating the database.

A related initiative is CELIB—the Computerised Environmental Law Information Base, which is also accessible through the Internet. Developed by UNEP in collaboration with various environmental convention secretariats, CELIB has been developed to disseminate information in the field of environmental law and institutions. A major function of CELIB is assisting the activities of the secretariats of the increasing number of international environmental agreements. CELIB contains legal and institutional information, and is available to the public free of charge.

## Enhancing the role of the judiciary

The judiciary is increasingly recognised as a crucial partner in the promotion of compliance with and enforcement of international and national environmental law. Judiciary networking, sharing of legal information and harmonisation of the approach to the implementation of global and regional instruments are fundamental to reinforcing law as a tool for sustainable development.

In order to promote the role of the judiciary in sustainable development UNEP has convened several regional symposia on the role of the judiciary in promoting the rule of law in the area of sustainable development. The symposia, which were held in different regions, brought together chief justices and prosecutors from various countries to:

- Examine contemporary developments in the field of national and international environmental law.
- Exchange views, knowledge and experience in promoting the further development and implementation of environmental law in each region.
- Review the role of the courts in promoting the rule of law in the area of sustainable development, including an examination of important judgements.

The first symposium, held in Mombasa, Kenya in October 1996 to target African countries, was organised by UNEP under the Joint UNEP/UNDP Project on Environmental Law in Africa funded by the government of the Netherlands (see page 38). Judges and judicial officers attended from South Africa, Kenya, Uganda, Tanzania, Mozambique, Sao Tome and Principe, Burkina Faso and Mauritania.

Encouraged by the results of this pioneering initiative, UNEP organised a second symposium for countries in South Asia in Colombo, Sri Lanka, in July 1997. The Symposium was organised in collaboration with the South Asia Cooperative Environment Program (SACEP), with funding from the government of Norway. It was attended by delegations from Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

Another symposium, was held in Manila, Philippines, in March 1999 for Southeast Asian justices. The event was organised by UNEP in partnership with UNDP, the government of the Philippines and the Hanns Seidel Foundation. The Chief Justice of the Philippines hosted the symposium. Participants included chief justices, deputy chief justices, judges and senior government officials from Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

A fourth symposium, on Environmental Law and Sustainable Development: Access to Environmental Justice in Latin America, was held in Mexico City, Mexico, in January 2000. The Symposium, organised by UNEP with the collaboration of the Federal Attorney General's Office for Environmental Protection (PROFEPA) of the Mexican government, was attended by supreme court justices and other high-level judges from the following countries: Argentina, Brazil,

International and national environmental law has emerged as a central tool in environmental management. UNEP is helping to promote the vigorous and effective implementation of environmental law worldwide by sensitising the judiciary and facilitating access to information on legal decisions related to the environment.

### Achievements of the UNEP-organised symposia for judges

Since 1996, UNEP has convened one global and six regional symposia on the role of the judiciary in promoting sustainable development. The achievements of these symposia include:

- Initiating and fostering judicial dialogue and exchange of experiences in the field of environmental law with sensitivity to the cultures and traditions of the specific regions.
- Promoting discussion on possible conceptual and procedural advances which will facilitate the development and application of environmental law jurisprudence by the courts and promote compliance with and enforcement of environmental law.
- Establishing a basis for networking among judiciaries, the legal profession and university law faculties in the regions to share information and material on environmental law.
- Establishing a basis for developing and widely disseminating through written and electronic means, environmental law publications of particular relevance and importance to each region, including environmental law reports.
- Promoting more vigorous and effective application of environmental law as an instrument for translating sustainable development policies into action.

Chile, Colombia, Cuba, Mexico and Peru. A publication with the proceedings, the judges' presentations and the core working paper of the symposium was prepared and released by UNEP in September 2000.

A fifth symposium, for the countries of the English-speaking Caribbean, was held in Castries, Saint Lucia, in April 2001. The event was organised by UNEP and the International Network for Environmental Compliance and Enforcement (INECE), including the World Bank, the Commonwealth Secretariat, the United States Environmental Protection Agency, CIDA-ENACT Jamaica and the Natural Resources Conservation Authority of Jamaica. Thirty-four high-level judges and prosecutors participated in the programme.

A sixth symposium, the Pacific Symposium on Environmental Law and Sustainable Development, was held in Brisbane in February 2002. Chief justices and judges from nine Pacific island states made presentations regarding their national environmental legal systems. A Statement of Conclusions and Recommendations was adopted at the end of the symposium. One of the main recommendations was to identify an institution in Queensland that could serve as a regional centre for capacity building in the field of environmental law and multilateral environmental agreements for the benefit of Pacific Island States.

**B**ecause of the success of the six regional symposia held so far, UNEP organised and sponsored the Global Judges Symposium on Sustainable Development and the Role of Law, which was held in Johannesburg, South Africa, one week before the 2002 World Summit on Sustainable Development (WSSD). The purpose of the symposium was to provide a global perspective on the importance of the role of the judiciary in promoting sustainable development through the rule of law. The aim of the symposium was also to:

- Enhance the profile and level of understanding of the different approaches used by the judiciary for the implementation of principle 10 of the Rio Declaration (on access to information, public participation and access to justice).
- Review emerging jurisprudence on environmental law and sustainable development.
- Lay the foundation for a well-structured, coordinated and sustainable programme of support for strengthening the capacity of judiciaries around the world, especially in developing countries and countries with economies in transition, in the area of environmental law and sustainable development.
- Develop an inter-agency cooperative mechanism to pool comparative advantages and specialisation for implementing a regional, country-driven judicial training programme.

The symposium, hosted by the Chief Justice of South Africa, gathered over 100 chief justices and senior judges from 60 countries, plus several judges from international courts and tribunals. The participants adopted the Johannesburg Principles on the Role of Law and Sustainable Development, which were presented a week later to the United Nations Secretary-General as a contribution to WSSD. UNEP is preparing a work plan for the implementation of the Johannesburg Principles. This will involve several activities, including training of the judiciary at national level on issues pertaining to sustainable development.



The Johannesburg Principles on the Role of Law and Sustainable Development was adopted at the Global Judges Symposium held in Johannesburg, South Africa, prior to the World Summit on Sustainable Development.

The full text of the Johannesburg Principles is available at [www.unep.org/dpdl/symposium/principles](http://www.unep.org/dpdl/symposium/principles).

## Global training of national legal experts

An important part of capacity building in environmental law is the training of national legal experts. To enhance the capacity of developing countries, UNEP organises global, regional and national training programmes and workshops in the field of environmental law and policy. Five global training programmes in environmental law and policy have been organised every two years since 1993 for environmental lawyers and policy makers from countries in Africa, Latin America and the Caribbean, West Asia, Asia and the Pacific, Central and Eastern Europe. More recently, countries from Europe and North America have also participated in the programmes and found them of use.

The global training programme in environmental law and policy is principally for government officials working in the field of environmental management and legislation. The programme comprises the legal and institutional component of the UNEP mandate for endogenous capacity building for improved environmental management for sustainable development. It was designed specifically to respond to the needs of developing countries and countries with economies in transition.

The goal of the programme is to strengthen participants' capacities to develop and implement environmental law in their respective home countries. This goal is pursued through:

- Informing participants about legal and institutional developments in the field of environmental law.
- Inspiring a greater interest in and commitment towards environmental law as an instrument for translating sustainable development policies into action.
- Developing skills in environmental law.

The three-week courses cover a broad range of subjects, including:

- The history and scope of environmental law, law and sustainable development, assessment of the state of the environment etc.
- Contemporary developments in international environmental law.
- International environmental conventions and their implementation at national level, highlighting linkages between national legislation and international environmental law.
- Policy and law regimes concerning specific environmental issues at international, regional and national level.
- Environment and trade, liability and restitution, transfer of technology and other crosscutting issues.

The courses are designed to be participatory, with the participants' needs and experiences driving the structure and content of the programme. Consequently, lectures are accompanied by interactive work, such as role-playing exercises, field trips and discussion sessions. The programme especially encourages the exchange of experiences between participants and attempts to provide for the application rather than the mere description of environmental instruments and concepts. Relevant background material is provided to participants for use during the course and later on in their respective home countries.

The feedback from the participants over the years has been positive. The overall reaction to the course suggests it has been successful in:

- Informing participants about new and emerging environmental concepts.
- Appropriately addressing the needs and conditions of the participants' own countries and the requirements of their work.
- Enhancing the participants' understanding of legislative, institutional and policy frameworks of environmental law.



- Developing practical skills to translate environmental conventions and regulations into national legislation
- Developing participants' capacity to make better and more informed decisions in their respective areas of work.

The overall achievement of these training programmes is that they are providing an invaluable opportunity for representatives of a wide variety of governments to come together to learn, debate and exchange information and ideas on environmental issues.

UNEP also operates a training-by-attachment programme for requesting countries. The programme is for high-level legal officers from developing countries and countries with economies in transition. The goal of the programme is to provide the participants with training that will enable them to participate more effectively in national efforts to promote the realisation of the goals of sustainable development. The programme provides attachments at UNEP designed to meet the specific needs of each participant.

An internship programme is also available at UNEP for interested environmental lawyers and postgraduate legal students from all over the world. The programme provides participants with three months practical training at UNEP that enables them to subsequently translate their legal knowledge into practical action for sustainable development.



### UNEP training in environmental law and policy

UNEP helps to build the capacity of countries to participate effectively in the development and implementation of environmental law and policy. One such activity involved the training of environmental lawyers of the government of Nigeria at UNEP headquarters with financial support from the UNDP Nigeria Country Office. Lawyers drawn from the Nigerian Federal Environmental Protection Agency, state ministries of justice, universities and a non-governmental organisation dealing with environmental management matters participated.

The training was unique as it was the first of its kind to be conducted at UNEP specifically for one country. It examined how environmental management at global and regional levels could be translated into national laws and policies to respond to Nigeria's national priorities and imperatives for sustainable development as well as the obligations Nigeria has assumed under international environmental legal instruments.

Two weeks of formal training covered twenty-five topics on environmental law and policy. This was followed by a further two weeks attachment to different offices at UNEP and UN-HABITAT to expose the lawyers to the practicalities of developing and implementing various environmental law instruments.



## Interlinkages and synergies between MEAs

As Multilateral Environmental Agreements (MEAs) proliferate, the importance of coordination and communication increases. Fostering interlinkages and synergies between MEAs is therefore a central UNEP concern. To make progress on this issue, UNEP has an Interlinkages and Synergies Unit which focuses on:

- Creating awareness of the importance of synergies and coordination between MEAs.
- Surveying existing initiatives.
- Fostering interaction among international institutions, scholars and other stakeholders.
- Identifying concrete mechanisms and strategies.

Improved coordination, development of synergies, harmonised approaches, and mutually supportive activities are mandated in the articles of various MEAs, and supported by the decisions of their Conferences of Parties (COPs). However, the experience of recent negotiations on international environmental governance (IEG) has revealed that interlinking and systematising the work of MEAs involves addressing a host of interrelated issues. The largest obstacle to systematising the work of MEAs is at the level of political resolve. All countries involved in negotiations on IEG agree that there is a problem, but are divided about the causes of fragmentation and duplication in the work of the MEAs.

The rationale for enhanced coordination among MEAs is:

- Efficient use of information, financial resources and expertise.
- Reduction of duplication and overlaps.
- Emphasis on policy coherence and averting fragmented sectoral initiatives.

At the national level, there is a need to reduce the reporting burden on governments under different MEAs (*see page 37*); help governments to establish priorities and allocate resources as budgets shrink; and to help governments to coordinate their preparations and monitor their responses to MEA decisions. Enhanced coordination is also necessary for coherent global and regional environmental management in face of expanding global trade. UNEP has identified seven steps for improving coordination and interlinkages among MEAs:

**1. Coordination at the policy making level:** Regular meetings of the Bureaux of the Conference of Parties could encompass objectives such as:

- Promoting cooperation and complementarity at the policy level.
- Joint efforts in responding to basic human needs such as poverty alleviation, food security, access to clean water and energy.
- Building synergies at the programmatic, scientific and technical level.
- Avoiding potential inconsistencies among decisions adopted by MEA COPs.

**2. Coordination at the scientific and technical level:** Scientific and technical assessments are currently organised to support particular agreements and negotiations. Coordination among assessment bodies could lead to a more effective assessment system. Regular meetings of subsidiary bodies or of the chairs of the assessment panels of different MEAs on the scientific and technical aspects of the MEAs could help this process.

**3. Establishing an inter-agency coordination group:** Six United Nations organisations—UNEP, IMO, ILO, FAO, IAEA and the United Nations General Secretariat—implement programmes and policies that support or influence major global and regional MEAs. To bring more coherence and cooperation among the 140 major conventions relevant to the environment, including regional agreements of global relevance such as the 17 regional seas conventions and action plans and the 30 regional fisheries bodies, an inter-agency coordination group could be established.

The UNEP Interlinkages and Synergies Unit:

- Promotes and strengthens linkages and synergies between and among MEAs.
- Provides programmatic support for coordination among MEAs.
- Promotes strategic approaches to tracking inconsistencies in the decisions of MEA COPs.
- Streamlines national reporting on biodiversity-related conventions.
- Helps resolve illegal trade and customs codes issues.

**4. Harmonisation of information access and exchange systems:** The benefits of harmonisation of reporting will accrue to all stakeholders, including national governments, MEA secretariats and governance bodies. At the national level, governments will be encouraged to:

- Identify a consolidated list of obligations in a cross-sectoral manner.
- Holistically identify national priorities for MEA implementation.
- Improve awareness of national compliance obligations at all government levels.
- Identify gaps in national legislation and policies.
- Improve capacity to implement country-driven actions in support of treaty commitments.

**5. Capacity building:** Capacity building for the implementation of MEAs places an imperative on a coordinated approach which crosses administrative and sectoral boundaries, and involves major stakeholders. A coordinated approach to capacity building involves the following objectives:

- Designing joint country-driven multi-stakeholder programmes in capacity development.
- Encouraging greater adaptability to local conditions through delegation and decentralisation.
- Allowing for longer and more flexible time horizons to accommodate a process approach.

**6. Thematic and functional clustering:** If MEAs are arranged around a set of common elements that reflect their primary environmental goals and concerns, linkages and synergies will be enhanced. At the thematic level, the core MEAs are basically already divided into four clusters:

- Biodiversity-related conventions.
- Sustainable development conventions.
- Chemicals and hazardous wastes conventions.
- Regional seas conventions and related agreements.

However, there are crosscutting issues for many MEAs that are primarily functional:

- Strengthening the capacity of Parties or member states to meet their obligations.
- Enhancing the membership of governments.
- Public education and awareness
- Strengthening the scientific basis for decision making.
- Strengthening international partnerships.

**7. Regional clustering and national coordination:** The benefit of clustering MEAs at the regional level is that a wider group of experts, policy makers and stakeholders will be engaged. In addition, it would facilitate the identification of potential joint regional initiatives on issues such as information resources management or capacity building. While projects of multiple benefits may be designed at any level, coordinating numerous field activities by different international agencies is more likely to be successful at national and regional levels.

By the same argument, national coordination committees could provide a local policy making structure for strategic planning and implementation, and establish the legislative requirements for the successful implementation of MEAs. Periodic regional coordination meetings could consider integrated priorities and the links among MEAs and implementation programmes supported by international bodies. Inter-agency preparations for these meetings could include representatives of global and regional conventions and intergovernmental organisations.

A priority for the effective functioning of MEAs is addressing crosscutting issues. An example is the assessment and management of pollution. This cuts across the chemicals and hazardous wastes conventions, some biodiversity-related conventions and the regional seas agreements.

Similarly, trade-related conventions such as CITES, the Montreal Protocol, the Basel Convention, the Rotterdam Convention and the Stockholm Convention have much in common, including implementation and enforcement issues, training and capacity building.

## Compliance and enforcement

Compliance with and enforcement of environmental law is a major component of the Montevideo III Programme (page 28). UNEP work in this area includes:

- Assisting states to establish and strengthen domestic law to improve compliance with and enforcement of international environmental obligations.
- Assisting states to develop national and, where appropriate, regional action plans or strategies for the implementation of international environmental obligations.
- Developing model laws or equivalent guidance materials for the implementation of international environmental instruments.
- Preparing comparative analyses of compliance mechanisms under different MEAs and, where appropriate, under agreements in other fields of international law.
- Promoting means of implementing and encouraging compliance with international environmental law, and studying the efficacy of financial mechanisms, technology transfer and economic incentives under existing international environmental law.
- Promoting appropriate disincentives, including civil liability mechanisms and the wider use of criminal and administrative law, to encourage compliance with environmental law.
- Promoting further regional cooperation for enhancing implementation of and compliance with international environmental law.
- Encouraging, during the development of new international environmental legal instruments, consideration of implementation and enforcement aspects

A major need in capacity building for compliance and enforcement is in the area of environmental crime. Much environmental crime that violates the provisions of international environmental agreements is in the form of illegal trafficking. UNEP takes a leadership role in this area by supporting training activities that promote better and more effective coordination and cooperation between national enforcement authorities, convention secretariats, Interpol and the World Customs Organisation. UNEP also provides liaison to facilitate dialogue and build consensus among various regional and international environmental agreements.

An example is a global workshop on compliance and enforcement held in Geneva in 1999 between UNEP, Interpol, the World Customs Organisation, the secretariats of three MEAs (CITES, the Montreal Protocol on Substances that Deplete the Ozone Layer, and the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal) and government officials responsible for their implementation. The aim of the workshop was to prevent violations of these agreements by putting into place mechanisms to enhance their effective implementation. Another of the workshop's goals was to build the capacity of national focal points responsible for implementing these and other multilateral environmental agreements. Based on the experiences of CITES, the Montreal Protocol and the Basel Convention, the workshop participants were able to exchange information on the environmental effects of violations of MEAs and the means of combating organised crime in specific areas. The workshop has also been replicated in the Asian region.

Other major initiatives include the development and implementation of general guidelines on compliance and enforcement. The guidelines on compliance and enforcement of MEAs were drafted under UNEP guidance by experts from developed and developing countries. The process was participatory, directly and indirectly contributing to building the capacities of environmental legal experts in developing countries and countries with economies in transition. The guidelines were adopted by an intergovernmental working group of experts in October 2001 and submitted to the UNEP Governing Council, which considered and finally approved them in February 2002 for consideration and adoption.

The Compliance and Enforcement Unit of the UNEP Division of Policy Implementation builds capacity to prevent illegal trade in violation of international agreements by supporting training and coordination among national and international enforcement agencies and convention secretariats.

More information is available from [www.unep.org/DEPI/Implementationlaw.asp](http://www.unep.org/DEPI/Implementationlaw.asp)

## Harmonisation of national reporting

One of the consequences of the rapid development of multilateral environmental agreements (MEAs) in recent years is the increased burden of implementation being placed on those countries who have signed up to them. Among the implementation requirements are the obligations to report back to the various secretariats. The objective of national reporting is to provide information on measures taken for the implementation of the agreement and the effectiveness of these measures. An effective system of national reporting can assist the Conference of Parties to an agreement to:

- Consider the lessons learned by Parties in implementing an agreement.
- Identify gaps in capacity for policy research and analysis, including technical and financial requirements, at the national, regional and global level.
- Formulate requests and guidance to Parties, the secretariat, the financial mechanism and other organisations with expertise relevant to the implementation of the agreement.

However, preparing separate reports on the implementation of different, but related, international treaties can represent a burden on countries—particularly countries with limited resources. Often a country finds that it is duplicating information and draining resources away from more urgent management needs. In the case of reporting to the five global biodiversity-related treaties the secretariats are investigating whether there is scope for harmonising reporting procedures by making use of common formats and data sets.

UNEP, through its World Conservation Monitoring Centre, is implementing a project on streamlined national reporting under biodiversity-related conventions. Pilot case studies are being carried out with six interested countries: Belgium, Ghana, Indonesia, Panama, Seychelles and the United Kingdom. The pilot projects are testing the four main methods of streamlining national reporting that were identified in a workshop convened by UNEP in October 2000 in Cambridge, United Kingdom. The workshop explored ideas for a more harmonised approach to national reporting to international agreements. The four methods being explored are:

- Modular reporting.
- Consolidated reporting.
- Linking reporting to state of the environment reporting.
- Information management and regional support.

In addition, the pilot studies are examining the reporting processes to establish a coordinated mechanism for meeting reporting requirements. Thus, the project contributes to strengthening national information management and reporting capacity.

The biodiversity conventions included in the project are: the Convention on Biological Diversity (CBD); the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention); the Convention on Migratory Species of Wild Animals (CMS); and the World Heritage Convention. The Specially Protected Areas and Wildlife Protocol under the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention) will also be considered in the Panama pilot project. The pilot projects will be completed during 2002.

Based on the results of the pilot projects, UNEP will attempt to develop:

- A consolidated reporting format for the global biodiversity-related conventions.
- A set of guidelines on the establishment of a coordinated national reporting mechanism for the biodiversity-related conventions for further testing in a wider set of countries.
- A report (in the case of Panama and Central America) on regional mechanisms for supporting countries to fulfil their reporting requirements under the biodiversity-related conventions.

The UNEP World Conservation Monitoring Centre (UNEP-WCMC) is strengthening national information management and reporting capacity through a project that aims at streamlining national reporting under the various biodiversity-related MEAs.

More information is available from UNEP-WCMC (*see page 162*), or on the Internet at [www.unep-wcmc.org/conventions/harmonization](http://www.unep-wcmc.org/conventions/harmonization).

## Law and institutions in Africa

In 1992, the Royal Netherlands Government, in line with its long-standing interest in the development of national and international environmental law, offered \$5 million to UNEP and UNDP to support the development of environmental law and institutions in seven African countries between 1995 and 2000. The objective of this pilot project was to provide legal and institutional frameworks suitable for the rational management of natural resources and the environment for sustainable development. The project targeted jurists, lawyers, government officers, legislators, NGOs and other civil society stakeholders such as manufacturers and industrialists. The project was a response to the urgent need to develop legal frameworks and institutional capabilities for the rational management of natural resources in each country. The focus of the project included:

- Training national lawyers in how to develop laws which command national consensus.
- Developing capacity for implementing environmental treaties.
- Sensitising parliamentarians to their role in environmental legislation.
- Enhancing the enforcement of environmental law by building awareness in comparative environmental jurisprudence among judges, prosecutors and private legal practitioners.
- Promoting compliance with environmental law among industrialists and manufacturers.
- Promoting awareness among NGOs and civil society of their role in developing and enforcing environmental law.

### Legal capacity building in Africa

Over the years Africa has been the main beneficiary of UNEP capacity building in environmental law. Almost forty African countries have benefited from UNEP technical assistance. The UNEP/UNDP/DUTCH Joint Project has made a significant contribution, but not the only one. For instance, since 1996 the Capacity Building in National Environmental Law and Institutions project, also funded by the government of the Netherlands, has been assisting developing countries in Africa and elsewhere to develop and strengthen national environmental laws and institutions and build environmental management capacity.

Several needs assessment missions to African countries and subsequent in-depth reviews and analyses of existing legal frameworks and institutional arrangements have also been carried out by UNEP. Countries to benefit include: Benin, Burundi, Burkina Faso, Central African Republic, Chad, Ethiopia, The Gambia, Ghana, Guinea Bissau, Kenya, Malawi, Morocco, Mozambique, Namibia, Sao Tome and Principe, Seychelles, Sudan, Swaziland, mainland Tanzania and Zanzibar, Uganda, Zambia and Zimbabwe. Many African countries have also benefited from UNEP support in drafting, updating and revising their national environmental legislation.

UNEP always relies as much as possible on national experts and national task forces. National consultants have generally been used for reviewing existing policy and legal frameworks and making recommendations for reform (e.g. Kenya and Morocco) and for drafting new legislation (e.g. Ghana). A common request by countries is for assistance in the development of 'umbrella' or framework environmental laws, laying down the basic legal principles without attempting to codify all relevant statutory provisions. These laws usually require further enabling legislation such as implementing legislation or regulations. Examples of laws of this kind are the 1994 Environment Protection Act of the Gambia and the 1994 Egyptian Law Concerning the Environment. UNEP has also assisted countries (e.g. Burundi, Ghana, Nigeria, Seychelles and Zambia) in developing sectoral legislation, as well as providing specific assistance for the development of environmental impact assessment legislation.

UNEP has also provided technical assistance to develop and strengthen institutional mechanisms for environmental management. With the development of environmental law, and increased awareness of the centrality of environmental issues, countries have begun to establish specialised and independent bodies (ministries or agencies) responsible for managing the environment. While some countries have chosen to create new structures (e.g. Mozambique, Sudan, Tanzania, Mauritius, the Gambia, Zambia, Burkina Faso and the Seychelles), others are strengthening pre-existing administrative bodies. Several African Countries (e.g. Cameroon, Congo, Morocco, Mozambique and Sudan) have also been helped to review the status of their implementation of international instruments. They have also been helped to develop laws for the implementation of international environmental conventions, in collaboration with the conventions' secretariats.



The UNEP/UNDP/Dutch Joint Project on Environmental Law and Institutions in Africa was country-driven, with most reviews of policies and laws, and the drafting of new laws, being done by each country's national task force. This required considerable coordination at the national level. Since UNEP does not have country-level offices, UNDP, with its long experience in the coordination of technical assistance and capacity building, accepted partnership in the Joint Project. The partnership also helped to support the principle that environmental considerations must be built into development planning and management.

The development of environmental law is a complex and continuous process. To create institutional capacity and to deliver concrete and measurable outputs, the UNEP/UNDP/Dutch Joint Project on Environmental Law and Institutions in Africa pursued the following seven objectives and activities:

**1. Development of environmental laws.** To promote national capacity the project worked with national task forces drawn from government, private practice, NGOs and universities to work on their own national laws. Existing policy and law was reviewed and recommendations given on legislative development. Thereafter, legislation was drafted. The ownership of the product by nationals was a powerful consideration for the successful enforcement of the laws. Also important is that a new cadre of experts who know how environmental law can be evolved has been created. Furthermore, people from a broad cross-section of society have become aware of their rights to determine the shape and content of national environmental laws.

The project developed framework laws for Burkina Faso, Malawi, Mozambique and Sao Tome and Principe. It also developed sectoral laws and regulations for Burkina Faso (15); Mozambique (9); Malawi (5); and Sao Tome and Principe (4). The project also precipitated the development of an environmental protocol for the three countries of East Africa : Kenya, Uganda and Tanzania.

**2. Harmonisation of environmental laws.** This strategy and procedure was applicable specifically to the East African sub-region. The first principle that motivated this strategy is that environmental problems do not respect territorial boundaries. They are usually regional in character. The second point was recognition of the shared historical and legal heritage among the three countries. Up to 1977, Kenya, Uganda and Tanzania had shared institutions for social, political and legal/judicial matters originating from the colonial era. These two attributes offered an opportunity for dealing with selected environmental issues on a sub-regional basis.

The three countries selected several priority issues:

- Development and harmonisation of methodology for the development of environmental standards.
- Development and harmonisation of environmental impact assessment (EIA) regulations.
- Transboundary movement of wastes.
- Legal and institutional aspects of the environment of Lake Victoria.
- Forestry legislation.
- Wildlife legislation.
- Toxic and hazardous chemicals and substances.

The draft laws from the three countries were subjected to harmonisation workshops with facilitating experts from FAO and the World Bank. The national experts were so impressed by the outcome of their work that they recommended speedy conclusion of a sub-regional

UNEP supported the review and development of environmental law in Africa between 1995 and 2000.

The seven countries which participated in the UNEP/UNDP/Dutch Joint Project on Environmental Law and Institutions in Africa were:

- Burkina Faso,
- Kenya,
- Malawi,
- Mozambique,
- Sao Tome and Principe,
- Tanzania,
- Uganda.

## Law and institutions in Africa (*continued*)

environmental agreement. Their recommendations were reviewed by a workshop of Permanent Secretaries responsible for the environment in the three countries. They unanimously concurred with the proposal for a sub-regional treaty. The Permanent Secretaries from the three countries signed a Memorandum of Understanding (MOU) for the promotion of cooperation in environmental management in October 1998. Thus, the project had a major sub-regional impact here with its bottom-up approach to treaty making. The Permanent Secretaries subsequently requested the project to assist in drafting a legally binding agreement on the environment for the region.

**3. Enforcement of environmental law.** The aim was to expose judges, magistrates and attorneys in government and private practice to jurisprudence on environmental matters, as it is evolving in different jurisdictions of the world. Environmental laws give stakeholders the opportunity to enforce their rights to a healthy environment. Incompetent or ill-informed judges and attorneys undermine the confidence of civil society. A compendium of judicial decisions on environmental matters, selected from different jurisdictions, has been prepared by the project as a tool for both legal training and practice.

**4. Compliance with environmental law.** The primary target group in this initiative was industrialists and the government officers who work with them. The two groups are often at the receiving end of command and control types of legal regimes. The command and control elements as well as the facilitative and management regimes were explained and discussed. Eventually, the industrialists came up with their own recommendations for promoting compliance. This is an activity that can be repeated and explored in depth.

**5. Implementation of environmental conventions.** A beginning in this broad field was made by focusing on conventions related to biological diversity. The project countries, and non-project ones who are Parties to the Lusaka Agreement on illegal trade in wild fauna and flora, were involved in discussions which proved so popular that project countries requested to repeat them at national level. National experts also requested a handbook providing guidelines for implementation of such conventions.

**6. Exposure to the operation of environmental institutions.** This was done through training by attachment under which national officials were attached to UNEP and its convention secretariats in Geneva for hands-on training lasting up to one month. The national officials learned the structure and operation of the institutions with which they often conduct correspondence. The officials further developed personal acquaintance and access to useful written and verbal information.

**7. Providing documentation and resource materials.** This is a fundamental requirement for the sustainable activity of the expertise built up through this project. The development of laws requires existing texts as points to begin from, or for comparison and contrast. At the same time, those who want to know the legislative history of given texts require background materials such as reports and reviews which preceded the development of the existing texts. The project produced and distributed a two-volume *Compendium of Judicial Decisions on Matters Related to Environment*, in addition to twenty-six reports and two bulletins. A second component, to ensure the sustainability of activities initiated under the project, is the teaching of environmental law in national universities. The provision of resource materials and documents will go a long way in assisting that activity.

By concentrating on endogenous capacity building in the field of environmental law and institutions, UNEP has helped increase knowledge of environmental law and participation in its drafting and implementation.

UNEP has also helped engender a sense of ownership in national environmental legislation essential to its sustainability and effectiveness.

Two independent evaluation exercises judged the UNEP/UNDP/Dutch Joint Project on Environmental Law and Institutions in Africa successful and recommended its continuation to benefit more African countries. The project's achievements include:

- Draft environmental laws, including framework environmental laws, sectoral statutes and implementing regulations were prepared for enactment according to each country's legislative procedures.
- National lawyers and technical people were trained in the techniques of developing law. Nationals developed all the laws with guidance from UNEP.
- The concept of environmental legislation through popular participation and consensus building is practised and understood.
- The intensive deployment of nationals as consultants, and the participatory procedure adopted, generated tremendous awareness of environmental law. Workshops for judges, government lawyers, private legal practitioners, industrialists etc. further built up awareness. As a result various groups are seeking advice to promote effective implementation of environmental law.
- The project created a community of environmental lawyers. It brought together lawyers and technical people from all corners of the continent, including several non-project countries.
- The project popularised the concept of access to environmental justice through workshops for judges, public interest lawyers and private practitioners.
- Project publications have formed the core of possible documentation centres on environmental policy and law. The publications of this project are unique, filling a special gap in resource materials.
- Project countries are sensitised on the implementation of environmental conventions. The workshop on the subject, held in Maputo, Mozambique, in 1997, which triggered the request for the *Handbook on Implementation of Conventions Related to Biological Diversity*, reflects the rapid acceptance of several conventions.
- The methodology for the evolution of a sub-regional environmental agreement is well developed and accepted in East Africa. It could be replicated elsewhere.
- The project has attracted an increased number of donors and new countries for Phase II: the Partnership for the Development of Environmental Law and Institutions in Africa (PADELIA).
- The strong interest in the project from other regions is evidence of the replicability of the project. During Phase II the lessons learned in the bottom-up approach to treaty-making in East Africa will be replicated in the Sahel and SADC regions.

### Law and institutions in Africa: PADELIA

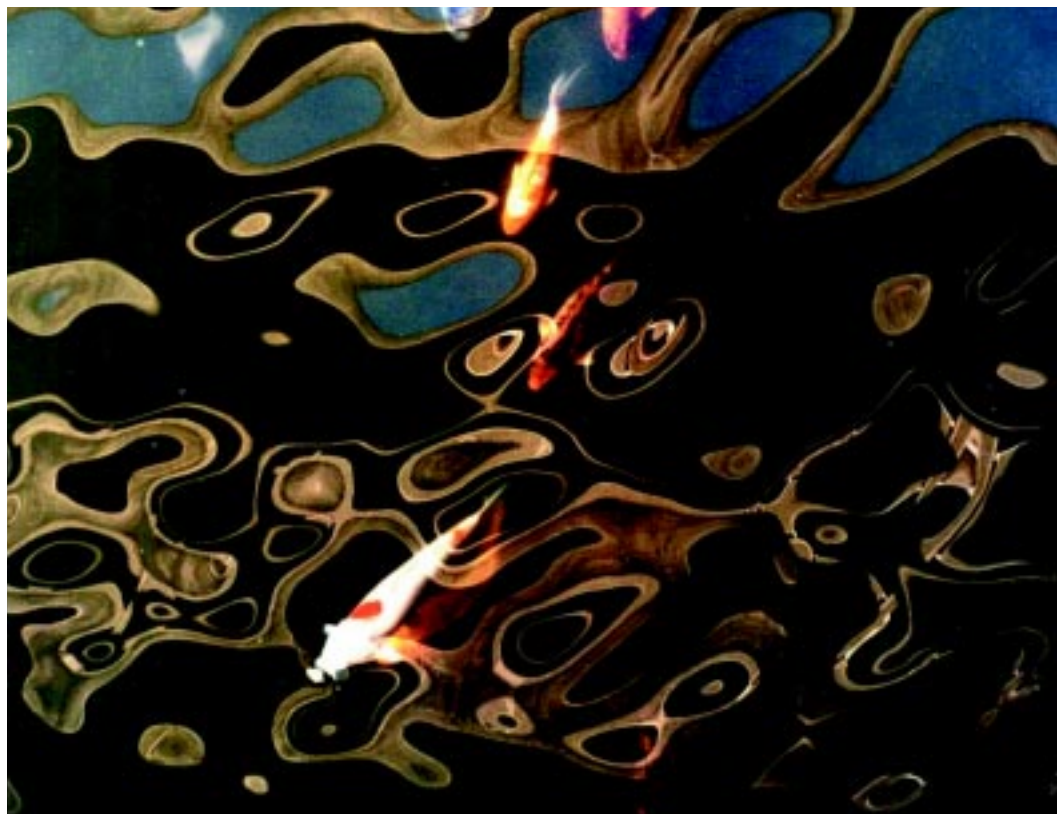
A major need identified by the steering committee of the UNEP/UNDP/Dutch Joint Project on Environmental Law and Institutions in Africa is for strengthened institutions for sustainable development and the enforcement of environmental law. The project has been successful in developing draft laws for the project countries. However, it is clear that existing institutions are not adequate for their effective implementation or enforcement. For that reason, it has been determined that while Phase II will continue with the development of new laws, especially to fill gaps which could render the existing laws ineffective, a deliberate effort will be made towards strengthening the relevant institutions.

The Partnership for Development of Environmental Law and Institutions in Africa (PADELIA) is a successor to the UNEP/UNDP/Dutch Joint Project. It seeks to enhance the capacity of countries to implement existing laws, develop legal instruments to fill gaps in existing laws, and enhance capacity for sustainable development and the implementation of environmental law. In four of the countries—Burkina Faso, Malawi, Mozambique and Sao Tome and Principe—activities involving the development of laws are country-specific. In Kenya, Tanzania and Uganda the focus is on the development and harmonisation of laws on issues of a common and transboundary character within a sub-regional project.

Besides developing laws, activities include training on environmental law and its enforcement, including the role of the judiciary. Publications used in the training exercises are distributed worldwide. These include:

- The four-volume *Compendium of Judicial Decisions on Environmental Law*.
- The ten-volume *Compendium of Environmental Laws of African Countries*.
- The *Handbook for Implementation of Conventions Related to Biological Diversity*.
- *Industries and Enforcement of Environmental Law*.
- The eight-volume *Reports of Development and Harmonisation of Environmental Laws in East Africa*.

## Legal capacity building in Central and Eastern Europe



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UNEP, the Regional Environmental Centre for Central and Eastern Europe (REC), and the IUCN Environmental Law Centre have formed an inter-agency consortium to better meet requests for assistance and improve efficiency in delivering results. The countries of Central and Eastern Europe and the Newly Independent States are the main beneficiaries. The consortium has established a Joint Environmental Law Service, which focuses on:

- Assistance to governments and NGOs covering advice and short-term legal expertise, capacity building, and compliance and enforcement.
- Development, promotion and implementation of international environmental law, including codification of international environmental law, monitoring the status and implementation of MEAs in the region, information dissemination and public relations.

### **Current activities under the Joint Environmental Law Service:**

#### *Acceptance and implementation of MEAs in southeastern Europe (AIMS)*

Under AIMS, in-depth country assessments of acceptance and implementation of MEAs are being prepared by in-country legal experts. In parallel, the governments of the region are establishing national advisory groups with multi-stakeholder participation to set national priorities for MEA development and to review their respective country's assessment report. AIMS falls under the Balkan Stability Pact's Regional Environmental Reconstruction Programme for South Eastern Europe, with which UNEP closely cooperates. Albania, Bosnia-Herzegovina, Bulgaria, Croatia, FYR Macedonia, Romania and FR Yugoslavia are within the project's geographical scope (Albania, Bulgaria and Romania are lead countries).

#### *Workshop on UNEP and UNECE environmental conventions*

The workshop was held in Belgrade, FR Yugoslavia, November 2001. It was co-organised by UNEP and the UNECE, with substantive support and participation of REC. The workshop



was a pioneering attempt to strengthen the capacity of national experts and authorities, and other interest groups, in the ratification, implementation and enforcement of selected MEAs. A similar workshop on UNEP MEAs was organised in Bosnia and Herzegovina in October 2002. Further workshops focusing on synergies in the implementation of UNEP-administered and other MEAs are being organised at the request of countries in the region.

#### *Regional environmental law workshop for the Caspian region*

This workshop was co-organised within the framework of the Caspian Environment Programme by UNEP, REC, and the secretariats of CITES and the Espoo and Aarhus conventions for the Caspian littoral states (Azerbaijan, Islamic Republic of Iran, Russian Federation, Kazakhstan, Turkmenistan) It was held in Baku, Azerbaijan, in December 2001. (The Espoo Convention on Environmental Impact Assessment (EIA) in a Transboundary Context (Espoo, 1991) stipulates the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of states to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries. The Espoo EIA Convention entered into force on 10 September 1997.) The workshop aimed at strengthening the capacity of experts, authorities and interest groups in the Caspian Sea region in the ratification, implementation and enforcement of selected MEAs. It demonstrated the ability of the partners to respond to the special needs of sub-regions in support of the special programmes established by the international community.

### **Caspian Environment Programme**

In accordance with its mandate, UNEP has been providing strong support for the development of a legal framework for environmental cooperation in the Caspian Sea region. To date UNEP has organised a total of seven meetings of experts on the preparation of a framework convention for the protection of the marine environment of the Caspian Sea. The last meeting took place in July 2002 in Tehran and enabled the experts to fully review and agree in principle on a draft convention text. Further steps will focus on promoting the signing and ratification of the convention.

In the context of legal and economic capacity building activities, UNEP, in close cooperation with the Caspian Regional Thematic Centre on Legal, Regulatory and Economic Instruments, prepared two comprehensive reports analysing the Caspian States' legal, institutional and economic frameworks related to the protection and sustainable management of the Caspian environment as a basis for future capacity building work.

The Caspian Environment Programme is a regional umbrella programme developed by the five Caspian littoral states, largely funded by the international community through the GEF, EU/TACIS, and the private sector.

### **Carpathian Mountains**

On the request of Carpathian countries (the Czech Republic, Hungary, Poland, the Slovak Republic, Romania, Ukraine and FR Yugoslavia), UNEP is supporting the Ukrainian Ministry of Ecology and Natural Resources to service and facilitate an inter-governmental consultation process aiming at strengthening regional cooperation for the protection and sustainable management of the Carpathian Mountains.

In the period 2001–2003, UNEP is servicing at least three inter-governmental consultative meetings and is in charge of preparing the necessary documentation. Consultations are addressing the identification of needs in various socio-economic sectors, with a focus on identifying the appropriate instrument, possibly a convention, for creating a framework of cooperation. The output is expected to be presented to the Ministerial Conference 'Environment for Europe' scheduled to take place in Kyiv in May 2003.

The Alpine Convention, being the only mountain protection convention worldwide currently in effect, is an important example and provides lessons for Carpathian countries on how to develop and implement mountain protection initiatives at international and regional level. Several Alpine countries are supporting the activities.



## National legal technical assistance

The aim of UNEP technical assistance in environmental law is to help developing countries and countries with economies in transition to develop, on their request, environmental laws and environmental policies and to establish and strengthen institutions to enhance environmental management for sustainable development. UNEP legal technical assistance at the national level includes:

- Assessing a requesting country's problems and needs in the development of environmental legislation and institutions.
- Reviewing existing environmental legislation and institutional arrangements.
- Organising national forums for forging consensus on environmental policies, strategies and capabilities for developing legislative and institutional regimes.
- Drafting necessary legislation, both framework and sectoral, or proposing amendments to strengthen existing legislation and institutional arrangements.
- Organising national workshops to discuss and finalise draft environmental legislation that has been prepared with UNEP assistance.
- Reviewing the status of ratification of international and regional environmental conventions and agreements and proposing legislation to implement them.
- Building capacity in developing countries by training national environmental lawyers through national, regional and global training programmes, attachment and internship programmes at UNEP and convention secretariats and introducing or strengthening environmental law courses at national universities.
- Preparing model legislation and guidelines.
- Harmonising environmental law.
- Promoting enforcement of and compliance with environmental law.
- Providing documentation and resource materials.

The kind of assistance UNEP provides and the way it is provided differs from country to country depending on the initial request and the outcome of initial fact finding missions carried out by UNEP legal officers. In general terms, though, technical assistance develops following the ten steps listed and described below.

### 1. Needs assessment

The first step is a complete identification of the assistance needs of the requesting country. An examination of the existing legislative and institutional problems, priorities and policies is undertaken through a one-week mission to the requesting country by UNEP legal officers. This is followed by a detailed report with recommendations regarding the preliminary determination of the country's legislative and institutional needs and by an in-depth review and analysis of existing legal frameworks and institutional arrangements. The country concerned is involved in all the activities.

### 2. Review of legislation and institutions

Based on the recommendations of the needs assessment missions and on government requests, a thorough review of existing legislation relevant to environmental management and national environmental policy, including institutional structures, is conducted to identify legislative shortcomings or requirements for environmental protection and sustainable development. Recommendations on the necessary legislative and institutional reforms are made. These recommendations lead to the drafting of required legal instruments to implement the proposals. This task is undertaken by national consultants or by setting up a national task force.

Recent United Nations guidelines on capacity building recognise that national ownership and commitment are critical to the effectiveness of capacity building programmes.

### 3. Drafting of legislation

UNEP policy is to encourage national task forces to draft environmental legislation with the support of UNEP legal officers who are particularly well placed to provide such support in view of their experience in working in the field of environmental legislation at national level. In providing assistance UNEP cooperates with other bodies or agencies such as UNDP, IUCN, the World Bank and FAO.

### 4. Enhancement of local capacity

UNEP activities in developing countries and countries with economies in transition aim at creating self-sufficiency in the relevant expertise in the countries concerned, to avoid dependence on UNEP or other international organisations for assistance. Therefore, UNEP makes an effort to use national experts and local consultants in the execution of the tasks requested to ensure that while UNEP offers assistance it also builds local capacity within the countries concerned.

Another mechanism on which UNEP relies is the use of cross-sectoral national task forces of up to ten persons drawn from relevant government departments to work in collaboration with UNEP to execute the agreed programme of activities. In practical terms, once a request from a developing country is accepted for assistance by UNEP a participatory and consultative programme of activities is drawn up in collaboration with the relevant government authorities. UNEP normally funds and supervises the effective implementation of the programme but the activities are largely performed by the nationals themselves.

### 5. Training of environmental lawyers

National actors involved in the development and implementation of environmental law, in addition to being directly involved in the fulfilment of the required tasks, also have the chance to participate in UNEP training programmes on environmental law and policy.

### 6. Development of framework environmental laws

In the past, the function of environment-related norms was to rationalise the exploitation of natural resources. It has now been acknowledged that primary protection and sectoral resource conservation laws are insufficient to safeguard the environment. This necessitates the adoption of a system-oriented approach, encompassing integrated planning and management of all natural resources on the basis of all-embracing ecological policies and environmental programmes. Consequently, in assisting developing countries to develop environmental legal and institutional arrangements, UNEP recommends the drafting of new framework environmental laws to bring existing use and resources-oriented laws into system-oriented legislation. Where framework environmental laws already exist, UNEP assists governments to draft sectoral legislation and enabling regulations to integrate the environmental framework legislation.



National environmental legislation and institutions, environmental impact assessment procedures and cross-sectoral coordination for development planning are all essential elements for sustainable development. These are some of the areas in which UNEP is building capacity at the national level.

## National legal technical assistance (*continued*)

### 7. Development of environmental impact assessment (EIA) laws

The UNEP Governing Council has recommended the promotion of widespread use of EIA procedures by governments and, where appropriate, international organisations as an essential element in development planning and for assessing the effects of potentially harmful activities on the environment. UNEP assists countries to fulfil their commitment to enhance the integration of EIAs into the planning process at the national level. Most developing countries have now recognised the importance and necessity of integrating environmental planning into development planning. Consequently, the EIA process has become a predominant tool of such integration.

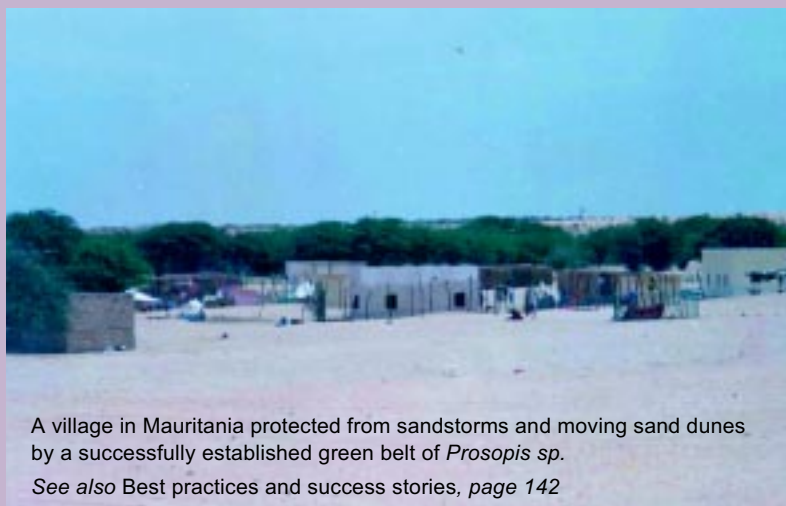
### 8. Establishment and strengthening of institutional arrangements

The effective implementation of environmental legislation depends on the existence of appropriate institutional arrangements for cross-sectoral coordination. In most developing countries the sectoral approach to environmental management has impeded or failed to facilitate the implementation of environmental management in an integrated manner. To increase the effectiveness of institutional mechanisms for resource management and to coordinate and harmonise environment policies and activities UNEP has supported the

#### Support for Mauritania's implementation of Agenda 21

With funding from the Government of the Federal Republic of Germany, UNEP provided assistance to the Government of Mauritania in key activities towards its implementation of Agenda 21. The project had four components:

- **Establishing an environmental database at the Directorate of Environment.** Computer equipment was provided to support the establishment of the environmental database system. The database was developed and staff were trained in its use. Regular national surveys were undertaken to gather the database's information. The information gathered relates to environmental activities undertaken by national entities such as government services, NGOs, women's and youth groups, and projects funded by bilateral and multilateral partners. The database is currently used to draft ad hoc reports for environmental management. The information generated by the database has been useful for the regular meetings of Mauritania's National Committee on Environment and Development.
- **Drafting a framework environmental law.** A framework environmental code was adopted by the national parliament in November 2000. Within this context, legal training was provided at UNEP to the legal advisor of the Directorate of Environment to acquaint him with issues relating to the implementation of the framework environmental code such as compliance and the drafting of environmental regulations. The government of Mauritania is preparing subsidiary environment texts on the basis of the framework environmental code.
- **Preparing an environmental policy framework.** The environmental policy framework is being used by the Government of Mauritania and other bilateral and multilateral partners as a reference for prioritising environmental activities.
- **Drafting environmental impact assessment guidelines.** The environmental impact assessment guidelines and legislative text were submitted by UNEP to the government of Mauritania in February 2002 for adoption by the country's parliament.



A village in Mauritania protected from sandstorms and moving sand dunes by a successfully established green belt of *Prosopis* sp.  
See also Best practices and success stories, page 142



creation of directorates of environment within sectoral ministries. The need for specialised skills has often led to the creation of full-time ministries of environment, or the establishment or strengthening of coordinating and advisory bodies such as inter-ministerial committees on the environment, environmental agencies and environmental councils.

### **9. Review of the status of implementation of international instruments**

UNEP, in collaboration with convention secretariats, assists developing countries to develop national laws to implement international environmental conventions. In doing so, UNEP tries also to build up the capacity of the country concerned to implement and enforce the environmental conventions.

### **10. Public participation throughout the technical assistance process**

Input from the widest possible sectors of the society to be affected by a new environmental policy or legislative instruments is essential to its successful implementation. Therefore, UNEP encourages and facilitates, through national seminars and exchanges of information, consensus building on policy frameworks and legislative instruments. NGOs, the private sector, academia, citizens groups and the general public are invited to participate.

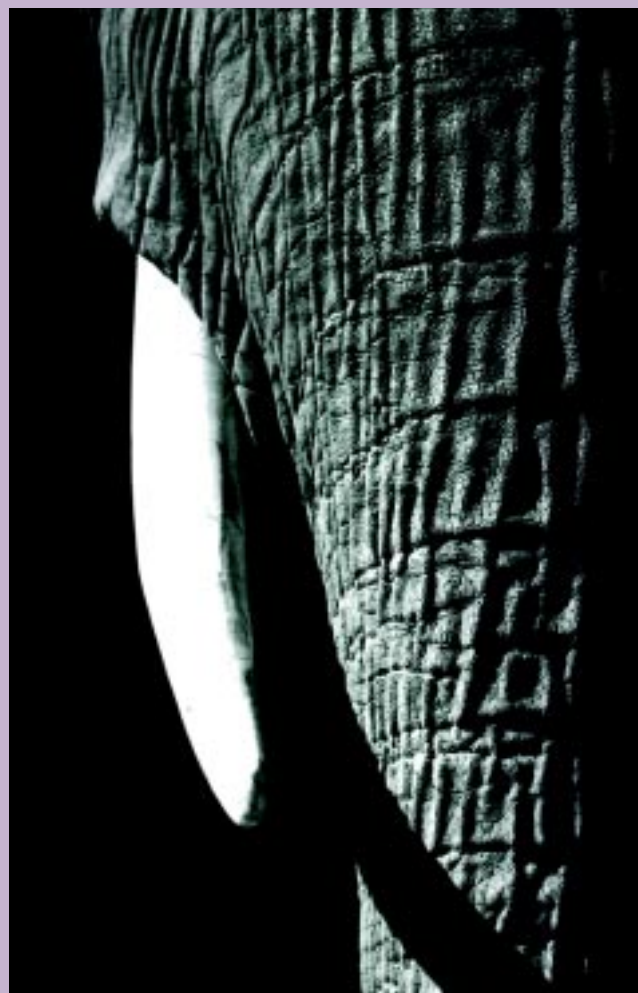
#### **The Lusaka Agreement**

The 1994 Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora is a regional agreement to combat the problem of illegal trade in wild species. The parties to the agreement are Tanzania, Uganda, Kenya, Zambia, Lesotho and the Republic of Congo. Ethiopia, Swaziland, and the Republic of South Africa are signatories.

UNEP has helped to enhance the technical capacities of national law enforcement officers to implement the Lusaka Agreement and support the activities of the agreement's task force. National law enforcement officers from wildlife, forestry, customs, and police departments have been given two weeks comprehensive training on cooperative enforcement mechanisms, which included theory, practical training in the field and simulation exercises. Fifteen participants from each country have participated in national level training courses. Approximately 105 personnel were trained between 1996 and 2000.

As a result of this training, law enforcement officers have formed a core group of technical experts in National Bureaux to facilitate the implementation of the Lusaka Agreement. They are also training other law enforcement officers to expand the base and the number of experts in each country. One trained field officer from each country has been seconded to the Lusaka Agreement Task Force headquartered in Kenya in accordance with the Lusaka Agreement. The training courses have ensured that both the National Bureaux and the Lusaka Agreement Task Force, launched in June 1999, have officers with the necessary expertise to exchange required information for enforcement.

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**Sustainable use  
and management  
of natural  
resources**

## The Global Programme of Action

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), a non-binding instrument, was established in 1995 to strengthen regional and national efforts to tackle perhaps the most important threat to regional seas, namely the flow of chemicals, human wastes and other materials into the sea via the air, rivers and coastal activities. It targets pollution from entire catchment areas, taking in sources such as coastal cities, agriculture, forestry, aquaculture and tourism. UNEP administers the GPA secretariat from The Hague, the Netherlands. The goals of the GPA can be largely realised through individual UNEP Regional Seas programmes, but the GPA itself can help promote greater support for activities and coordination at the global level.

The GPA has two broad functions. The first is to help nations understand their moral and legal obligations towards the marine environment. To do this, the GPA seeks to engender political commitment, raise community awareness and catalyse international debate. The second function—the main work of the GPA Coordination Office—is to enhance the administrative, technical and financial capacity of governments to prevent, reduce and control the pollution of the marine environment. This involves:

- Holding workshops.
- Developing guidelines.
- Preparing pilot or demonstration projects.
- Preparing donor proposals.
- Providing seed funding for national or regional action.

In short, capacity building is a central feature of the GPA programme of work.

Seen from space Earth is the 'blue planet'. It seems that water is plentiful. However, pictures can be deceiving.

Fresh water only accounts for 2.15 per cent of all the Earth's water. Even that percentage is deceiving because 99.5 per cent of surface fresh water is locked away in continental ice.

Fresh water is a scarce resource; its scarcity is often a limiting factor to development.

Fresh water management issues include fresh water augmentation, waste water and storm water, eutrophication of lakes and reservoirs, and sewage and public health problems.

### Capacity building and the UNEP water policy and strategy

UNEP is the designated United Nations agency responsible for water. In recent years UNEP has intensified its catalytic role in promoting the environmentally sustainable management and use of freshwater resources, with particular emphasis on transboundary watersheds. This role is consistent with the priority programme areas identified and adopted at the Earth Summit in 1992. To help countries implement Agenda 21 UNEP responds to requests for assistance in developing skills related to water resources management.

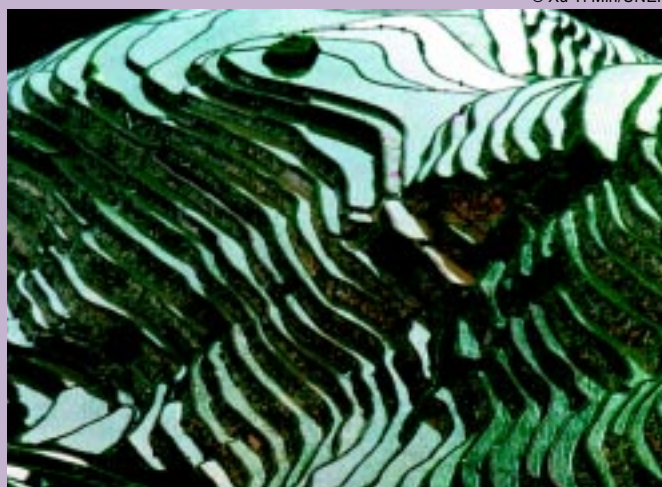
The guide for UNEP assistance is its Water Policy and Strategy, which sets priorities and a framework for action. It has three components—assessment, management and coordination. In many developing countries capacity building relating to all three components is necessary.

**Assessment:** Capacity building is needed for cost-effective, management-orientated rapid assessments. This includes capacity building in the identification of underlying causes, which is essential to sustainable management.

**Management:** Capacity building in integrated water resources management is an urgent need. Integrated water resources management is the appropriate approach to solving freshwater problems, encompassing environmental, economic and social considerations as well integrating land and water issues.

**Coordination:** This is a less obvious but very important area where capacity building is required. For example, a key problem in water management is the presence of fragmented decision making. Practical guidance on how to coordinate across sectors and between different management and policy institutions is urgently needed.

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The GPA is a non-binding global agreement. It is a comprehensive programme designed to be a source of conceptual and practical guidance. It is designed to help nations to take concrete actions individually or jointly to address the significant impacts on human health, poverty alleviation and food security caused by the continued degradation of the coastal and marine environment through land-based activities.

The GPA recognises that international and regional organisations and programmes, NGOs and other representatives of civil society are important to the implementation of the GPA at all levels. The Regional Seas programmes are an important mechanism for its development and implementation. Multi-stakeholder cooperation, institutional coordination and the mobilisation of sustainable financing, as well as enhancing capacities, appropriate technology transfer and the developing of enabling legislative and regulatory policies are considered fundamental for the sustainable implementation of the GPA.

At the first Intergovernmental Review Meeting on the Implementation of the GPA in 2001, governments expressed serious concern over the interrelationship between persistent conditions of poverty and the increasing degradation of coastal and marine environments all over the world. The meeting reviewed the activities and progress of the GPA and charted the path for the future. It provided guidance on how to move the GPA beyond the planning phase and on how to mainstream the GPA objectives into relevant programmes at national and international level during the 2003–2006 period. Financial and governance issues were cited as major impediments to the effective implementation of the GPA. Discussions also focused on municipal wastewater as one of the major sources of coastal pollution worldwide.

Progress in protecting marine and coastal environments from land-based pressures faces four major impediments:

- Lack of awareness of the socioeconomic importance of the impacts of land-based activities on the health and well being of coastal populations.
- Lack of political will to address environmental problems that require an integrated and long-term approach and to change from the 'business as usual' approach to a multi-stakeholder, proactive approach.
- Lack of funding to address land-based activities that have a negative impact on the marine environment.
- Compartmentalisation of issues: land-based activities that impact on coastal zones are usually not considered in integrated river-basin management, even though 80 per cent of all pollution in the sea originates on the land.

### Mainstreaming the GPA: implementation through the UNEP Regional Seas Programme

A major advantage of having the GPA secretariat within UNEP is its direct link to the UNEP Regional Seas Programme (page 56). Between 1996 and 1999 UNEP convened eight regional workshops within the framework of the Regional Seas Programme to:

- Discuss and finalise regional assessments on land-based activities, including prioritising national and regional sources of pollution.
- Discuss the development of the regional components of the GPA clearing-house mechanism (page 60).
- Reach agreement on non-binding regional programmes of action on land-based activities.

Ten regional assessments, emanating from these workshops of government-designated experts, have been published and widely distributed.

Regional programmes of action (as planning or implementation tools) have been developed with the support of the GPA Coordination Office, in the following regions: southeast Pacific; ROPME Sea areas; East Asian seas; eastern Africa; West and Central Africa; upper southwest Atlantic; South Pacific; Red Sea and the Gulf of Aden; and the South Asian seas.

UNEP also worked on the development, negotiation and adoption of protocols related to land-based sources of pollution in the wider Caribbean region, Northeast Pacific and the Mediterranean. Support has also been provided to the analysis and updating of the Land-based Activities Protocol for the Black Sea and to a new protocol for eastern Africa.

## The Global Programme of Action (*continued*)

The GPA Coordination Office supports public authorities to address these issues by facilitating new partnerships with the private sector and the international donor community; helping local and national authorities to mobilise financial resources; advising on appropriate tools and measures; and exploring alternative technologies, funding mechanisms and institutional arrangements. To accomplish these goals, the GPA Office has developed a three-step service approach:

- Setting standards and building consensus on innovative approaches, technologies and funding to address GPA-related problems.
- Bringing together partners, including private sector and international financing institutions, to share knowledge and experiences, and identify pilot/demonstration projects.
- Promoting the replication of innovative approaches—including infrastructure and financing mechanisms, alternative low-cost technologies and new forms of multi-stakeholder cooperation—through working together with partners in pilot projects within a regional framework to address priority problems.

### **Demonstrating alternative approaches to protecting the marine environment**

The GPA Coordinating Office promotes action that demonstrates that alternative approaches are possible. To this end guidelines targeted at various pollution sources (e.g. municipal waste water, nutrients from agricultural run-off and the side-effects of the destruction of habitats) are developed, and crosscutting tools constructed to help participants to apply alternative approaches. The tools relate to voluntary agreements, financial mechanisms and integrated coastal area and river basin management (ICARM).

#### **Voluntary agreements**

The GPA and UNEP DTIE are cooperating to prepare the ground for the implementation of voluntary agreements between key components of the private and public sectors in addressing land-based sources of pollution and degradation of the coastal zones. Close partnerships have been developed with the tourism sector and tour operators. Support has also been provided to the Blue Flag Campaign, which provides environmental information and education for the public, decision makers and the tourism industry, alongside an eco-labelling scheme that rewards high environmental, sanitary and safety standards at the beach and the marina. More recently, close contact has been established with industrial sectors, such as insurance, ports and harbours, and water. These actions have been supported by a review of existing experiences with voluntary initiatives in GPA-related fields to provide guidance to future developments of this module.

#### **Innovative financial arrangements**

Innovative ways to meet the financial shortfall to counter ongoing marine and coastal resources degradation have become critical to the effectiveness of the GPA. In July 2001 a joint World Bank/UNEP-GPA seminar concluded that conventional funding would not suffice to maintain and improve the life-support and production capacities of the marine environment. It is therefore essential to incorporate environmental considerations into the operations of government organisations, NGOs and private sector entities such as banks and lending organisations to change behaviour and perceptions. The seminar recommended that the GPA office help countries and regions to make better use of domestic resources and raise new and additional funding through tax reforms and multi-year planning. The seminar also recommended assessing the costs of inaction and the social and economic benefits of action, and stressed the need for water funds and tradable pollution permits. It also stressed that opportunities for effective partnerships are identified and strengthened, including concrete cooperation, alliances and networks with relevant financial institutions.

#### **Integrated coastal area and river basin management (ICARM)**

The GPA is cooperating in developing and maintaining an Integrated Coastal Management Global Web Service to make information accessible to a broader range of users. Within this module, the GPA office is working to develop and promote ICARM guidelines and pilot studies (*see also page 64*).

## The GEF and land-based sources of pollution



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The GPA [www.gpa.unep.org](http://www.gpa.unep.org) was established in 1995 to strengthen regional and national efforts to tackle the threat to regional seas posed by the flow of chemicals, human wastes and other materials into the sea via the air, rivers and coastal activities.

The GPA targets pollution from entire catchment areas, taking in sources such as coastal cities, agriculture, forestry, aquaculture and tourism. UNEP administers the GPA secretariat from The Hague, the Netherlands.

Most GEF International Waters projects contain components or activities designed to address issues of:

- Marine contamination and pollution.
- Sediment mobilisation and transfer.
- Domestic waste (including sewage) management.
- Integrated freshwater catchment and coastal zone management.

Examples include projects in Brazil in the Sao Francisco River Basin, and in Nicaragua and Costa Rica in the San Juan River basin (*page 68*). These projects focus on strengthening capacity for managing land-based activities in these basins and taking a more integrated approach to addressing coastal zone problems through actions in the catchment basins that drain into the marine environment.

Large-scale and more programmatic approaches are also being developed by the GEF in the La Plata Basin in South America, where the UNEP-implemented Bermejo project addresses the causes of soil erosion and sediment mobilisation in the Bermejo sub-catchment of the Plata system. The Plata Maritime Front project, implemented by UNDP, addresses the problems arising from enhanced sediment inputs and their contamination in the Plata Estuary. A more established programmatic approach is seen in activities in the Danube and Black Sea areas, where coordinated projects involving all three GEF implementing agencies are addressing problems resulting from nutrient inputs to the Black Sea from the Danube River Basin.

UNEP has developed, through its Regional Seas Programme, a targeted GEF project in the Mediterranean aimed at implementing the GPA. A regional strategic action programme has been developed and is under implementation in all countries of the basin. In parallel, support is being provided to eligible countries to develop national actions to implement the strategic action programme.

At the national level, UNEP, in partnership with the Advisory Committee on Protection of the Sea (ACOPS), assisted the government of the Russian Federation to develop a national plan of action to implement the GPA in the Arctic region. This major initiative provides guidance to other interested governments in the development of national action plans to translate the GPA into concrete actions.



## Capacity building on sewage management

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Domestic wastewater discharges are one of the major threats to sustainable coastal development worldwide. The effects of domestic wastewater discharges are usually local, but they are a major source of coastal and marine contamination in all regions and therefore a global issue. Pathogenic organisms in marine and estuarine waters contaminated by domestic wastewater cause massive transmissions of infectious diseases to bathers and consumers of raw and under-cooked shellfish with a global economic impact recently estimated at \$10 billion a year.

The GPA Coordination Office, in cooperation with the World Health Organisation (WHO), UN-HABITAT and the Water Supply and Sanitation Collaborative Council (WSSCC), has developed the GPA Strategic Action Plan on Municipal Wastewater. It promotes the conversion of global, regional, national and, eventually, local assessments into concrete and sustainable actions. To accomplish this, three main components are addressed:

- The normative component involves promoting global consensus on best practices and procedures to address municipal wastewater, thus setting the standard in the approach to municipal wastewater management.
- The demonstration component involves distributing up-to-date knowledge on best practices and procedures and promoting their replication.
- The capacity building component supports the efforts of municipalities and states to address the serious public health problems, economic losses and degradation of coastal ecosystems that result from the disposal in coastal areas of inadequately treated municipal wastewater.

Addressing sewage management adequately needs long-term commitment (twenty to thirty years), sustained action and continuing investment. Consequently, implementation of the pilot projects will need an appropriate time span to develop capacity and foster an enabling environment for sustainable action. The duration of the pilot projects under the Strategic Action Plan on Municipal Wastewater may therefore be up to four or five years. Since circumstances may change over a long period, regular reviews of issues by all parties will be required so that appropriate adjustments can be made to respond to the realities of changing situations.

The major outputs of the implementation of the strategic action plan so far include:

- Preparation of a set of case studies illustrating the environmental, social and economic benefits of addressing wastewater in coastal areas of East Asia, South Asia, eastern Africa and the southeast Pacific.
- Preparation of a global knowledge base reviewing existing knowledge on best practices in municipal wastewater management and strategy options for technical, political, institutional and public awareness and education, and external financing possibilities.
- Development of the UNEP/WHO/UN-HABITAT/WSSCC *Guidance on Municipal Wastewater*.

The GPA Coordination Office, in cooperation with a number of partners, also launched a new partnership at WSSD to build the capacity of governments to set and achieve wastewater emissions targets (WET).



Eighty per cent of all pollution in the sea originates on land.

Find out more about protecting the marine environment from land-based sources of pollution at [www.unep.gpa.org](http://www.unep.gpa.org).

## The GPA Strategic Action Plan on Municipal Wastewater

### The normative component: giving guidance

The normative component of the Strategic Action Plan comprises developing a globally accepted guide for local and national decision makers and professionals on appropriate and environmentally sound wastewater management systems. The three-part guide, which is backed up by a global knowledge base, covers key principles, annotated checklists on recommended practices and procedures, and regional annexes. The key principles highlight recommended approaches in wastewater management; the annotated checklists detail different approaches, infrastructures and tools available to practitioners and decision makers; and the regional annexes provide a sub-set of the annotated checklists, selected by the regions as being of particular relevance to their areas.

The global knowledge base details the information contained in the guide on municipal wastewater management. It comprises technical information and reviews of existing experiences, and is linked directly to the Sanitation Connection database [www.sanicon.net](http://www.sanicon.net) and other relevant sources of information. The global knowledge base, which will be regularly updated, is accessible through the GPA clearing-house mechanism (page 56).

### The demonstration component: exchange of experiences

The Strategic Action Plan on Municipal Wastewater aims to:

- Provide a platform for sharing experience of and expertise in appropriate and sustainable technical, administrative and financial approaches.
- Demonstrate that alternative and innovative approaches are being implemented.
- Promote the replication of best practices and lessons learned.
- Provide access to available regional expertise for use in ongoing and new projects.

Experience and expertise is exchanged through a series of regional meetings organised in collaboration with the UNEP Regional Seas Programme, UNEP regional offices and other partners. Other purposes of these regional meetings include reviewing the guide's key principles and checklists and drafting the regional annexes. The information and experiences gained are included in the evolving global knowledge base, through the regional nodes of the GPA clearing-house mechanism, to be used in the capacity building exercises in the regions.

### The capacity building component: pilot projects and training modules

A major component of the Strategic Action Plan on Municipal Wastewater is improving the capacity of local and national authorities to address wastewater management issues. It promotes the application of the sustainable practices advocated in the guide, and the replication of best practices and experiences from demonstration projects. It also includes, as appropriate, the identification, development and negotiation of contracts and partnerships with the private sector.

Pilot projects are used to put into practice an appropriate selection of the alternative approaches advocated in the guide, such as innovative investments in treatment facilities, new partnerships, and the use of alternative cost-effective technologies. Following the principle of learning by doing, the pilot projects support concrete action on municipal wastewater. By working in a regional framework the scope for replication is enhanced. Candidate pilot projects are identified at the regional and national level. In each region the Strategic Action Plan on Municipal Wastewater focuses on two or three pilot projects, either through supporting ongoing projects or developing new projects.

Training programmes strengthen the capacity building component. Specific training is provided within the context of the pilot projects. Besides this project-based training, generic training is provided on how to dispense guidance and promote wider adoption of best management practices in municipal wastewater. The pilot projects and the training courses are supported by the global knowledge base and the interactive GPA clearing-house mechanism. At the same time, the pilot projects and training courses feed into the clearing house.

## The GPA clearing-house mechanism

The GPA clearing-house mechanism (CHM) is a cornerstone in facilitating the exchange of experience and expertise relevant to effective scientific, technical and financial cooperation, capacity building and the implementation of the GPA. The GPA CHM is a referral system through which decision makers at the national and regional level can access current sources of information, practical experience, and scientific and technical expertise relevant to developing and implementing strategies to deal with the impacts of land-based activities on the marine environment. The aim of the CHM is to enable decision makers to establish rapid and direct contact with the organisations, institutions, firms and individuals most able to provide relevant advice and assistance. The GPA, therefore, foresees the CHM as a mechanism for responding to requests from governments on a timely basis.

The GPA CHM promotes the advertising, discovery, access, dissemination and use of information and data held by numerous organisations using the Internet. In its simplest definition, the clearing-house can be viewed as a 'network of networks'. It is based on the premise that the Internet provides the necessary capacity to link the disparate sites that comprise the CHM. This assumes, however, that all potential CHM users have access to the Internet, which is currently not the case.

While a typical web site will search the whole of the World Wide Web, which often results in considerable work by the user to filter and find the information that is required, the CHM provides structured queries and searches to member sites. The CHM also brings relevant information sources together in an organised and consistent manner through the use of standards, guidelines and a common suite of tools and functions.

The basic structure and considerable content of the GPA CHM has been established. However, it is clear that much remains to be done to make the CHM not only a special platform of international cooperation, but also a tool for capacity building to address the needs of countries in need of assistance. Although many governments and other stakeholders have expressed satisfaction with the GPA CHM, the overall pace of development and status of many clearing-house activities has been slower than desired.

The CHM underpins almost all activities in the implementation of the GPA. A proposed future direction for the CHM would have the following focus:

- A demand-driven approach.
- The full involvement of users.
- The development of regional and national nodes.
- The further development of source category nodes by lead partner organisations of the United Nations.
- Making connections with other clearing-houses and similar initiatives.

For users with poor or no Internet access it is planned to make critical components of the CHM available on CD-ROM for distribution, especially to users in developing countries. The CD-ROM created for the Global Marine Litter Information Gateway provides an excellent example of such a product. Additionally, e-mail and list servers are increasingly being used to reach out to large numbers of users while, wherever possible, hard-copy material will be produced and widely disseminated. In addition, it is proposed that the CHM will be used to track and mobilise financial resources and to increase the transparency of investments relating to the implementation of the GPA. Finally, the GPA Coordination Office plans to develop cooperative programmes to share environmental data through and with the Internet-based geographic information system UNEP.Net (pages 126–128). This will be done in close consultation with the Global Resources Information Database (GRID) offices that are engaged in the development of UNEP.Net.

Key characteristics of the GPA clearing-house mechanism:

- Fully decentralised.
- Provides access to information and data.
- Supports networking and decision making.
- Provides sophisticated search, query and retrieval methods.
- Promotes needs-driven development.

In 1996 the United Nations General Assembly designated UN agencies to take a leading role in developing data directories for the pollutant source categories identified in the GPA:

- WHO: Sewage
- UNEP: Persistent organic pollutants
- IAEA: Radioactive substances
- UNEP: Heavy metals
- IMO: Oils (hydrocarbons)
- FAO: Nutrients
- FAO: Sediment mobilisation
- IMO: Litter
- UNEP: Physical alterations to and destruction of habitats

All these pollutant source category nodes can be accessed through the central node of the GPA CHM at [www.gpa.unep.org](http://www.gpa.unep.org). This site also provides considerable information about the GPA, the GPA Coordination Office, GPA programmes and relevant events.

## The GPA: building national and regional capacity

The GPA Coordination Office provides assistance to national governments to:

- Develop and implement national action plans.
- Incorporate the objectives of the GPA into national development plans and sectoral policies.
- Harmonise effective management processes, such as integrated coastal area management, with river basin management and land use plans.

UNEP has developed draft guidelines for the development of national programmes of action. The draft guidelines were distributed at the first intergovernmental review of the GPA in Montreal, Canada, in November 2001, and finalised prior to the World Summit on Sustainable Development. UNEP is facilitating the development and implementation of national programmes of action on land-based activities in a number of countries, including Bangladesh, Brazil, Egypt, India, Maldives, Nepal, Nigeria, Pakistan, Sri Lanka, the Russian Federation, Tanzania and Yemen. Numerous other countries have requested support. National programmes of action have also been developed by Canada and Iceland. UNEP is currently working with the countries of the southeast Pacific to develop a project that will result in a set of five integrated national programmes of action to protect the marine environment of the southeast Pacific from land-based activities.

A GPA priority is highlighting best practices and developing and promoting pilot projects that have a clear demonstration value, high visibility, and which are viable and financially feasible. Many excellent examples of national action have been identified and are being made available through the GPA clearing-house mechanism (*page 56*). For example the Indonesian Coastal Community Development programme has shown some early signs of success, as has the Republic of Korea's training programme for NGOs and teachers. Jamaica's establishment of Wastewater Advisory and Monitoring Committees is also a good example of a successful public/government partnership.

In Indonesia, strong capacity for environmental impact management has been built. In order to control and eliminate pollution and marine degradation Indonesia established an environmental impact management agency—BAPEDAL—and adopted an integrated process for reviewing proposed businesses and development activities—Analisis Mengenai Dampak Lingkungan (AMDAL). BAPEDAL will ensure that all stakeholders working in the marine and coastal arenas perform in line with the principles of Environmental Management for Sustainable Development, based on clean environmental approaches. AMDAL will analyse all proposed activities in the coastal zone for their impact on the environment, including their ecological, social, economic and cultural components as a basis for decision making.

The ultimate goal of the AMDAL process is to minimise the negative impacts of development projects and activities in the coastal zone, in order to make them environmentally and socially acceptable. An interesting partnership is being established whereby university environmental study centres at the provincial level are being asked by

### East Asian seas

The capacity building initiatives implemented in the East Asian seas region by UNEP and the International Maritime Organisation (IMO) through the GEF-funded Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) have been particularly successful. One such initiative is the Malacca Straits project, which has provided a transparent and reliable mechanism to bring together scientists, geographers, engineers, economists and decision makers from the three littoral States of the Malacca Straits in partnership on the issues, priorities and required actions to manage and protect that sub-regional sea area.

The initiative was also successful in putting together a multidisciplinary, multi-sectoral team of stakeholders from the states. They are now well equipped to proceed with the further development and implementation of the action plans for the Straits. Other capacity building projects within this same PEMSEA framework include demonstration sites for developing, testing and implementing integrated coastal management and several other projects that provide the authorities in the area with sustainable mechanisms for preventing and managing marine pollution off their coasts.



## **GPA: building national and regional capacity (*cont'd*)**

the public to study and provide environmental data and information, analyses and project assessments. This is particularly innovative and of importance in the case of projects with a community-based perspective, and should ensure the future support of the community. Training courses relevant to the AMDAL process, and to marine sciences in general, are also being organised by the university environmental study centres for all interested stakeholders and coastal communities.

In Mauritius, the creation of an Integrated Coastal Zone Management (ICZM) Division within the Ministry of Environment is an important step towards furthering the goals and objectives of the GPA, and in building relevant capacity at the national level. The ICZM Division, established in 2000, coordinates the country's activities with all stakeholders involved in the management of the coastal zone. The strategic goal is to maximise the long-term economic and social benefits obtained from the coastal zone by:

- Preparing guidelines for development permits within the coastal zone.
- Undertaking geomorphologic surveys to determine causes of erosion.
- Identifying other sources of pollution.
- Carrying out surveys of coastal resources.
- Developing an ICZM plan.
- Working with authorities to develop and implement detailed plans for tourist areas.

Several indicators have been set up for evaluating the effectiveness of the initiative:

- Whether national policy recognises the importance of the coastal zone.
- Whether the responsibilities and targets of staff are assigned and monitored.
- Whether the number of trained staff with assigned responsibilities has increased.
- Monitoring the quality and quantity of data collected on lagoon water quality and coral reef quality available to the government agencies and the public.
- Monitoring the number of wetlands and other sensitive coastal areas that have been protected against the negative impacts of development.

UNEP/GPA has developed an easy-to-use handbook on developing and implementing national action plans for the protection of the marine environment from land-based activities. This is available at [www.gpa.unep.org/documents](http://www.gpa.unep.org/documents).

### **Mediterranean**

Capacity building initiatives within the framework of the strategic action programme of the Mediterranean Action Plan (MAP) include a series of regional 'training of trainers' activities, providing technical information and advice on the environmentally sound operation of sewage treatment facilities. Modern training techniques are deployed and trainees receive a training package at the end of each session. The experience gained from Mediterranean countries will then be used in a second regional training course for practitioners from Mediterranean countries. Furthermore, a number of national training courses for operators of sewage treatment plants are planned. These national training courses will be carried out by staff trained during the regional courses.

Similar activities using the same 'training of trainers' approach are planned for introducing best practices and clean production techniques for priority target industries in the region. In cooperation with the Clean Production Regional Activity Centre, based in Barcelona, Spain, the Mediterranean Action Plan is currently assisting businesses to apply cleaner production, giving priority to pollution prevention at source and the minimisation of waste flows. Substantial progress has also been made to produce an inventory of sources of pollution into the Mediterranean from rivers, cities over a certain size and over 100 other designated pollution hot-spots.

The Mediterranean Action Plan is also building regional capacity on compliance with and enforcement of legislation for the control of land-based pollution. The initiative is being undertaken in cooperation with the World Health Organisation and the International Network for Environmental Compliance and Enforcement, and is aimed at establishing an informal regional network for promoting exchange of information on regional environmental protection and networks of professionals involved in compliance issues.



## The Russian Arctic

UNEP, in cooperation with the Russian Federation and the Advisory Committee on Protection of the Sea (ACOPS), is mobilising an effective partnership with scientific and public organisations to undertake activities and investments in environmental protection in the Arctic region. One interesting output is the *Manual on the Preparation of Pre-investment Studies and Analysis of Existing Practice on Conducting Pre-investment Studies in the Russian Federation*. The manual provides guidance for business plans in development.

An increasing number of organisations have a strong interest in the Arctic Region and considerable capacity to undertake important environmental work there. An example is the Arctic Council. The Council coordinates the environmental protection activities of all Arctic countries, particularly for the implementation of the Arctic Environmental Strategy, adopted and signed by the environment ministers of the Arctic countries in Rovaniemi, Finland in 1991. Among the activities that the Russian Federation pursues with the Arctic Council are five international programmes, which are now under way to implement the Strategy. Under these programmes, specific activities are being conducted in the Russian Arctic. The five programmes covered by this partnership are:

- Programme for the Conservation of Arctic Flora and Fauna.
- Arctic Monitoring and Assessment Programme.
- Protection of the Arctic Marine Environment.
- Emergency Prevention, Preparedness and Response.
- Sustainable Development Programme.

The results of these activities will have considerable influence on environmental management decision making at various levels. Under the last programme (SDP), activities are under way in the Russian Arctic to ensure compliance with a total of twenty-four international conventions to which the Russian Federation is party.



Lena Delta, Sakha Republic (Yakutia), Russia.  
Enhanced satellite image taken from Landsat 7, July 2000.

## West and Central Africa

In the West and Central Africa region, the work undertaken under the Gulf of Guinea Large Marine Ecosystem Project has contributed considerably to building the capacities of the participating countries in areas directly related to the GPA, particularly with respect to waste minimisation and waste management. For example, marine debris and solid waste monitoring activities on Cameroon beaches have increased the monitoring capacities of the country and yielded information on the types and quantities of waste generated by major activities such as tourism and fisheries.

## The UNEP Regional Seas Programme

The UNEP Regional Seas Programme started from the premise that the environmental problems facing different ocean and coastal areas could be best tackled at the regional rather than global level. The programme began in 1974 when UNEP brought together a task force of scientists and officials to shape an action plan for the Mediterranean which was adopted in its final form at Barcelona in February 1975. Today, there are seventeen Regional Seas and partner programmes, and thirteen regional action plans have been established under UNEP auspices. A plan for the Southwest Atlantic is in development, and there are three similar independent agreements among developed countries in the Baltic, Arctic and Northeast Atlantic. Altogether, more than 140 countries participate in at least one regional action plan.

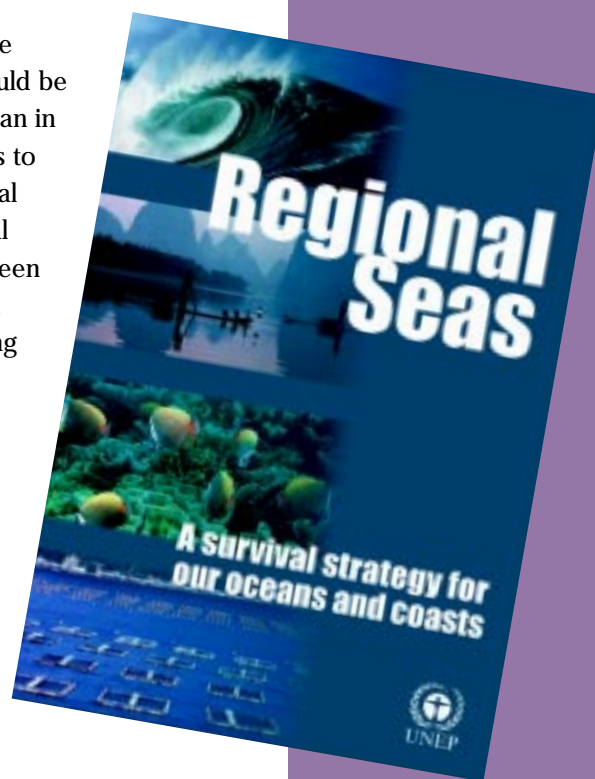
Of the seventeen Regional Seas and partner programmes, eleven are underpinned by legally binding agreements. These regional agreements have been extraordinarily effective in engaging governments in protecting the environment. Unlike the global environmental conventions, these regional conventions, protocols and action plans are comprehensive, covering issues ranging from chemical wastes and coastal development to the conservation of marine animals and ecosystems. Their limited geographic focus enables them to channel the energies of a wide range of interest groups into solving interlinked problems.

### How action plans work

Action plans are adopted by member governments to establish a comprehensive strategy and framework for protecting the natural environment and promoting sustainable development. In eleven of the seventeen regional programmes, the Parties have also adopted a legally-binding convention setting out what governments must do to implement the action plan. Most conventions have added protocols, which are separate but linked legal agreements addressing specific issues, such as protected areas or land-based pollution, in more detail.

An action plan outlines the strategy and substance of the programme based on the region's particular environmental challenges and its socioeconomic and political situation. It is usually made up of the following parts:

- **Environmental assessment.** Monitoring and assessment activities provide a scientific basis for setting regional priorities and policies. Regional institutions and experts participate in a programme to determine the causes of environmental problems and their magnitude and impact on the region. This may include scientific baseline studies, research and monitoring of the sources, levels and effects of marine pollutants, ecosystem studies and studies of coastal and marine activities. Assessments are also made of the social and economic factors that relate to environmental degradation and the status and effectiveness of national environmental legislation.
- **Environmental management.** Each regional programme includes a wide range of environmental management activities such as cooperative projects on training in environmental impact assessment; management of coastal lagoons, estuaries and mangrove ecosystems; control of industrial, agricultural and domestic wastes; formulation of contingency plans for dealing with pollution emergencies, etc.
- **Environmental legislation.** An umbrella convention most often provides the legal framework for an action plan. It also expresses the political will and legal commitment of



The thirteen regional action plans under the Regional Seas Programme cover:

- The Black Sea.
- The Caribbean.
- East Africa.
- East Asia.
- The ROPME Sea Area (Kuwait region).
- The Mediterranean.
- Northeast Pacific.
- Northwest Pacific.
- Red Sea and Gulf of Aden.
- South Asia.
- Southeast Pacific.
- South Pacific.
- West and Central Africa.

More information on the UNEP Regional Seas Programme is available at: [www.unep.ch/seas](http://www.unep.ch/seas)

the governments to tackle their common environmental problems, acting both together and individually. Conventions are put into practice on the ground through protocols dealing with specific problems—oil spills, response to emergencies, land-based pollution, and conservation of wildlife and habitats, etc. In some regions the convention has emerged as the centrepiece of the programme.

- **Institutional arrangements.** Governments agree upon an organisation to act as the permanent or interim secretariat of the action plan, usually called the Regional Coordinating Unit (RCU). Governments also decide how often to hold intergovernmental meetings to review progress, approve new activities and discuss the budget.
- **Financial arrangements.** UNEP, together with selected United Nations and other organisations, provides seed money or catalytic financing in the early stages of the regional programmes. Ultimately, the governments of the region are expected to assume financial responsibility. Government financing may be channelled through regional trust funds administered by the organisation responsible for secretariat functions of the action plan (often initially UNEP, later the RCU or a new independent regional organisation).

### Future directions

Throughout the quarter-century of the Regional Seas Programme, the results and experience of the early action plans helped to fine-tune the approach described above. Fresh and innovative ideas were used to adapt the basic action plan model to particular regional contexts. The programme grew in scope and imagination as well as in size.

Today, a new framework for international action is emerging, and is reflected in all the regional seas. It encompasses rather than replaces the former programme elements of science, management and law. Its main components are:

- **Biodiversity conservation activities** to protect marine species and habitats within the expanding sphere of influence of the Convention on Biological Diversity and its partner conventions.
- **Land-based activities** to tackle the main sources of environmental degradation at their source, within the framework of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA).
- **Integrated coastal management** to pursue sustainable development of the coastal zone and the utilisation of marine resources according to principles developed by regional programmes, and now brought together by UNEP as Guidelines for Integrated Coastal Area and River Basin Management (ICARM).

### A time for revitalisation

Over the next few years, UNEP and the Regional Seas secretariats will work together to energise all of the regional programmes through a five-part strategy that aims to:

- Strengthen the UNEP contribution to Regional Seas programmes.
- Promote horizontal ties among Regional Seas action plans.
- Carry out the Global International Waters Assessment (GIWA).
- Collaborate with the Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-based Activities.
- Exploit synergies with global conventions and agreements.

Today, with added UNEP support, the revitalised Regional Seas Programme offers a regional mechanism that is already in place and ready to address the global environmental challenges of the twenty-first century. The Regional Seas Programme also offers a technical, scientific, legal and institutional framework for international cooperation.

The priority issues being addressed by the Regional Seas agreements include:

- Ecosystems and biodiversity.
- Living resources.
- Land-based sources of pollution.
- Shipping and sea-based pollution.
- Coastal development.
- Vulnerability of small islands.
- Marine mammals.



## Protecting coral reefs

The International Coral Reef Action Network (ICRAN) is a strategic alliance between UNEP and many leading coral reef science and conservation organisations, working to halt and reverse the decline in the health of coral reefs worldwide. Supported by the United Nations Foundation (UNF), ICRAN consists of a set of interlinked and complementary local, national and global activities which will facilitate the proliferation of good practices for coral reef management and conservation. The project is implementing field activities through the UNEP Regional Seas Programme at selected demonstration and target sites, recognising both traditional and scientific perspectives of coral reef dynamics as well as respective social dependency. These activities are complemented and supported by global-level action and coordination.

The project consists of a one-year start-up phase and a four-year action phase from 2001 to 2005. Under the project, capacity building activities have taken place in the Caribbean and Eastern African regions on the management of marine protected areas and coastal resources, with a particular emphasis on coral reefs

In the wider Caribbean region ICRAN has provided sustainable training for marine protected areas staff. Two regional 'train the trainers' courses have been held, one in English and one in Spanish, training twenty-five people in the Caribbean region in management and training skills. The courses covered include:

- Marine protected areas management and planning issues.
- Preparation of marine protected areas management and financial plans.
- Training in resource monitoring and research.
- Public education and outreach.
- Training and communication skills.

In courses at the national level, over 250 people from 11 different countries have been trained. Additional annual or biannual courses have been requested.

For the ICRAN Strategic Plan and other ICRAN outputs visit the ICRAN web site [www.icran.org](http://www.icran.org).

Also of interest is the UNEP Coral Reef Unit web site [www.unep.ch/coral/icran.htm](http://www.unep.ch/coral/icran.htm) and its online *bREEFings* newsletter [www.unep.ch/coral/breefing.htm](http://www.unep.ch/coral/breefing.htm).

Another useful site is the International Coral Reef Initiative (ICRI) web site [www.icriforum.org](http://www.icriforum.org)

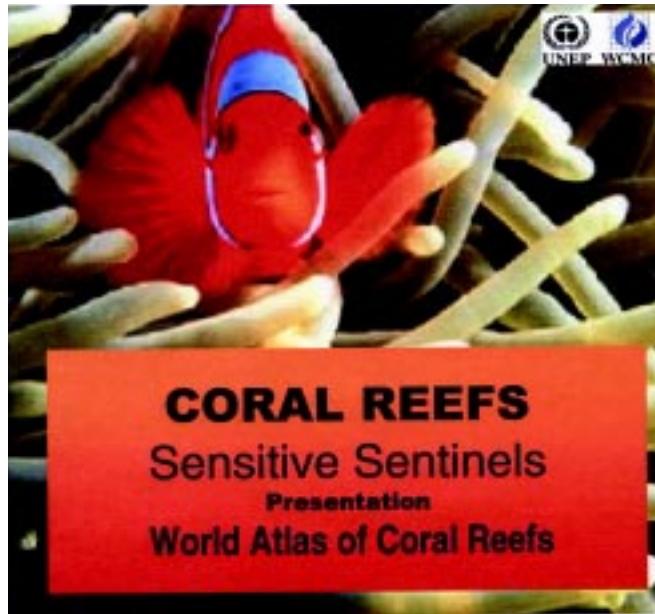
### It's my choice: coral or no coral

UNEP has prepared five communication tools to educate tourists about the importance of protecting coral reefs during their holidays. The tools are available free of charge on CD ROM and can be used to print attractive and informative materials. They are intended primarily for tourists but can also be used for tourism industry employees and local residents. They include a 'passport' with coral information, a quiz for young people, a poster, a boaters' chart, and a calendar, targeting hotel managers, highlighting twelve areas of action for protecting coral reefs.

The package the message that each of us can contribute to the protection of coral reefs during our holidays and that any action counts. The tools can be distributed with travel documents or in in-flight magazines, hotel lobbies and rooms, or at travel agencies, airport lounges, visitor information centres, reception areas, and recreation centres. They are available in five languages and can be printed in one or more languages as needed. The five coral communication tools are available in Quark Xpress. Recommendations and guidelines for printing are also available. A simple agreement with UNEP must be signed stating that in the printing phase nothing—text, layout or pictures—will be changed. To receive a free CD-ROM with all the files in Quark Xpress contact the Tourism Programme coordinator at UNEP DTIE (page 162).



A training manual on the management of marine protected areas has been developed and is available in both English and Spanish, including a CD-ROM in both languages. The comprehensive training manual for marine protected areas management includes theory, methodology, practical exercises and reference materials. The manual has been used to assist participating countries, which are dependent on their coastal and marine resources to attract tourism, including diving, to manage their resources in a



sustainable manner through the marine protected areas and through co-management arrangements and participatory planning. ICRAN demonstration sites have been instrumental in encouraging sustainable management techniques and methodologies. This training manual is now in use as a guideline for marine protected areas management training at the local level throughout the region.

In eastern Africa, the ICRAN project has conducted an analysis of successful approaches to integrated coastal management and current management practices of marine protected areas. The analysis included capacity building. A series of workshops with selected stakeholders of key marine protected areas were convened. The workshops clarified the role of marine protected areas and their managers and stakeholders. Emphasis was placed on participation in establishing and managing marine protected areas. The workshops also served to identify current issues on the ground and possible solutions through a participatory process.

The *World Atlas of Coral Reefs* provides the first detailed and definitive account of the current state of our planet's coral reefs.

With its wealth of authoritative and up-to-date information, the finest maps available, and detailed descriptive texts and images by leading experts, this full-colour volume is a critical resource for anyone interested in these vital environments.

The Atlas is also available in Spanish. For more information, visit the UNEP-WCMC web site [www.unep-wcmc.org](http://www.unep-wcmc.org)

### **The International Coral Reef Initiative and the International Coral Reef Action Network**

Since 1994 governments, NGOs, academic institutions and the private sector have been working together through an informal global partnership called the International Coral Reef Initiative (ICRI) [www.icriforum.org](http://www.icriforum.org). The first International Coral Reef Initiative Workshop was held in the Philippines in June 1995. Its aim was to enable countries, donors, and development and funding agencies to work with the coral reef management and conservation community to develop a framework for achieving sustainable management of coral reefs and related ecosystems. ICRI recognised the need for coordinated research and management efforts across all relevant institutions to carry out its urgent recommendations to save the world's reefs. Therefore, in 1999 ICRI established the International Coral Reef Action Network (ICRAN) to halt and reverse the decline in the health of the world's coral reefs.

ICRAN is an initiative of several organisations active in coral reef conservation and sustainable use. The current ICRAN partners are: The UNEP Coral Reef Unit; the World Fish Center (ICLARM); the World Resources Institute (WRI); the Coral Reef Alliance (CORAL); the Global Coral Reef Monitoring Network (GCRMN); the UNEP-World Conservation Monitoring Centre (UNEP-WCMC); the International Coral Reef Initiative-Coordinating Planning Committee (ICRI-CPC); the South Pacific Regional Environment Program (SPREP); the United Nations Foundation (UNF); and the World Wide Fund for Nature (WWF).



## Integrated coastal area and river basin management

In 1986 UNEP launched a freshwater programme, known as the Environmentally Sound Management of Inland Waters (EMINWA) to promote integrated river basin management. EMINWA was designed to help governments integrate environmental considerations into the management and development of inland water resources, and to reconcile the conflicting interests of natural resources exploitation, social development and environmental protection.

EMINWA also recognised the need to integrate the management of river basins and coastal areas, not only on the basis of their hydrological and geochemical relationship, but recognising the need for more effective socioeconomic development of the two management units which had traditionally been managed separately. This also coincided with the needs of the UNEP Regional Seas Programme, since coastal management has to address land-based activities in the river basins that connect to coastal areas. Subsequently, based on the hydrological and geochemical relationship between coastal areas and river basins, and from the perspective of sustainable economic development, the concept of Integrated Coastal Area and River Basin Management (ICARM) was formulated.

UNEP and the Priority Actions Programme Activity Centre of the Mediterranean Action Plan have jointly prepared Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River Basin Management. These guidelines include a proposed conceptual planning process for ICARM, and promote, among other things, the use of strategic economic and environmental impact assessments and the participation of different levels of stakeholders in the ICARM process. UNEP has been applying or is planning to apply this ICARM approach to several demonstration sites in Latin America, the Balkans region of Europe, West Africa, southern Africa and Southeast Asia.

UNEP promotes the integrated management of coastal areas and river basins by helping governments to develop sound management programmes, by supporting training and preparing training materials, and by supporting assessments.

### Integrated waste management in small island developing states

UNEP attaches particular importance to the environmental problems and capacity building needs of small island developing states (SIDS). Like other developing countries, SIDS have problems with the management of waste. However, SIDS experience additional constraints arising from their small land area, a high dependence on imports and high population densities exacerbated by high tourist inflows. Because of their limited access to appropriate technologies, SIDS often import unsuitable waste management technologies from larger and more developed countries. In other cases SIDS have successfully developed appropriate technologies, but the information has not been shared with other SIDS in the same or other regions.

In order to improve the access of SIDS to appropriate technology, two regional directories have been compiled: The *Directory of Environmentally Sound Technologies for the Integrated Management of Solid, Liquid, and Hazardous Waste for Small Island Developing States (SIDS) in the Indian, Mediterranean and Atlantic Region*, and the *Directory of Environmentally Sound Technologies for the Integrated Management of Solid, Liquid, and Hazardous Waste for Small Island Developing States (SIDS) in the Pacific Region*. The directories were subjected to peer review at a global level by experts from regional SIDS institutions, the United Nations and other international agencies at the UNEP Meeting of Experts on Waste Management in Small Island Developing States, held in London in November 1999. The experts found the technologies to be appropriate to SIDS and recommended that each SIDS region further review and adapt the technologies according to their conditions.

The directories are among a number of resources that have been developed to improve the capacity of SIDS for the integrated management of wastes. Others include: *Strategic Guidelines for Integrated Waste Management in Small Island Developing States*; *Waste Management in Small Island Developing States in the Pacific*; and the *Source Book for Augmenting Freshwater Resources in Small Island Developing States*.

The UNEP Islands web site [www.unep.ch/islands.html](http://www.unep.ch/islands.html), assembled by the UNEP system-wide Earthwatch Coordination Unit, provides access to documents relevant to islands, educational materials, and a directory listing some two thousand islands with geographic, environmental and socioeconomic characteristics.

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ICARM takes a system approach, defining a system as including both natural and human elements and their interactions. The ICARM system boundary includes river basins, coastal areas and near-shore marine waters. The basic principles of ICARM are:

- Respect the integrity of the river basin or coastal ecosystems and accept limits on the use of resources.
- Recognise the strategic importance of renewable resources for socioeconomic development.
- Allow for the multiple use of resources, integrating complementary activities and regulating conflicting ones.
- Ensure multi-sectoral and multi-level integration in decision making, linking broad scale management to local level interventions.
- Allow for participation of all actors, particularly local populations, in the planning process to assure effective management.

Following these principles, ICARM promotes these planning processes:

- Initiation.
- Analysis of the existing situation.
- Identification of conflict and opportunities.
- Identification of goals and alternative course of action.
- Development of a strategy.
- Implementation.
- Monitoring and evaluation.

At each stage of the process ICARM also urges users to apply management tools such as data management, decision support systems, carrying capacity analysis, economic instruments, environmental impact assessment, strategic environmental assessment and risk analysis.

### **River basin and coastal area management capacity gaps**

Although technical knowledge and, to lesser extent, technologies exist for traditional water resources and coastal area management in general, stakeholders are yet to accumulate knowledge on an integrated approach to managing fresh, saline and coastal waters. Integrated management of water resources requires interdisciplinary and inter-sectoral coordination. Under governmental and economic structures in many countries such an integration of sectors to achieve scientific water management goals is not easily achieved without providing convincing evidence that all the involved sectors will benefit from such an integrated approach. In order to enhance knowledge and understanding of the integrated approach to water management in river basins and coastal areas, UNEP has taken the following approaches:

- Assisting governments to develop, approve and implement environmentally sound management programmes for water systems, and to use this approach for demonstration purposes elsewhere.
- Training experts and establishing training networks in developing countries to implement environmentally sound water management programmes.
- Preparing a manual of principles and guidelines for integrated water system management.
- Making regular worldwide assessments of the state of the environment for water systems.
- Informing the mass media about the achievements and activities of the programme and increasing public awareness of integrated management approaches.

Particular emphasis is placed on the demonstration of integrated approaches and the benefits that can be obtained.

UNEP emphasises the importance of demonstrating the benefits of integrated approaches to managing coastal areas and river basins. Examples of demonstration activities appear on pages 66–68.

## Integrated water resources management: Nairobi River

Rapid population growth, urbanisation and industrialisation have put enormous pressure on the rivers of Nairobi. Untreated industrial effluents, raw sewage and waste (liquid and solid) from human settlements situated along the rivers are causing health hazards, accelerated eutrophication and stress on the aquatic ecosystem. The Nairobi River Basin Project, which is funded by UNEP with in-kind contributions from the Africa Water Network, is assessing the status and impact of pollution in the Nairobi river basin and conducting community outreach and education programmes among the various stakeholders in the river basin.

At the source of the Nairobi river, about twenty kilometres from the city, the water is clean and free of pollution. Farmers use the water to irrigate the land and plant vegetables and other crops. They also use the water for drinking and watering their animals. Pollution begins as the river enters the city. Discharges of mostly untreated or poorly treated municipal wastewater have turned the river into an open sewer. Industries within Nairobi with poor or nonexistent waste treatment discharge their waste water into the existing municipal sewerage system and/or directly into the river.

Within the human settlements, which are mainly informal slums, inadequate access to environmental sanitation services coupled with little or no environmental awareness contribute significantly to the pollution of the river basin. Lack of sanitary means of excreta disposal, haphazard disposal of refuse and poor drainage and waste water disposal means that wastes end up in the river, causing serious health and environmental problems. Cholera and other water and sanitation related diseases such as typhoid, amoebiasis and diarrhoea are prevalent.

The government of Kenya, realising the magnitude of the problem facing it due to uncontrolled and expanding settlements along the rivers, the unabated dumping of unwanted substances into the rivers, and the weakness in law enforcement, has embarked on various strategies to create awareness on environmental degradation of the river basin. It has created a specific ministry to address environmental issues. At policy level, Kenya has enacted sectoral legislation including the adoption of an Environmental Management and Coordination Act 1999, drafted with UNEP support.

The UNEP Nairobi Initiative, started in April 1999, aims to address issues such as pollution, waste management, urban greening, community participation, public awareness and legislation. This initiative has evolved into the Nairobi River Basin Project, focusing on the above elements as they relate to the main rivers of the Nairobi river basin.

The project is divided into three phases, the first of which ended in December 2000. During this phase, an assessment of pollution was carried out, and community outreach was developed to enable capacity building among stakeholders. Sustainable management of the river basin was addressed through developing an environmental management information system, education programmes and promoting awareness of available legal mechanisms. A socioeconomic and environmental information database was established as a data and information hub for all the stakeholders in the project. It is an automated, interactive and structured information system that is easily manipulated and accessed for information extraction or knowledge generation. The main objective of the database was to avail and store data for any interested individual or groups of individuals on the situation of the Nairobi river basin.

A mapping exercise was conducted to provide information on the status and distribution of pollution in the Nairobi rivers. The maps were also to provide users with baseline data to support effective policy and management decisions. The other objective of the study was to

use geographic information systems (GIS) to study the relationships between pollution, land use, drainage patterns and socioeconomic parameters. The final output was maps with variable themes for use in planning, decision making and management of the river basin. Pollution levels were analysed and assessed at twenty-four sampling points throughout the river basin to evaluate current quality and assess pollutant sources, pathways and concentrations in the Nairobi rivers.

A review and analysis of policy and legislation demonstrated inadequacies which needed to be addressed. Legislation was scattered over a wide range of statutes and there was lack of capacity for enforcement, lack of comprehensiveness, low penalties, poor incentives and vaguely defined institutional responsibilities.

A stakeholders meeting was held to create awareness among stakeholders on the nature and extent of pollution in the Nairobi river basin; to get their commitment to participate in the project; and to prepare realistic action plans aimed at reversing the pollution trend in the basin. Participants included representatives of several NGOs, the private sector, industrialists, the media, government departments, educational institutions, The Nairobi City Council, UNEP and UN-HABITAT.

Subsequently an education workshop was held in March 2000 and two guidelines produced. These guides provide ideas for learning programmes which are action oriented and problem solving, and will offer a framework within which subsequent learners' guides can be developed. They are designed to transform schools and community groups within the basin into communities committed to mobilising resources to save the Nairobi rivers. They suggest ways in which schools and community groups can promote the development of positive environmental attitudes and a sense of personal responsibility for the environment.

Impacts of the first phase of the project include:

- Improved water and environmental quality of the Nairobi river basin.
- Enhanced stakeholder understanding of the causal relationship between the environmental, industrial and socioeconomic factors involved in the pollution of the Nairobi river basin.
- Enhanced access to information and methodologies to address environmental, industrial and socioeconomic factors related to river pollution in Nairobi.
- Strengthened capacity of stakeholders to address the issues contributing to river pollution.

The Phase I pollution-assessment data demonstrated the alarming levels of pollution in the Nairobi river basin, and their implications for the health and well-being of the residents of Nairobi and communities downstream. Phase II of the project comprises the Nairobi Dam Initiative, which focuses on a section of the river basin. Six project components will demonstrate the value of proper sanitation and waste management practices and the utility of wetlands systems in improving the quality of water systems, and promote community involvement in safeguarding and monitoring the river basin as a vital resource. They include:

- A pilot community project.
- Two constructed wetlands.
- A pollution monitoring network.
- The construction of a water hyacinth purification pond.
- The establishment of a workshop for water hyacinth products.

Each of the above elements includes a vigorous public awareness, education and information programme.

The third and final phase of the Nairobi River Basin Project is scheduled to begin in 2003. Replicating successful strategies identified through the demonstration and pilot projects of Phase II on a larger scale, this phase will cover the entire river basin area and, it is hoped, inspire similar projects throughout Africa and the world.

More information is available from the UNEP Regional Office for Africa [www.unep.org/roa](http://www.unep.org/roa).



## Integrated water resources management: Latin America

Following on from the successful development of a strategic action programme for the Binational Basin of the Bermejo River, which spans Argentinian and Bolivian territory, the Global Environment Facility (GEF) and the Organisation of American States (OAS) joined forces to promote its implementation. This project will implement activities that the strategic action programme's transboundary diagnostic analysis identified for addressing the root causes of soil degradation. It will provide an institutional, legal and informational basis for restoring the environmental functioning of the system, and protecting endemic species in the component ecosystems. To complement basin-scale interventions by the Binational Commission and governments, key project elements will strengthen Basin institutions, build organisational capacity, integrate environmental concerns into economic development and promote public participation.

The strategic action programme is a framework for sustainable river basin management that ensures a sustained and multipurpose use of the basin resources. The development process and methodology of the strategic action programme for the Bermejo Basin provided a holistic assessment of the situation, including the identification of conflicts and priorities, and defined a framework for organising policy-focused research and public participation within the basin.

The process of developing the strategic action programme had a number of benefits, which will contribute to its effective implementation:

- It helped promote confidence building measures between Argentina and Bolivia, resulting in shared perspectives and compatible information formats.
- The participatory approach used in the project's conception and implementation brought together various stakeholders in Bolivia and Argentina, including federal government organisations, provincial and government departments, universities and academic institutions, NGOs of diverse origins and interests, and international organisations.
- Workshops promoted participation and created publicity as well as testing strategies and proposals. The workshops also revealed possible objections to proposed projects and decisions and generated ample feedback relating to the needs, viewpoints, knowledge, ideals and fears of the basin communities. This feedback helped the transboundary diagnostic analysis and the strategic action programme to improve their perspectives and to refine their tasks and goals. In many cases, initial orientations and conceptions on many issues were modified through public participation and the pilot demonstration projects.

### Other pilot projects demonstrating integrated management of river basins in Latin America

#### Integrated management of land-based activities in the Sao Francisco Basin, Brazil

This project aims to develop a strategic, integrated and sustainable programme for the management of the Rio Sao Francisco Basin and its coastal zone that will address the physical, biological, chemical and institutional causes of their progressive degradation and catalyse the incorporation of land-based environmental concerns into development policies, plans and programmes.

#### Formulation of a strategic action programme for the integrated management of the San Juan River Basin and its coastal zone, Costa Rica, Nicaragua

The project addresses the major transboundary environmental problems identified by transboundary diagnostic analysis. It will involve formulation of a strategic action programme and extensive demonstration activities aimed at conserving natural ecosystems, promoting social and economic development and satisfying present and future water demands. Formulation of the strategic action programme will involve strengthening a basin-wide information system, creating a bilateral planning process, implementing a public participation process and promoting environmental education and institutional strengthening.

#### Implementation of integrated watershed management practices for the Pantanal and Upper Paraguay River Basin, Brazil

This project catalyses the implementation of a watershed management programme for the Pantanal and Upper Paraguay River Basin. Project activities will enhance and restore the environmental functioning of the system, protect endemic species within the wetland, and implement strategic activities addressing the root causes of degradation. Strengthening basin institutions, building agency and organisational capacity and integrating environmental concerns into economic development activities on a sustainable basis are the key elements of the project. These actions complement basin-scale interventions by the government of Brazil, and sub-basin-scale activities conducted under the World Bank-UNDP PRODEAGRO programme.

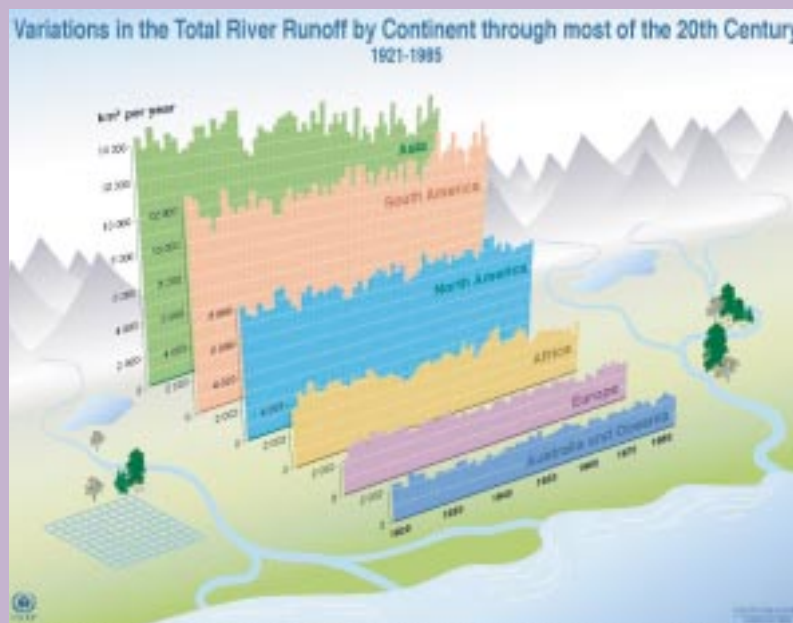
- The process went a long way towards integrating environmental issues into prevailing economic development models, even the widely differing models used in Argentina and Bolivia. Recognising that economic development in both countries will translate into higher water demand and greater pressure on the basin's environment, the strategic action programme has incorporated mechanisms and strategies for integrating environmental issues into the complex socioeconomic environment of the basin.
- The riparian governments agreed to review the feasibility of previous water projects in terms of their benefits and impacts to both countries in the light of new knowledge and understanding gained in the process of developing the strategic action programme.

The strategic action programme has developed a framework for integrated river basin water resources management, both within countries and in transboundary basins. This project has therefore contributed towards the water vision adopted in March 2000 by the international community in the Hague, which called for appropriate political consultative processes to realise integrated water management. The main features of the participatory approach adopted by the project can be replicated in other basins if local conditions are taken into account.

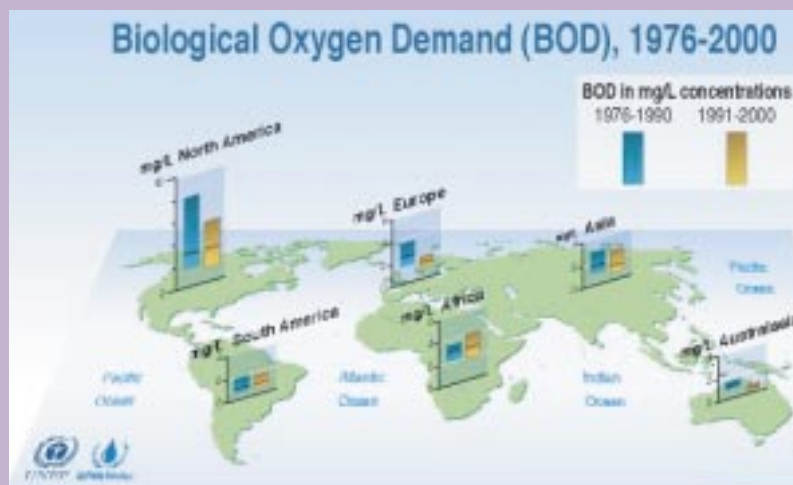
The strategic action programme framework will continue to be tested and further refined to make it even more appropriate. It is therefore essential that the process, approach and future implementation of the strategic action programme framework be meticulously documented and carefully monitored to add to existing knowledge on basin-wide sustainable development strategies. This information will be the foundation on which a knowledge base in this area can be built.

## Vital Water Graphics

In August 2002 UNEP produced *Vital Water Graphics: An Overview of the State of the World's Fresh and Marine Waters*. The graphics were focused on the most vital and pressing water issues that will determine the very future of life on Earth.



A total of forty graphics have been made available, together with accompanying text, as overhead slides, CD-ROMs and on the Internet at [www.unep.org/water/vitalgraphics](http://www.unep.org/water/vitalgraphics) or [www.grida.no/adm/dev/vital\\_water\\_graphics](http://www.grida.no/adm/dev/vital_water_graphics). They are valuable messages for the public and the media, as well as being an effective tool for decision making in water use and management.



## Inter-American Strategy for Participation

UNEP has jointly developed and implemented with the Organisation of American States (OAS) the project A Participatory Approach to Managing the Environment: An Input to the Inter-American Strategy for Participation (ISP). The overall goal of ISP is to promote transparent, effective and responsible public participation in decision making and in the formulation and execution of sustainable development policies in the Americas. The project was designed to further refine and consolidate the institutional approach of meaningful stakeholder participation in environmental decision making related to biodiversity and international waters at the local, national and regional levels in the Americas. The underlying premise of the ISP approach is that an inclusive decision making process is the key to long-term and stable solutions to sustainable development.

The project used various methods to test, review and refine the ISP approach:

- **Public demonstration sites:** These sites are integrated development projects in various countries. They provide direct experience about participation in various socioeconomic and ecological contexts, information about the mechanics of participation under various conditions, and valuable data for comparing the effectiveness of different strategies for garnering citizen participation in environmental and sustainable development decision making. The demonstration sites prove that treating sustainable development as a participatory process—in which protecting natural resources is one component of a larger package of socioeconomic activities necessary for long-term quality of life—provides a more powerful model than the conservation-focused methodology.
- **Legal component:** The aim of this component was to establish a baseline summary and assessment of existing environment-related legal and institutional frameworks that affect citizen participation. Such a baseline is critical for setting national and regional goals and for measuring progress towards those goals. The findings have been included in the policy and action parts of the refined ISP frameworks. The component activities have also triggered national and regional dialogue on the legal status of citizen participation in the planning of sustainable development.
- **Capacity building:** The project organised regional technical seminars on participatory methods for the management of biodiversity and coastal and water resources in transboundary watersheds. Concentrating on participation and case studies, the training programme has increased the knowledge and capacity of beneficiaries. The appraisal of these capacity building activities has been incorporated into the final ISP framework.
- **Review and analysis of various consultative forum models:** The review concluded that some existing models could provide genuine citizen participation in formulating environmental and development policy. However, it was established that the principal impediments are the ambiguity of legislation supporting existing participation forums. The review concluded that the success of the process and the level of civic participation is dependent on strengthening the legal framework, developing institutional capacity and lobbying the legislature to recognise the forums as legitimate bodies for formulating and influencing national policy on sustainable development. The review forum, which also included legal analysis, resulted in a series of lessons learned and recommendations which have been summarised in the ISP framework document. The resulting guidelines and recommendations provide practical tools for developing effective forums at the local and national level. The outcomes of the review, as documented in the ISP framework, are intended to be replicated through the follow-up implementation and further refined in light of experience. The recommendations and guidelines on developing effective consultative forums should be further developed into a hands-on, participatory training programme targeting appropriate local and national leaders.

The ISP framework document is based on actual experience and case studies from OAS member countries. The recommendations and outcomes should be widely applicable in the hemisphere since they were developed through a participatory process generated by the very stakeholders they are intended to benefit, not by an external panel of experts.

The refined framework therefore represents an important step toward encouraging OAS member countries to use responsible and effective public participation in environmental and sustainable development decision making.



## Dams: capacity building to move beyond conflict

Dams are at the centre of many controversies related to the management of water resources. Highly polarised positions exist on the issue. Dams have played an important role in helping communities and economies harness water resources for food production, energy generation, flood control domestic and industrial use. However, they have also caused considerable negative social and environmental impacts. As general acceptance grows for more open and participatory approaches to decision making, there is a need to build capacity within all stakeholder groups involved in the development and management of water resources.

The World Commission on Dams (WCD) provided a foundation of recommendations through an inclusive multi-stakeholder process and enabled the interaction of government, civil society and the private sector in global policy making. The UNEP Dams and Development Project supports national processes to build on this starting point by promoting dialogue among diverse groups and helping them build capacity to work together in the search for locally appropriate solutions.

### Building an inclusive multi-stakeholder process

Through the United Nations Foundation, UNEP provided technical support to the WCD process and input to the comprehensive review of large dams. The twelve-member commission brought an inclusive multi-stakeholder approach to its activities, drawing together diverse and often conflicting perspectives in a constructive forum. Inclusive dialogue was achieved through a sixty-eight-member stakeholder forum that provided a platform for the exchange of views among conflicting interests. Affected and indigenous peoples' perspectives were represented on the commission and community groups were empowered to participate in case study consultations and regional hearings. Members of the general public were encouraged to submit their views directly to the commission for consideration. In this approach civil society was represented at an equal level with governments and the private sector. The commission's insistence on welcoming all forms of evidence—grassroots as well as 'official'—was a valid contribution to the knowledge base.

### Building from a global framework to locally appropriate action

The challenge following the launch of the WCD report is translating this global document into local actions. Many governments and civil society and private sector organisations have initiated follow-on processes around the globe. The South African Multi-stakeholder Initiative is an example of an activity that is drawing people together and generating cooperation where there was once conflict. At the initial meeting, South African delegates adopted a resolution broadly supportive of the strategic priorities outlined in the WCD report, but stressed that the guidelines need to be adapted to the South African context. A coordinating committee with representatives from government, NGOs, affected communities, the private sector and research groupings has been established to advance the process of examining national policies and practices in light of the WCD report. The objective is to identify where changes are required. The committee is preparing a scoping report to be discussed and refined by a wider multi-stakeholder forum that will also decide on further steps.

Due to the continued debate and discussion on the WCD report, UNEP recognises the need to encourage the inclusive multi-stakeholder nature of local processes and promote further dialogue. The UNEP Dams and Development Project, established as a two-year activity in November 2001, is promoting dialogue on improving decision making on the planning and management of dams and their alternatives based on the WCD core values and strategic priorities.

The dams debate has moved from discussion on policy principles at a global level to their interpretation at national level. Processes are being established to prioritise issues in individual countries and to develop a concrete plan of action to address them, whether this involves policy reform, changes in procedures or new guidelines.

The UNEP Dams and Development Project is focusing on regional, national and institutional initiatives. Support to local initiatives has been provided to facilitate and strengthen interdisciplinary processes through:

- Providing resource people.
- Providing funding for stakeholders who otherwise could not participate.
- Distributing relevant materials.
- Translating key documents.
- Sharing information on good practices.





## Combating desertification and land degradation

The UNEP strategy in desertification control has been to promote actions in support of the United Nations Convention to Combat Desertification (UNCCD). This has included:

- Helping to develop national, sub-regional and regional action programmes for its implementation.
- Improving policy-relevant assessments of dryland degradation.
- Increasing global awareness of dryland and desertification control issues.
- Promoting people-oriented approaches to sustainable land use and natural resource management.
- Helping to prepare projects for submission for GEF financing.

The Caring For Land Resources (CLR) sub-programme of the Dryland Ecosystems and Desertification Control Programme (DEDC/PAC), which existed within UNEP until 1998, promoted and supported research on dryland resource systems and practices for their sustainable development and management. It developed indicators of quality and sustainability of land resources, taking into account environmental, economic, social, demographic and other factors, it promoted the transfer of techniques and technologies and fostered training. The achievements of the CLR sub-programme have been in four areas:

- Monitoring and assessment for sustainable management and use of land resources.
- Awareness raising and information exchange on dryland ecosystems.
- Promoting actions to combat desertification.
- Social dimensions and successful practices.

### Monitoring and assessment

Three regional pilot projects and training centres in Africa, Eastern Europe and West Asia were established. An assessment of the status of human-induced soil degradation was completed in fifteen countries in South and Southeast Asia, and an assessment of the links between desertification and biodiversity and climate was carried out. The UNEP database on desertification was updated and a second edition of the *World Atlas of Desertification* produced. CLR, as part of a global initiative, also supported activities in eight southern African countries to compile and evaluate soil and water conservation practices and disseminate information on sustainable soil and water conservation systems to countries with similar environments. The Kenya Land Degradation Assessment and Mapping project, funded by the Government of the Netherlands and implemented by UNEP, was completed. DEDC/PAC collaborated with FAO and the World Bank in preparing a handbook on land quality indicators for policy and decision makers.

### Awareness raising and information exchange

Six regional training courses and workshops were organised for decision makers on the management of dryland resources, sustainable food production, monitoring and assessment of desertification, expansion of new technologies and the provision of public information. A total of 232 participants from developing countries received instruction.

Two films were made by the Television Trust for the Environment (TVE) on the influence of desertification on communities, especially on women in India and communities around the Aral Sea, and a special issue of the UNEP magazine *Our Planet* (in Chinese, English, French, Russian and Spanish) focused on desertification. Short summary booklets in several languages drawn from the articles in this issue were disseminated at the 1995 Beijing Conference on Women. As task manager for reporting to the Commission on Sustainable Development on progress in implementing chapter 12 of Agenda 21, DEDC/PAC prepared a new thematic report on desertification for the RIO+5 discussion in 1997.

## Land degradation, UNEP and the UNCCD

Land degradation is one of the major environmental threats facing the world community, especially Africa. Nearly two billion hectares of land worldwide are affected by human-induced degradation of soils. Growing food needs and the expansion of built-up areas are increasing pressure. Biodiversity and trade present diverse and often conflicting demands on land resources. These demands are being complicated by climate change. Appropriate and urgent action is therefore required to avoid compromising land quality and its potential for use by future generations.

Central to the issue of land degradation is the issue of food security. As land becomes increasingly degraded its potential to produce food drastically decreases. In Africa and other developing countries where economies are based on agriculture the effects of poverty affect the environment. Land cover loss leads to desertification, loss of biodiversity and greater poverty. This in turn causes further environmental degradation and more crises of food security.

UNEP played a significant role in negotiations which culminated in the adoption, in June 1994, of the United Nations Convention to Combat Desertification (UNCCD), following which attention moved to planning for its implementation worldwide, particularly in Africa. A major

review brought the UNEP desertification control programme into line with the provisions of the convention, while preserving the organisation's comparative advantage. A new emphasis was placed on the social dimensions and role of communities and NGOs in desertification control, including assessments and raising awareness of problems of the drylands and how to solve them.

UNEP is the Task Manager for Chapter 12 of Agenda 21. UNEP also supports countries and their regional and sub-regional organisations in the implementation of the UNCCD. UNEP supports African countries to report to the UNCCD through the framework of the African Ministerial Conference on Environment (AMCEN) and in collaboration with the UNCCD Secretariat, the UNDP Office for Combating Desertification and Drought and sub-regional organisations. Furthermore, UNEP assists in promoting awareness on the mobilisation of financial resources for the implementation of the UNCCD in the IGAD and SADC sub-regions of Africa.

UNEP also assists the development and initiation of UNCCD regional coordination units and mechanisms in Africa, Asia and Latin America and of sub-regional action programmes. And, at national level, UNEP supports the ratification and implementation of the convention in the member countries of the Commonwealth of Independent States.

## Promoting actions to combat desertification

UNEP, through CLR, has provided substantial technical and financial support to UNCCD negotiations, supporting the interim secretariat, the International Panel of Experts on Desertification, the preparation of background documents and position papers by African experts, case studies, regional consultative meetings and the participation of NGOs and experts at preparatory meetings and negotiation sessions. It has also facilitated national and regional consultations to implement the UNCCD.

CLR gave a major focus to urgent action for Africa. In cooperation with various sub-regional organisations, meetings were held to coordinate activities, launch preparations for sub-regional action programmes and determine measures and mechanisms for implementing the UNCCD. CLR also supported activities and networks in other regions.

## Social dimensions and successful practices

Studies on the social aspects of desertification, its effects on migration, and work on the subject of gender issues and desertification was initiated. A workshop and subsequent publication *Listening to the People: Social Aspects of Dryland Management* helped to develop a better understanding of community participation and bottom-up development for sustainable development in drylands. The Saving the Drylands Awards were instituted in 1995 and awards have now been granted to twenty-five projects. The success story evaluations have provided tools for use in community-level implementation of national action plans requested under the UNCCD.

## Implementing the UNCCD in West Asia

In West Asia, 79.3 per cent of the land cover is desert or desertified, with a further 16.3 per cent vulnerable to desertification. The land area at no risk is very small—in the Arabian Peninsula, only 2.4 per cent of the land area is classified as not at risk. UNEP regards addressing the problems of desertification and implementation of the provisions of the UNCCD, especially through the development and implementation of an Arab regional desertification strategy, as a major priority. As such there have been a number of capacity building activities in the region over the past five years, culminating in 2001 with the signing of a Memorandum of Understanding with the global mechanism for the development and implementation of strategies under UNCCD as part of its sub-regional action programme.

Project proposals have been submitted to other funding agencies for the implementation of the sub-regional action programme, with \$350,000 being secured from the Organisation of Petroleum Exporting Countries (OPEC). UNEP—through its Regional Office for West Asia (ROWA)—also allocated an additional \$40,000 to enable the natural resource management office to assist member states from Western Asia to finalise their national action plans. (The needs of the African Arab countries are being addressed through the UNEP Regional Office for Africa.)

The implementation strategy for the sub-regional action programme involves, as a first stage, inventory studies on two thematic networks—vegetation and water—to develop sustainable management strategies within the region. The Arab Centre for the Study of Arid Zones and Drylands (ACSAD) is carrying out the vegetation cover study while the International Centre for Agricultural Research in Dry Areas (ICARDA) is carrying out the water study. Both studies are scheduled to be completed by October 2002.

The objectives of these studies are to:

- Provide incremental, catalytic support to member countries to enable them to develop and implement their national strategies for sustainable management of their land, vegetative cover and water resources, to increase the income and food security of users and to protect the natural resource base.
- Promote institutional mechanisms to address issues related to the development of relevant ecosystems.
- Develop pilot activities and test technical and institutional innovations for resource management.

### Groundwater recharge

In August 2002, UNEP produced a *A Survey of Methods for Analysing Groundwater Recharge in Arid and Semi-arid Regions*. The document is the result of a course held in Niamey, Niger, in 2000. It presents a compilation of overviews of methods identified to date for estimating groundwater recharge, including an assessment of the accuracy and suitability of each.

Selections of those most suited to arid and semi-arid environments are analysed in more depth, determining their strengths and weaknesses and giving suggestions for strengthening each method. These methods should find wide-ranging and practical use among technical institutions, NGOs, government institutions and researchers working to conserve water resources in the world's arid and semi-arid lands.

More details are available at [www.unep.org/water/groundwater](http://www.unep.org/water/groundwater)



## Land degradation and desertification success stories

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For over twenty years, UNEP has been involved in worldwide efforts to combat dryland degradation. Although desertification still remains a major environmental problem, impeding dryland development, there are also many projects and community-based initiatives which have successfully addressed these problems. These successes need to be better publicised to show that land degradation and desertification can be controlled, prevented and corrected, and that positive experiences can be replicated. Hence the UNEP Success Stories in Desertification Control initiative which dates back to 1994. This programme to define and publicise success stories in desertification control is also building community responsibility for the local environment and confidence in local abilities to solve land management problems.



The UNEP success stories initiative helps to develop capacity through the replication of best practices. It is a global programme coordinated from UNEP headquarters, but implemented in close collaboration with UNEP regional offices, NGOs and civil society in the regions. The programme evaluates projects or initiatives that have been submitted to UNEP as success stories in land degradation control. The main criterion for a success story requires that activities directly and substantially contribute to the prevention of dryland degradation or to the reclamation of degraded land, using appropriate resources in a cost-effective manner. A success story addresses not only the biophysical but also socio-cultural and economic issues in all its developmental stages, thus ensuring long-term sustainability. With this in mind UNEP decided to solicit reports on desertification control activities considered successful by implementing organisations, NGOs or communities. More than two hundred submissions from Africa, Asia and Latin America and the Caribbean have been received at UNEP for consideration as success stories since the implementation of the initiative in 1994. An award scheme—*Saving the Drylands*—was also developed alongside this initiative at the same time in the form of a certificate to outstanding achievers through an on-site evaluation process by team of independent experts. This was done with the hope that the recognition of success conveyed through the Saving the Drylands award will spur local communities to further action and encourage the replication of promising approaches. Twenty-five of the evaluated case studies have so far received the award between 1994 and 1999 in recognition of their achievements.

UNEP continues to encourage the submission of dryland development case studies which outline promising practices and lessons which can be replicated elsewhere under similar environmental and socioeconomic conditions. These are now part of the new UNEP Global Network on Best practices and Success Stories that encompasses all environmental sectors under the UNEP mandate, including land degradation control. This new programme (see page 142) consists of an Internet-accessible web site and database that will allow better sharing of information, ideas and dialogue on issues related to sustainable environmental protection, management and use. The database will cover all ecosystems and will go beyond UNEP programmes to include inputs from collaborating United Nations agencies, research centres, the private sector and civil society.

The UNEP success stories initiative helps to develop capacity through the replication of best practices. Information on success stories and associated best practices is disseminated globally through publications (booklets, posters and brochures, journals) and through the UNEP web site to raise awareness and enhance further replication and capacity development in the alleviation and prevention of desertification and land degradation.

An interactive database on best practices and success stories that go beyond dryland issues is currently in development (page 142)

Further information is available at [www.unep.org/DEPI/bestpractices.asp](http://www.unep.org/DEPI/bestpractices.asp)



## Integrated land and water management: Limpopo Basin

The frequency of flooding affecting the Limpopo River is causing concern to the three SADC countries of the Limpopo River Basin—Zimbabwe, Mozambique and South Africa. Flooding is an integral part of the hydrological cycle and cannot be managed in isolation. It is necessary to understand the ecological and economic causes of the recurrent annual flooding as well as the destruction caused by floods on the environment and on human society.

In 2000 UNEP responded to a request for assistance from the government of Mozambique, the country most affected due to its downstream location, by formulating a proposal addressing environmental issues related to the hydrological cycle of the Limpopo River Basin. This includes integrated flood management in the three countries of the Limpopo Basin through disaster preparedness and mitigation and sustainable land use planning systems for integrated land and water management to reduce the risk of the loss of life and biodiversity in the future.

Despite the environmental management knowledge and technology of South Africa concerning risk analysis, early warning systems, impact assessment techniques, etc., SADC countries in general, and Mozambique and Zimbabwe in particular, are not taking advantage of this technological development, nor are affected communities and institutions. Although information on weather conditions is available for dam management and predicting potential flooding, national and local responses are not effective. Early warning systems by themselves do not guarantee effective response if they are not complemented by a sound national disaster management programme including disaster preparedness and vulnerability reduction principles at settlement and community level. Furthermore, the lack of adequate planned land use systems and the uncoordinated relocation of affected communities in response to flooding has had negative impact on delicate ecosystems. Internally displaced people tend to resort to deforestation to provide themselves with shelter and fire wood.

In order to deal with flooding and related impacts on society and on biodiversity, it is important to address these issues within a regional comprehensive framework that encompasses:

- An integrated approach to land and water management.
- A reliable flood forecasting and warning system linking Mozambique, South Africa and Zimbabwe.
- Effective mechanisms to receive, analyse and react to early warning information and to implement disaster mitigation measures.
- Sustainable land use planning based on participatory approaches, including vulnerability reduction strategies.
- Capacity building in cross-sectoral planning, implementation actions and monitoring for local and national authorities.

The UNEP project emphasises coordination, complementarity and synergies. It is based on a strategic partnership between three United Nations agencies (UN-HABITAT, UNEP and UNDP) and other partners, including the private sector. It will address biodiversity erosion and loss caused by flooding through an integrated intervention that strategically links the regional level (based on an integrated water resource management strategy) and the local level (based on sustainable land use planning and vulnerability reduction actions). The synergy concept promotes a regional commitment aimed at increasing cooperation by exchanging technology and information, and developing joint actions and operational collaboration between the three countries.

## Land care strategies in East and Southern Africa

The life of the land in rural Africa depends upon an abundance of organic resources for use by households. The availability of structural materials, soil organic inputs, livestock feed and traditional foods and medicines are all dependent upon vegetation along farm boundaries and within communal property. Rural households are therefore the stakeholders most affected by land degradation. They also stand to benefit most from community-based land restoration projects. However, many of these lands are now seriously degraded as a result of long-term failure to practice necessary conservation measures.

Smallholders are often unfairly accused of plundering natural resources, whereas they actually represent the front line of land managers promoting agrobiodiversity. Tremendous spatial heterogeneity exists within smallholder landscapes, providing niches for far greater genetic resources. Older members of the community continuously pass ethnobotanical knowledge to succeeding generations, which is in turn translated into land managers' protection of indigenous plants. Land degradation and the loss of biodiversity and productivity potential is not due to a lack of know-how but to socio-economic constraints. Unfortunately, community-level actions often suffer from insufficient information and the scientific support necessary to design and evaluate fully effective land restoration strategies.

Many ideas and examples of land restoration approaches are available, but too often critical knowledge on how to formulate specific tools into practical technologies is lacking. From an economic view, existing government policies generally support agricultural production that requires high external input. Limited resources are devoted to promoting low-cost production techniques readily available to farmers. Simply replenishing agroecosystems with mineral fertiliser is not feasible because of high costs and the large area of affected lands. A promising alternative is the promotion of biological nitrogen fixing species and systems. Nitrogen fixing species include plants and microbes suitable to a wide range of environmental conditions. They thus offer a diverse range of products and environmental services. Biological nitrogen fixing offers the potential to simultaneously address the issues of organic resource depletion and carbon acquisition.

### Pilot activities in land care strategies

Land care strategies must include indigenous knowledge during the earliest stages of land restoration and provide opportunities for scientists to document resulting biodiversity gains. These gains could lead to an increase in subsistence productivity for food security and poverty alleviation. Appropriate land care strategies also have the potential to double the number of useful indigenous plants and restore lost beneficial microorganisms and fauna, thereby providing an entry-point for associated biodiversity during land restoration.

The GEF Land Care East and Southern Africa project intends to examine the environmental benefits, particularly system carbon and biodiversity gains, accrued from the implementation of land restoration efforts resulting from stakeholder participatory processes. The target areas are all under smallhold or communal farming in Kenya, Uganda and Zimbabwe. The development phase of the project will connect stakeholder associations and scientific expertise from national universities and research organisations to identify candidate land restoration strategies and the capacity and training needs of various stakeholders in order to formalise them into a Medium-Sized Project: Land Care-EASA. The goal of the larger project will be to develop best practices through community-based land care approaches that enhance biological nitrogen fixation, system carbon stocks, organic resources and biodiversity in degraded lands in representative ecological and socio-economic settings in East and southern Africa. To achieve this, common approaches and procedures must be identified and refined.

The resource that has become most limiting to land restoration efforts is nitrogen, which is required in large amounts by plants in elemental form and by animals as proteins.

This shortfall is extremely ironic because the atmosphere is rich in potentially accessible nitrogen through the elegant process of biological nitrogen fixation.

## Rehabilitating degraded rangelands

The Management of Indigenous Vegetation for the Rehabilitation of Degraded Rangelands project is a demonstration programme for biodiversity conservation and dryland ecosystem restoration in arid and semi-arid zones in Africa. It combines community-based indigenous knowledge, the findings of scientific research and past practical experience to rehabilitate degraded ecosystems and conserve biodiversity by developing sustainable natural resource management systems.

A major goal of the project is to facilitate an exchange of knowledge and experience between three comparable but different situations in Botswana, Kenya and Mali, and to develop models which can be transferred elsewhere within the continent. Technology transfer and supporting research is a vital part of the project. Among the project goals are:

- Strengthening appropriate indigenous management systems.
- Developing integrated bio-socio-economic data systems.
- Rehabilitating indigenous vegetation and degraded land.
- Improving the effectiveness of livestock production and marketing, and developing alternative livelihood systems.

Implementation of the project is based on a firm partnership with African arid-zone pastoralists and on close technical cooperation between the collaborating countries.

The project will facilitate the creation and strengthening of community-based representative management committees in the demonstration sites to take full responsibility for managing the indigenous vegetation. Pre-existing societal management structures acknowledged by the communities and the states are the basis for creating indigenous management authorities. The role of women in these decision making structures is clearly considered as they are the principal users. In addition, the project recognises that most local communities are not homogenous, and it is therefore encouraging effective participation by all stakeholders using state-of-the-art methods in participatory planning.

Special attention is being paid to strengthening the capacity of indigenous range managers—herdboys, scouts, trackers, councils of elders etc. Partnerships will be developed between communities, governments and the project. The communities will then be helped to develop management master plans that will accommodate the need to conserve and rehabilitate vegetation, develop land use plans and resolve conflicts within and between communities. Since these types of plans are dynamic, they will be continuously revised and updated.

The project will strengthen protocols on grazing, sharing water points and fodder reserves. The master plans will provide authority to the communities of the demonstration sites to regulate and control access to home range key resources. In Botswana and Mali the policies to define the authority of local communities to take responsibility for local land use are part of the baseline, while in Kenya the legal framework is being revised to deal with these issues. In the case of Mali and Kenya, the special needs of mobile pastoral communities will be addressed.

Indigenous methods of conservation are being identified for each resource, with the communities being helped to develop conservation measures. In situ conservation will also apply to rare plant and animal species which are being threatened with over-exploitation. The basis will be community biodiversity registers that identify all plant and animal species within each demonstration zone, especially those which the communities consider as being threatened. The community biodiversity registers will contribute to a biodiversity database for each area. The registers will identify each plant and animal species, describe their habitats, types of uses, their sociocultural values and the form of management necessary for

UNEP is promoting a combination of community-based indigenous knowledge, scientific research and established practical experience to rehabilitate degraded rangelands in Africa.

conserving them. As part of community education, important plant specimens will be collected to establish community herbaria. Local incentives for conserving biodiversity will be built into the project design through participatory assessment of the perceived values of biodiversity and the economic benefits from a diverse genetic base, and documentation of indigenous technical knowledge for the benefit of the younger generation.

Another component focuses on technology transfer, training and regional comparative learning. An important part of the project is the testing of management systems. As indigenous management systems are developed on a representative community basis there will be a need for training, the articulation of lessons learned and the sharing of experience within and across the various demonstration sites to ensure regional comparative learning. Community-based natural resource management committees will be given direction and specialised training for their new tasks and roles. Seminars and workshops will provide additional skills necessary to implement the planned activities. Exchange visits and joint workshops will allow institutional arrangements, tools and technologies to be shared between communities.

The project will demonstrate appropriate energy saving technologies to conserve woody vegetation from being overexploited for fuel. Woodlots, preferably composed of quick-growing bushy woodland for providing fuelwood and construction materials will be established, and energy saving devices will be developed and adapted to local conditions and needs. This activity will ensure maximum biomass recycling in cultivated and non-cultivated rangelands. This component will also focus on fostering exchange of experience and comparative learning at the regional level, including workshops, seminars, exchange visits and documentation.

Schools in the project sites will be involved in environmental competitions focusing on halting land degradation. Youth Environmental Clubs will be set up focusing on halting land degradation using project results. Environmental management committees comprising different villages will also compete for environmental conservation trophies and other incentives accruing as a result of the application of project results. Project results will also be translated into local languages for wider application. Appropriate mass media will be intensively used to deliver messages on land degradation and how it can be halted.

## Land management and climate change

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One consequence of organic resource depletion is the reduction of carbon stocks. The failure to replenish this lost carbon has contributed greatly to the imbalance of carbon dioxide in the earth's atmosphere. Converting natural ecosystems to agriculture and livestock enterprises releases considerable amounts of carbon into the atmosphere.

However, this process is not irreversible. The restoration of degraded lands, and more protective care of managed lands, presents an opportunity to re-accumulate total system carbon as woody vegetation and in soil. This represents an under-appreciated confluence between the interests of individual land managers, who lack sufficient organic resources, and global society as a whole, since improved land productivity increases carbon sequestration.

It is estimated that land restoration and protective land care measures in smallhold agroecosystems can sequester between fifteen and sixty tons per hectare over ten to twenty years depending upon climate, soil texture and the extent of woody biomass. However, scientists' abilities to estimate carbon fluxes through field measurements, remote sensing and simulation modelling have not yet been translated into predictive ability to assist land managers to determine which of the many alternative land care strategies offers greatest complementary carbon and productivity gains, and over which range these objectives remain mutual.





## Information for soil and water conservation

UNEP and WOCAT (World Overview of Conservation Approaches and Technologies) are producing a joint publication: *Global Overview on Approaches and Technologies in Soil and Water Conservation*. This will include case studies drawn from the WOCAT database and the UNEP Success Stories database. UNEP has a long-established a best practise database on land use management (page 75).

The impacts of soil degradation on national or regional economies can be seen in the consequence of soil loss for agricultural gross domestic product (GDP). In South Asia, the annual cost of soil degradation is estimated at about \$10 billion, equivalent to 7 per cent of agricultural GDP. In Africa, soil erosion may have caused a yield reduction of up to 40 per cent, with a mean loss of 8 per cent for the continent, increasing to 16 per cent by 2020 if accelerated erosion continues. Industrial and agribusiness practices can also cause long-lasting or irreversible damage to soils, resulting in high social and environmental costs on-site and off-site. These figures illustrate the economical scale and relevance of the problem.

Soil and water management policies can only be successful in the long-term if they are related to questions of sustainable development, poverty and global, regional and national economics. The international environmental governance process, which is led by the UNEP Global Ministerial Environment Forum, aims to make a significant contribution towards more coherent global environmental policies. Suggestions on clustering environmental sectors for improving the exchange of policy-relevant information, cost-efficiency and synergy effects have been welcomed by national governments (see also pages 34 and 37). For cross-cutting themes such as soil and water enhanced clustering will improve science and policy development.

Besides linking social and development issues, the challenge for environmental policies is to address the environmental aspects of land, soil and water resources in an integrated manner. This will most effectively be achieved through the creation of synergies between relevant conventions to coherently link these three resources to the socio-economic issues of sustainable development, including poverty alleviation, food security and national, regional and global economics.

As environmental policies and treaties must be science-driven, improving scientific advice on soil and water issues is the best way to establish a broader political perception of soil and water degradation as a global environmental issue. Today there are over fifty international advisory processes related to the environment. In the specific field of soil and water management, a great deal of scientific knowledge exists. But this knowledge is not well disseminated, particularly to economic or social experts and policy makers. The challenge is to integrate existing knowledge into policy processes, to enhance cross-sectoral decision support tools, establish good governance practices and to strengthen and build capacity.

WOCAT was established as a global network of soil and water conservation specialists to facilitate more efficient use of existing know-how and development funds. It helps to optimise the implementation of appropriate soil and water conservation and to avoid duplication. WOCAT provides tools that:

- Allow soil and water conservation specialists to share management knowledge.
- Help find appropriate soil and water conservation technologies and approaches.
- Support decision making in the field and at the planning level.

UNEP is among WOCAT's main international collaborating and funding institutions, who also include FAO, ISRIC and DANIDA. UNEP is also a member of the WOCAT Steering Committee. UNEP is working closely with WOCAT, through its integrated land and water programmes, to develop tools and products for sharing this information with the global community, thus fostering replication.

## The GEF Desert Margins Programme

The GEF Desert Margins Programme is contributing to the arrest of land degradation in Africa's desert margins. Participating countries include Botswana, Burkina Faso, Kenya, Mali, Namibia, Niger, Senegal, South Africa and Zimbabwe. The programme works through targeted participatory research, demonstration and capacity building. GEF financing enables global environmental issues (biodiversity loss, reduced carbon sequestration, soil erosion and sedimentation) to be addressed.

The programme is assessing dryland management practices, including traditional smallholder knowledge, and improving the understanding of the causes, extent, severity and processes of soil and ecosystem degradation to develop natural resource management strategies. It is supporting the development of policies, programmes and institutional options to provide incentives to adopt improved practices. The programme will also enhance national capacity to conduct research on sustaining the desert margins.

An important component of the Desert Margins Programme is to enhance the institutional capacity of participating countries to undertake land degradation research and the extension of improved technologies, with particular regard to multidisciplinary and participatory socioeconomic research. Given the lack of appropriate personnel and facilities in many participating countries to design and effectively implement natural resource management strategies, it is important to enhance institutional capacities. Emphasis will be placed on:

- Reinforcing national capacities to carefully monitor climate, soil, vegetation and livestock trends and dynamics.
- Standardising methodologies to ensure data quality.
- Building effective partnership of national institutions—including NGOs, rural communities and CBOs—and regional and international institutions to create a continuum from identification and testing to extension and adoption of technologies for arresting biodiversity loss and promoting its sustainable use.
- Building the capacity of stakeholders in land use planning. The GEF increment will enhance stakeholders' awareness and skills in natural resource management and strengthen community involvement, leading to more effective biodiversity conservation and reduction in natural resource degradation.

### The Mega-Chad Biodiversity Conservation And Renewable Energy Technologies project

This project, which started in November 2001 and will run through to late 2003, aims to empower communities in four major countries of the Lake Chad basin in West Africa—Chad, Nigeria, Cameroon and Niger—to actively and effectively participate in sustainable development. The project, being implemented by the Centre of Arid Zone Research, University of Maiduguri, Nigeria, and the Lake Chad Basin Commission, is drawing upon and replicating successful experiences from an earlier pilot project in Nigeria on a model village practising sustainable use and management of energy and water. The project is applying a holistic management approach to natural resources, realising that the current energy and water requirements of communities in this region directly result in biodiversity loss and eventual desertification due to over-utilisation linked to human population growth.

Special attention is being given to community participation in the uptake of renewable energy technologies, with an emphasis on the need for the project's self-sustainability. Women and men are being exposed to policy issues, technical and capacity building activities, as well as to related opportunities in renewable energy technologies such as business openings in manufacturing, sales, maintenance, bookkeeping and management. Opportunities include fabrication and sale of energy-efficient stoves, construction of biogas digesters to serve schools and clinics, and the efficient use of biomass in various forms.

Youth groups also form part of the target audience for environment and renewable energy technology awareness through the UNEP Eco-school programmes (see page 151). These offer excellent opportunities for education on issues related to gender and environmentally sensitive energy. It is hoped that, using the Eco-schools approach, the Mega-Chad project will increase the participation of women and youth in information sharing as well as in the actual uptake of renewable energy technologies. The lessons learnt from this project will help other countries and communities to implement similar projects.

## Conservation and management of biodiversity

A principle objective of the majority of UNEP biodiversity projects is to strengthen the capacity and institutional infrastructure of countries for managing and using their biodiversity more efficiently and effectively. Under the framework of the UNEP Biodiversity Programme and Implementation Strategy the following capacity building activities are being undertaken:

- Strengthening institutional abilities in policy making, information management, assessment and planning.
- Training and education of scientific, technical and managerial personnel.
- Facilitating access to and transfer of technologies.

UNEP activities in strengthening institutional capabilities in policy making, information management, assessment and planning include:

- Developing assessment and planning methodologies.
- Publishing guidelines for national biodiversity planning.
- Supporting the development of national action plans.
- Promoting the Sustainable Biodiversity Programme in Europe.
- Implementing joint activities to promote the biodiversity of drylands.
- Preparing case studies on market-based incentives for biodiversity conservation and sustainable use in Latin America and the Caribbean and in eastern and central Europe.
- Organising workshops on biodiversity valuation.

In the field of training and the education of scientific, technical and managerial personnel, UNEP has been involved in the following:

- Supporting formal education and research in biodiversity.
  - Collaborating with IPGRI on global and regional programmes and action plans for the conservation and sustainable utilisation of plant genetic resources.
  - Developing and implementing environmental law training activities.
- UNEP is also facilitating access to and the transfer of technologies by:
- Promoting a network of nine regional microbiological resources centres.
  - Cooperating with the FAO Global Programme for the Management of Farm Animal Genetic Resources.
  - Supporting the conservation and sustainable utilisation of microbial resources.
  - Developing and publishing the Global Biodiversity Assessment.
  - Preparing the publication *Cultural and Spiritual Values of Biodiversity*.
  - Collaborating with FAO in the preparation and publication of the World List for Domestic Animal Diversity.
  - Publishing policy resource publications.
  - Publishing legal resource documents.

### Biodiversity conservation through the participatory rehabilitation of degraded lands

This project addresses the root causes of biodiversity loss from land degradation in the five critical upland and floodplain ecosystems of a 60,000 square-kilometre portion of the transborder Senegal River valley in Senegal and Mauritania. The project aims to improve techniques for rehabilitating the natural ecosystems of these degraded lands. It will develop and apply participatory resource management systems, especially those that generate resource-based income and consequent economic incentives for sustainable management. Fire prevention and suppression of fire-sensitive ecosystems will be strengthened. Measures to decrease pressures on forest and rangeland resources will be undertaken. Ecosystem restoration and improved fire control will have the double benefit of enhancing carbon sinks. Institutional capacity will be strengthened from the village level to the cross-national level.

Capacity building is critical to the success of the whole project. The goal is to enhance coordinated ecosystem management capacity at all levels by enlisting all stakeholders in an ongoing process of sustainable management after the project ends. This will provide the basis for sustainable land and water management and halt biodiversity loss. Each of the project components includes capacity building, especially at the local level.

## Conserving biodiversity in Central and Eastern Europe

To check the degradation and loss of biodiversity resources in Europe, several national and international organisations, both governmental and non-governmental, developed the Pan-European Biological and Landscape Diversity Strategy (PEBLDS) in 1994. The principal aim of this strategy is to ensure the sustainability of the European natural environment, with special emphasis on concerted European action under all existing initiatives, particularly the Convention on Biological Diversity (CBD). UNEP and the Council of Europe have jointly administered the PEBLDS secretariat since 1995.

The 20-year time span of the strategy consists of four 5-year action plans, which provide a framework for promoting common objectives and a consistent approach for national and regional action to stop and reverse the degradation of biological and landscape diversity values in Europe. PEBLDS reinforces the implementation of existing measures and identifies additional actions that will need to be taken over the next two decades.

Under PEBLDS, UNEP has co-organised several events, including the Second Intergovernmental Conference on Biodiversity in Europe (Budapest, February 2002). The main objectives of the conference were to facilitate regional preparations for the sixth Conference of the Parties to the CBD and to strengthen cooperation on biodiversity protection in Europe. It was agreed that the outcomes and experience of the Budapest Conference would be integrated into the preparation of biodiversity-related agenda items for the fifth Environment for Europe Conference scheduled to take place in Kyiv, Ukraine, in May 2003.

The Budapest Conference also agreed on a set of recommendations to take account of the special needs of non-EU candidate countries of Central and Eastern Europe (CEE) and the Newly Independent States (NIS). These recommendations will form the basis of UNEP's capacity building activities in the region for the next biennium.

One of the recommendations was that support for the implementation of national biodiversity strategies and action plans in CEE countries and the NIS should be increased, in particular through bilateral cooperation and through the Biodiversity Service operated by UNEP, IUCN, the European Centre for Nature Conservation (ECNC) and the Regional Environmental Centre for Central and Eastern Europe (REC).

Within the framework of the Biodiversity Service, UNEP, in collaboration with IUCN, REC and the ECNC, promotes and facilitates the implementation of the CBD in CEE countries and the NIS, by providing demand-driven and tailor-made assistance in implementing national biodiversity strategies and action plans. The Biodiversity Service also aims at stimulating the integration of national and global efforts in this area. It includes the provision of legal and technical advisory services, information exchange guidelines and training. Assistance has been given to Albania, the Czech Republic, Kyrgyzstan, Lithuania, Moldova and Romania in assessing the state of the CBD and requirements for its implementation. Kyrgyzstan was assisted in preparing a strategy for the conservation of mountain ecosystems, and Bulgaria in setting up a clearing-house mechanism under the CBD.



Sturgeon from the Caspian Sea produce 90 per cent of the world's caviar. Supply is falling due to a combination of reduced river flow into the Caspian Sea, the destruction of sturgeon spawning sites and illegal trade.

UNEP is working with the countries which border the Caspian Sea to protect sturgeon resources and meet their obligations under CITES.

CITES: [www.cites.org](http://www.cites.org);  
Convention on Biological Diversity: [www.biodiv.org](http://www.biodiv.org);  
IUCN: [www.iucn.org](http://www.iucn.org).



## Capacity building and UNEP-WCMC

A key challenge faced by all nations is to address the WSSD 2010 biodiversity target. Coupled with this is the need to implement the biodiversity-related conventions more effectively. In most developing countries, small island developing states and countries with economies in transition, existing national capacity for implementing policies and carrying out actions to address the loss of biodiversity are severely limited.

The UNEP World Conservation Monitoring Centre (UNEP-WCMC) is the biodiversity arm of the United Nations family. Established in 2000 as an integral part of UNEP, it brings more than 20 years of experience in managing and presenting biodiversity information to support intergovernmental and national activities. The Centre can help national agencies, regional organisations and intergovernmental processes to build their capacity to manage biodiversity information so that it can be applied in policy making and implementation. UNEP-WCMC works collaboratively with other parts of UNEP—the Regional Offices for instance—and with other agencies to identify gaps in existing capacity to address biodiversity issues. Support for capacity building from UNEP-WCMC includes training workshops, technical advice on information management and use of GIS tools for spatial analysis and the presentation of mapped data.

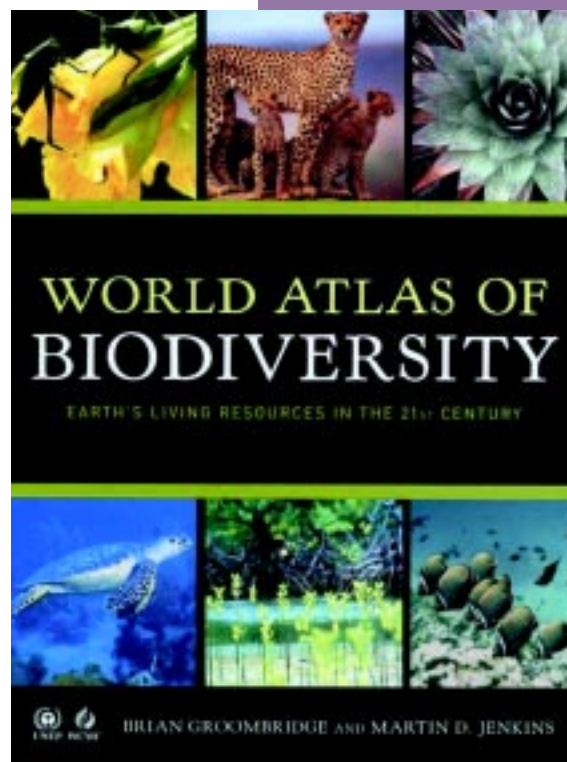
Examples of UNEP-WCMC capacity building work include:

- *Support to the UNEP GEF Biodiversity Data Management Capacitation in Developing Countries and Networking Biodiversity Information project.* UNEP-WCMC provided training materials and workshops to identify challenges and obstacles to improved management of biodiversity information. Workshops were held with governmental and NGO groups in several countries including the Bahamas, Chile, China, Guyana, Kenya, Mexico and Thailand. They focused on the data management implications of the Convention on Biodiversity, the components of a national biodiversity information system, custodianship of data, approaches to data sharing and improving links between organisations, methodologies for developing data and metadata catalogues and the principles of digital data exchange.
- *A series of training booklets on biodiversity information management.* This eight volume series, developed for use by decision makers, mid-career professionals and interested parties, reviews the issues and processes involved in the management of biodiversity information to support the conservation and sustainable use of living resources. They also provide a framework for the development of national plans and strategies and for meeting the reporting obligations of international programmes and conventions. The handbooks may be used as a training resource or, more generally, to support institutions and networks involved in building capacity in information management. These handbooks were supported by the United Kingdom's Darwin Initiative and published with support of the Commonwealth Secretariat. (*see [www.unep-wcmc.org/resources/publications/otherpubs.htm](http://www.unep-wcmc.org/resources/publications/otherpubs.htm)*).
- *Working on the project Streamlined National Reporting under Biodiversity Related Conventions: Pilot Case Studies in Selected Countries.* UNEP-WCMC helped to identify approaches that can help improve the efficiency of reporting and so reduce the burden on countries while delivering benefits to biodiversity. Countries involved in the pilot are: Ghana, Indonesia, Panama and the Seychelles. (*see [www.unep-wcmc.org/conventions/harmonization/index.htm](http://www.unep-wcmc.org/conventions/harmonization/index.htm)*)
- *UNEP-WCMC has worked with several of the biodiversity-related conventions to improve information management, sharing and accessibility.* For example, with the Convention on Migratory Species, the Centre has developed and is implementing an information management plan for the convention agreed by the Conference of Parties to assist in

The UNEP World Conservation Monitoring Centre (UNEP-WCMC) is a world centre for biodiversity information. Its object is to provide biodiversity-related assessment, information and training services to assist governments and organisations to implement policies and action plans to reverse the loss of species and ecosystems worldwide.

improving the availability of information and its application to support the convention's implementation at national level (see [www.unep-wcmc.org/cms/ims.htm](http://www.unep-wcmc.org/cms/ims.htm)).

- *Working to promote the conservation and sustainable use of medicinal plants in Ghana.* With UK Government support through the Darwin Initiative, UNEP-WCMC worked with other partners to promote the conservation and sustainable use of medicinal plants in Ghana. The project established a comprehensive medicinal plants information system and trained staff to use this effectively. The information system provides a detailed picture of issues relating to the use and importance of medicinal plants in Ghana and can be used to establish priorities in conservation, cultivation and sustainable use. The project enhanced in-country capacity to manage relevant data and also helps Ghana to implement the Convention on Biological Diversity. The project legacy continues through the work of the Botanical Gardens at Aburi and Legon and the Herbarium at the University of Ghana, where the continued management of data on medicinal plants forms a basis for future planning. The project also provides a model for extension to other countries (see [www.unep-wcmc.org/species/plants/ghana/background.htm](http://www.unep-wcmc.org/species/plants/ghana/background.htm)).



UNEP-WCMC also works with developed countries and with established international conventions and organisations dealing with biodiversity-related issues to identify how existing capacity and resources can be utilised to the best and maximum effect. With the UK Government, the Centre has assessed policy makers' information needs in relation to available sources in the Rationalisation of International Nature Conservation Information Systems project (see [www.unep-wcmc.org/conventions/RINCIS/](http://www.unep-wcmc.org/conventions/RINCIS/))

UNEP-WCMC's conclusions from these and other projects include:

- Good information management is essential to all aspects of implementing international agreements at national levels (including reporting which may often be regarded as a stand-alone activity).
- Effective approaches to information management require a coordinated national approach based on reviews of capabilities and capacity, and full involvement of stakeholders.
- The development and implementation of information networks meeting jointly defined needs is far more effective than implementation of a centralised database under a single agency.
- Identification of roles and responsibilities in information collection and management and clearly defining how information can be used is crucial. Information issues are far more complex and demanding than technical ones.
- Information should be collected and managed to serve multiple purposes. This can be facilitated by developing a more coordinated and integrated approach to implementation of international agreements at national level.
- Clear assessments need to be made of the full range of information requirements before developing and implementing information networks and the required processes and tools.
- Needs can be very similar between countries. Wherever possible solutions should be shared.

## Conservation of below-ground biodiversity

The objective of the Conservation and Sustainable Management of Below-ground Biodiversity project in Brazil, Côte d'Ivoire, India, Indonesia, Kenya, Mexico and Uganda is to enhance awareness, knowledge and understanding of below-ground biological diversity important to sustainable agricultural production in tropical landscapes by demonstrating methods for conservation and sustainable management.

The project will explore the hypothesis that, by appropriate management of above-ground and below-ground biota, optimal conservation of biodiversity for national and global benefits can be achieved in mosaics of land-uses at differing intensities of management, simultaneously resulting in gains in sustainable agricultural production. An important component of the project is to improve the capacity of all relevant institutions and stakeholders to implement conservation and management of below-ground biological diversity in a sustainable and efficient manner.

This component will build capacity in all stakeholder groups, and mobilise the wider scientific communities in the participating countries. It will improve the skills and experience of various stakeholders in the participating countries in the field of agrobiodiversity research and evaluation in general and of below-ground biological diversity in particular. Networking and South-South exchanges among stakeholders will constitute an important part of this component, as will the integration of scientific and indigenous technical knowledge. Capacity building will also involve dialogue to achieve reconciliation of the objectives of the agricultural and environmental sectors overseeing the development of the project benchmark areas.

Training in methods for agrobiodiversity and below-ground biodiversity measurement and evaluation will be conducted throughout the project, both individually (e.g. through the registration of students for higher degrees) and collectively (involving different stakeholder groups) to reach adequate levels for below-ground biodiversity research in all the required areas in all the countries.

Furthermore the scientific activities of the project require interdisciplinary approaches. The development of these will be a particular feature of the capacity building activities of the project. The International Information System will provide a mechanism for knowledge-exchange between participating scientists and the wider scientific community. This will result in substantial enhancement of capacity to undertake agrobiodiversity-related research in and beyond the participating countries. Participating researchers and other stakeholders will be encouraged to publish their results and recommendations in peer-reviewed journals as well as in other media appropriate to the whole range of stakeholders to disseminate the knowledge gained as widely as possible.

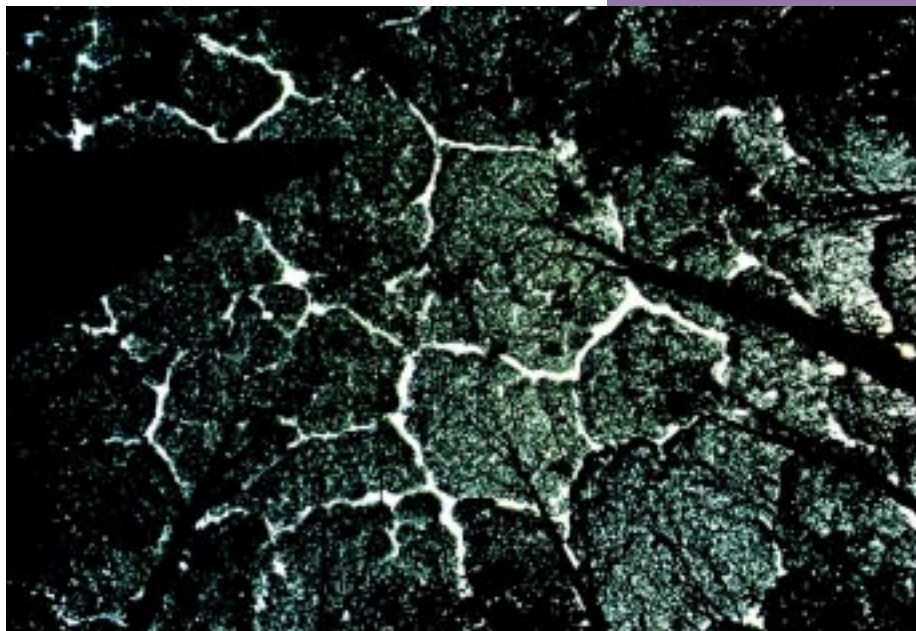
An important aim of the project is to build awareness of below-ground biological diversity and its roles among diverse groups of stakeholders. Farming communities often have sophisticated traditional methods for describing and classifying soil quality, which commonly include some biological reference points. Other stakeholder groups, more removed from the practice of farming, are more likely to be ignorant of below-ground biological diversity. Participation with farmers, extension offices and NGOs in on-farm characterisation and experimentation offers the opportunity for knowledge exchange between researchers and others. This interchange will also be enhanced by purpose-designed training activities like farmers' field schools, and through the wide range of workshops and field visits described above. The documentation of indigenous knowledge of below-ground biological diversity, and traditional soil management practices, will be an important way of strengthening national capacity in biodiversity and agricultural sciences.



## Conserving priority species in African forests

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With UNEP support, the International Plant Genetic Resources Institute (IPGRI) in collaboration with the sub-Saharan African Forest Genetic Resources (SAFORGEN) programme undertook a study to develop appropriate conservation strategies for African forest priority species. The overall objective of this capacity building activity was to develop methodologies for assessing the genetic erosion of priority tree species as a basis for developing appropriate strategies for conservation and sustainable use of forest genetic resources in sub-Saharan Africa. The focus audience was national scientists of Benin, Kenya and Togo.



The majority of rural and urban populations in Africa are directly or indirectly dependent on forest tree resources for food and health security. More than 1,000 African forest tree species are used for medicinal purposes. Despite efforts to inventory the medicinal plants, there is little knowledge on the genetic diversity of the most important species or on the threats to genetic resources. The common techniques such as inventory, morphological, physiological and ethnobotanical characterisation are not efficient enough to characterise the level and patterns of genetic variation among trees. Molecular, GIS and remote-sensing techniques may be able to assess levels of genetic erosion associated with different patterns of resource use by communities.

The objectives of the project were to

- Assess the level of threats on tree species.
- Assess patterns of genetic diversity and genetic erosion of priority species.
- Identify priority interventions for the conservation of priority species.

In the one year of the project (2000–2001) each of the three participating countries handled two species:

- Kenya: two food tree species.
- Benin: two fodder tree species.
- Togo: two medicinal tree species.

The outputs from the project included:

- Information on the level of threat.
- Knowledge on the genetic diversity of the target tree species.
- Level of genetic erosion for the target species.
- Appropriate conservation strategies.
- National scientists trained.
- Final technical report published.

The outputs of the project significantly added to the knowledge base of the genetic diversity and the state of conservation and use of the respective species. The results will further contribute towards the development of strategies for the effective conservation and use of these and other species.

The report *Development of appropriate conservation strategies for African forest trees identified as priority species by SAFORGEN* member countries is available from the UNEP Division of Environmental Policy Implementation's Technical Cooperation Unit.

See also [www.unep.org/depi/biodiversity](http://www.unep.org/depi/biodiversity), or [www.futureharvest.org](http://www.futureharvest.org).



## National biosafety frameworks

The Global Environment Facility (GEF), as the financial mechanism of the Convention on Biological Diversity and the Cartagena Protocol on Biosafety, and UNEP, as one of the three implementing agencies of the GEF, have responded to international calls for supporting capacity building in the field of biosafety since the first meeting of the Conference of the Parties to the CBD drew attention to the issue. The \$2.7 million GEF Biosafety Pilot Enabling Activity has assisted eighteen eligible countries to prepare National Biosafety Frameworks and promote regional collaboration. The overall aims of the project were:

- To carry out an assessment of technological capacity, its effect on the implementation of national biosafety frameworks and the means to improve it.
- To strengthen national capacity to implement biosafety procedures.
- To harmonise regional and international legal instruments.
- To raise awareness of issues related to the release of living modified organisms (LMOs).

The project covered eighteen countries—Bolivia, Bulgaria, Cameroon, China, Cuba, Egypt, Hungary, Kenya, Mauritania, Mauritius, Namibia, Pakistan, Poland, the Russian Federation, Tunisia, Uganda, Zambia and Malawi—and consisted of national and global components. The national level component aimed at assisting the eighteen countries to prepare national biosafety frameworks, while the global component aimed at facilitating the exchange of experience at regional levels.

National surveys were carried out to identify:

- Existing applications of modern biotechnology.
- The extent and impact of releases of LMOs.
- Biosafety risk assessment and risk management systems.
- Reviews of existing legislation relevant to biosafety.

The participating countries varied in size, location, level of socioeconomic development, biotechnology development and application of biotechnology products. They were also at different stages of preparation of their national biodiversity strategies and action plans. Some countries (e.g. the Russian Federation) already had elements of a national biosafety framework in place. In those instances, the funds were applied in order to improve and expand the existing structure and integrate the UNEP International Technical Guidelines into the national framework.

At the global level, two back-to-back UNEP/GEF regional workshops on biosafety were held in each region in 1998. They brought together more than 267 government-designated experts and representatives from the scientific community, United Nations bodies, bio-industry, NGOs and other organisations to discuss and exchange views on safety in modern biotechnology (Issues included risk assessment and risk management for LMOs and the transboundary transfer of LMOs, including appropriate mechanisms and methods for the supply and exchange of information regarding biosafety).

Following the adoption of the Cartagena Protocol in January 2000, the GEF Council adopted the Initial Strategy for Assisting Countries to Prepare for the Entry Into Force of the Cartagena Protocol on Biosafety. The strategy proposes activities for the GEF to undertake in the period leading up to the entry into force of the Protocol, based on GEF experience in implementing the convention.

Two sets of activities are currently being implemented by UNEP in response to the new challenges in biotechnology:

- The \$39 million project for the Development of National Biosafety Frameworks in up to 100 countries, which follows the Pilot Biosafety Enabling Activity finalised in 1999.
- Demonstration projects to support the implementation of national biosafety frameworks

The GEF Biosafety Pilot Enabling Activity has assisted eighteen countries to prepare National Biosafety Frameworks. As a follow-on to the Pilot Activity, eight UNEP-GEF Medium-sized Projects of \$4.5 million have been approved for the implementation of national biosafety frameworks. Ten other proposals are under preparation.

UNEP *International Technical Guidelines for Safety in Biotechnology* facilitate the development of national-level capacity to assess and manage biotechnology risks. They can be downloaded from [www.unep.org/unep/program/natres/biodiv/irb/unepgds.htm](http://www.unep.org/unep/program/natres/biodiv/irb/unepgds.htm). For more information e-mail [biosafety@unep.ch](mailto:biosafety@unep.ch) or visit [www.unep.ch/biosafety](http://www.unep.ch/biosafety).

- The objective of this UNEP/GEF project is to prepare countries for the entry into force of the Cartagena Protocol by assisting in the following activities:
- Carrying out an assessment of current technological capacity to manage biosafety issues, and the implications of this on the implementation of a national biosafety strategy.
  - Strengthening national capacity to develop national regulatory biosafety frameworks.
  - Strengthening national capacity for competent decision making on notifications and requests related to LMOs, including the establishment of administrative systems.
  - Applying other measures according to the Protocol, taking into account the work of the Intergovernmental Committee for the Cartagena Protocol on Biosafety.
  - Supporting regional and sub-regional collaboration, including harmonisation of the implementation of national regulations.
  - Raising public awareness and improving information flow to the public on the issues involved around the release of LMOs.
  - Promoting informed debate and ensuring transparency with respect to the regulation of LMOs.
  - Providing all stakeholders with an opportunity to be involved in the design and implementation of a national biosafety framework.

To date, achievements of the project include:

- The involvement of 106 countries in the project.
- Four regional workshops convened, with the involvement of 126 countries.
- Twelve sub-regional training workshops on risk assessment planned for 2002/3.
- A biosafety tool kit and a biosafety brochure, translated into six languages.

## Biosafety, biotechnology and sustainable development

Agenda 21 makes specific provision for the environmentally sound management of biotechnology. It recognises that although biotechnology cannot provide solutions to all the fundamental problems of environment and development it could nevertheless contribute substantially to a sustainable development. "Biotechnology promises to make a significant contribution in enabling the development of, for example, better health care, enhanced food security, improved supplies of potable water, more efficient industrial development processes for transforming raw materials, support for sustainable methods of afforestation and reforestation, and detoxification of hazardous wastes." Agenda 21 also notes that biotechnology offers new opportunities for global partnerships, especially between countries rich in biological and genetic resources and countries with the technological expertise to transform biological resources for sustainable development.

Chapter 16 of Agenda 21 also stresses that the global community can only benefit maximally from biotechnology if it is developed and applied judiciously. The use and release into the environment of living modified organisms resulting from modern biotechnology could have adverse impacts on the conservation and sustainable use of biological diversity. Agenda 21 therefore seeks to ensure safety in biotechnology development, application, exchange and transfer through international agreement on principles to be applied on risk assessment and management.

The safe use of modern biotechnology features prominently in the Cartagena Protocol on Biosafety of the Convention on Biological Diversity. In accordance with the precautionary approach contained in Principle 15 of the Rio Declaration on Environment and Development, the objective of the Protocol is "to contribute to ensure an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking into account risks to human health, and specifically focusing on transboundary movement."

In order to achieve this objective, it is important that all Parties cooperate in capacity building in biosafety for developing countries and countries with economies in transition. While developed countries have established domestic biosafety regimes, many developing countries or countries with economies in transition still have limited ability to cope with the nature and scale of known and potential risks associated with the use of modern biotechnology and are just starting to establish their own national biosafety frameworks.

At the second meeting the Conference of the Parties to the CBD, held in 1995, the importance of the UNEP *International Technical Guidelines for Safety in Biotechnology* was stressed. The role of the guidelines was to facilitate the development of national-level capacity to assess and manage biotechnology risks, the establishment of adequate information systems, and the development of human resources and expertise relevant to issues of biosafety at national and regional levels as an interim measure during the development of the Cartagena Protocol. UNEP finalised the *International Guidelines for Safety in Biotechnology* in December 1995.







# 4

## **Integrating economic development and environmental protection**



## The Montreal Protocol: protecting the ozone layer

The Montreal Protocol on Substances that Deplete the Ozone Layer was concluded in 1987 with the objective of phasing out all ozone-depleting substances. At the heart of the Montreal Protocol lies the control measures it imposes on the production and consumption of ozone-depleting substances (ODS). Article 2 of the agreement defines phase-out schedules for the various categories of ODS. These have been progressively tightened with time through agreements reached in London (1990), Copenhagen (1992), Vienna (1995), Montreal (1997) and Beijing (1999). In accordance with these schedules, the bulk of ODS, including all the substances specified in the original 1987 Protocol, were phased out completely in industrialised countries by the end of 1995. The remaining categories are scheduled for total phase-out by 2002 (bromochloromethane), 2005 (methyl bromide) and 2030 (hydrochlorofluorocarbons). While developing countries have longer phase-out periods—with a ten-year grace period for each group—they are now at a critical stage in their implementation of the Montreal Protocol. With the passing of the first control measure of the freeze on consumption and production of chlorofluorocarbons (CFCs) by 1999, they have entered the compliance phase. During the compliance period more emphasis will be given to the country-driven phase-out process and policy enforcement.

The treatment of developing countries is a key feature of the Montreal Protocol. Article 5 of the Protocol permits a developing country with consumption of ODS lower than a specified limit (an 'Article 5 country') to delay for ten years its compliance with the control measures set out in Article 2, "in order to meet its basic domestic needs". Article 10 of the Protocol provides for a financial mechanism to meet the incremental costs of these countries in phasing out ODS. The Multilateral Fund was accordingly established, as an interim mechanism in 1990, and in its final form in 1992. Industrialised country Parties contribute to the Fund according to the standard United Nations assessment scale, a total of \$1.5 billion over the twelve years of the Fund's operation.

### The role of UNEP

The Multilateral Fund has its own secretariat based in Montreal, and operates through four implementing agencies, each with slightly different roles. The UNEP Division of Technology, Industry and Economics (DTIE), through the OzonAction programme, provides non-investment support (training, information exchange, etc.) through a clearing-house, and helps prepare country programmes and refrigerant management plans for low-consuming developing countries. (UNEP also acts as the Multilateral Fund's treasurer, and hosts the secretariat of the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer.) Of the other implementing agencies, UNDP organises demonstration and investment projects, technical assistance and feasibility studies, UNIDO prepares and appraises investment project proposals and implements phase-out schedules at plant level, and the World Bank concentrates on large-scale phase-out and investment projects at plant and country level.

Each developing country, assisted by one of these agencies, prepares a country programme or an update, showing its present use of ODS and identifying opportunities for reduction. The 'incremental costs' which countries can claim may include the incremental capital operating costs of conversion to alternative technologies and ODS substitutes. Recycling controlled substances, modifying or replacing equipment, and the costs of patents, royalties and training are examples of incremental capital costs. The Fund's Executive Committee has discretionary powers to include costs other than those listed. A recent important development has been the decision by the Executive Committee to help fund the phase-out of ODS production capacity in Article 5 countries.

The Ozone Secretariat, part of UNEP and based in Nairobi, provides support for all the activities of the Vienna Convention and the Montreal Protocol. It organises the meetings of the Parties and facilitates the preparation and formulation of recommendations to be adopted by the Parties. Such recommendations include the review of requests for technical assistance submitted by developing countries as well as provision of information necessary for assisting Parties to comply with their obligations under the Montreal Protocol. The secretariat also works closely with the Multilateral Fund secretariat and its implementing agencies to ensure that capacity building activities to enable developing countries implement the Montreal Protocol are carried out.

Under the Multilateral Fund, assistance through capital investment and non-investment projects constitute the main vehicles for capacity building in developing countries to ensure sustainable industrial conversions to modern environmentally friendly technologies. Many non-investment capacity building activities, like clearing-house activities, demonstration projects, institutional strengthening in low volume ODS-consuming countries, technical assistance programmes, regional networking activities, information dissemination, workshops, and institutional strengthening are conducted by UNEP DTIE. The Multilateral Fund has allocated a total of US \$144 million so far (as at end of March 2002) for non-investment activities for 130 developing countries.

### **Strengthening National Ozone Units**

At the onset of the Multilateral Fund programme, the Executive Committee adopted guidelines for direct financial support to governments to assist them to create or strengthen institutions dedicated to the implementation of their obligations under the Montreal Protocol. By this action the Executive Committee established National Ozone Units within government structures in developing countries. Thus the Montreal Protocol became probably the only multilateral environmental agreement under which all developing country Parties are supported financially to create permanent institutional capacity for implementing their obligations. The impact of this institutional strengthening aspect of the Multilateral Fund will increase as the emphasis for assisting developing countries to meet their Montreal Protocol obligations moves more and more to country-driven processes and programmes which require the participation of all stakeholders in programme development, implementation and monitoring.

### **Implementing the Montreal Protocol in Africa**

In spite of other more pressing economic, social and environmental priorities, Africa has proved to be a world leader in protecting the ozone layer. African decision makers have had at their disposal only limited natural and financial resources and infrastructural capacity with which to bring about change. Yet, despite these significant challenges, Africa is still able to muster the political will and leverage the financial resources needed for progress. “For developing countries like Ghana,” said that country’s Minister of Environment, Science and Technology, Mr. J. E. Afful, “the major challenge is to contribute meaningfully to global efforts to protect the ozone layer while keeping the pace of their economic development.”

A UNEP booklet which showcases Africa’s achievements has been published in order to acknowledge and celebrate Africa’s courageous responses to the Montreal Protocol requirements. The African stories:

- Demonstrate African countries’ commitment to ozone protection.
- Illustrate the significant reduction in Africa’s consumption of ozone depleting substances throughout the industrial and commercial sectors.
- Highlight how national and regional institutions were created to implement the activities required to meet the Montreal Protocol’s targets and to implement other key projects.
- Showcase the cooperation between various stakeholders over vast geographic areas which has helped create and implement projects and the sharing of experiences and challenges.
- Recognise those international organisations and other nations that have assisted Africa in achieving its success through fruitful international environmental and technological cooperation.
- Describe the success of African nations in sending out key messages to the public and industry—raising awareness of the ozone problem, and telling people about potential solutions and alternatives.

For more information on UNEP, the Montreal protocol and the ozone layer see [www.uneptie.org/ozonaction](http://www.uneptie.org/ozonaction). The OzonAction library contains a wealth of books, pamphlets and information sheets on the ozone layer and practical actions to protect it.

## The UNEP OzonAction programme

The objective of the UNEP OzonAction programme is to assist developing countries and countries with economies in transition to achieve compliance with the Montreal Protocol. By providing enabling services since 1991, the UNEP Division of Technology, Industry and Economics (DTIE) OzonAction programme under the Multilateral Fund has strengthened the capacity of developing country governments—particularly their National Ozone Units—and industry to elaborate and enforce the policies required to implement the Protocol and make informed decisions about alternative technologies.

The capacity building services provided by the programme comprise:

- Clearing-house activities consisting of global information exchange and regional networking of national ozone units.
- Helping with the preparation of national and sectoral strategies (country programmes, refrigerant management plans) to phase out ozone depleting substances (ODS), and institutional strengthening projects, primarily for low volume ODS-consuming countries.
- Country-specific support activities specified in country programmes and refrigerant management plans, including national training projects and regional activities such as regional training and the preparation of sectoral surveys and strategies.

### Information exchange

By maintaining, developing and disseminating current and relevant awareness raising material, training and technical documents, UNEP assists decision makers to make informed decisions on policies and investments. This support has been provided by UNEP from the beginning—before, during and after phase-out—to ensure that countries reach and remain in compliance with the Montreal Protocol.

OzonAction publications include technology handbooks and sourcebooks, implementation handbooks, information kits, posters, conference and workshop proceedings, policy documents, case studies, data reporting handbooks, general information booklets, video training manuals and public service announcements. Multimedia services include information via web sites, CD-ROMs, discussion forums and e-news services.

The clearing-house has increased public awareness on ozone issues and has responded to specific technical information needs expressed by governments, industry and other stakeholders. UNEP interventions have supported increased investment and non-investment phase-out activities required for compliance. An independent review conducted under the Monitoring and Evaluation Programme of the Multilateral Fund's Executive Committee concluded that: "UNEP actively communicates with the users of its information services and adapts that programme continuously to their changing requirements. This contribution is particularly valued in smaller countries where UNEP is often the main source of information related to the Protocol. Among both large and small National Ozone Units, the combination of proactive and reactive information support provided by UNEP [is] generally reported to be effective at 'helping National Ozone Units along', thus increasing the capacity of Article 5 countries to realise the ODS phase-out and to comply with their obligations under the Montreal Protocol."

### Country programmes and institutional strengthening

Country programmes and institutional strengthening projects support the development and implementation of national ODS phase-out strategies, especially for low volume ODS-consuming countries. UNEP has assisted more than eighty developing countries to formulate their country programmes, which describe each country's consumption of ODS and their industry and policy structure, and also determines the action plan and national strategy for

The UNEP OzonAction programme is global, but its activities are implemented primarily through the regions, with most activities in Africa and low volume consuming countries.

OzonAction delivers its service through a network of National Ozone Units and partner organisations to reach relevant stakeholders such as governments, industry, NGOs and the general public.

The OzonAction programme facilitates partnerships between those who have ozone protection expertise and experience and those who need it. This facilitation includes supporting both North-South and South-South cooperation.

Full details of the work of the UNEP OzonAction programme are available at [www.uneptie.org/OzonAction](http://www.uneptie.org/OzonAction).

ODS phase-out. Administrative and technical assistance is provided through projects aimed at strengthening national institutional infrastructure through the creation of National Ozone Units. This helps countries to successfully undertake national ODS phase-out activities and implement their country programmes to remain in compliance with the Montreal Protocol.

UNEP has developed a unique participatory methodology for the preparation of country programmes. National stakeholder committees and extensive consultations help to build ownership within countries for ODS phase-out. Country programmes, institutional strengthening projects and refrigeration management plans have brought over 110 low-volume consuming countries (LVCs) and other developing countries into the mainstream of ozone layer protection activities and enabled them to strengthen their local expertise in managing and coordinating ODS phase-out. Additionally, these activities have helped countries to move towards completing phase-out in the refrigeration sector and meet the 1999 freeze on CFC production. UNEP helps LVCs whose consumption is mostly in the refrigeration sector by building their capacity to develop refrigeration management plans. These plans integrate appropriate policies, licensing systems, and recovery and recycling projects to promote compliance with the Montreal Protocol.

### **OzonAction in Latin America and the Caribbean**

The goal of the UNEP OzonAction programme is to decrease the production and consumption of ODS through the implementation of the Montreal Protocol and its amendments. All thirty-three countries in Latin America and the Caribbean (LAC) have ratified the Vienna Convention and the Montreal Protocol. Many of them have also ratified the amendments to these treaties. The OzonAction programme in LAC carries out multiple activities related to capacity building in three major areas: regional networks of ozone officers, institutional strengthening projects and refrigerant management plans.

The thirty-three LAC member countries are divided into two networks: of ozone officers: Mexico, Central America, South America and the Spanish-speaking Caribbean (twenty countries); and the English-speaking Caribbean (thirteen countries). Four meetings are organised each year, two for each network. The meetings are successful because of the active participation of governments who send representatives with decision making power to implement the Protocol. The networks provide a platform for ozone officers to exchange experiences, develop and strengthen their skills and contribute to the strengthening of the capacity of National Ozone Units to implement and manage national ODS phase-out activities in accordance to their compliance obligations with the Montreal Protocol.

Another example of OzonAction capacity building activities are refrigerant management plans (RMP). These are integrated cost-effective strategies for the eradication of ODS in the refrigeration and air-conditioning sectors. The RMP concept was derived from the need to assist countries which face numerous obstacles in phasing out ODS in the critical refrigeration sector. UNEP ROLAC has provided capacity building to governments by training customs officials to control the trade of ODS, and to the private sector by training experts in refrigeration.

As of December 2001, UNEP has been assisting or will assist the following countries in LAC with their country programmes and RMPs: Dominica, Dominican Republic, El Salvador, Haiti, Suriname and St. Vincent and the Grenadines. It is also providing support to Barbados (which already has an established country programme) for preparing its RMP. In addition, UNEP will assist the following countries with updating their country programmes or RMPs: Antigua & Barbuda (with Canada), Belize (with Canada), Guyana (with Canada), Honduras (with UNIDO), Nicaragua (with Finland), Panama (with Finland), Saint Lucia (with Canada), and St. Kitts and Nevis (with Canada). Finally, it is assisting Peru and the Dominican Republic (jointly with UNDP) to develop their country programmes.

In January 2002, the UNEP ROLAC OzonAction Unit took over from the Paris OzonAction office in identifying and addressing countries' current and future needs, improving programme planning, and directly assisting countries to implement institutional strengthening projects. These projects aim to strengthen national institutional infrastructure so countries can successfully undertake national ODS phase-out activities and fulfil their obligations under the Montreal Protocol.



## The UNEP OzonAction programme (*continued*)

### Training

UNEP develops and provides regional and national training programmes and training materials to help developing countries meet their phase-out commitments. The regional and national training programmes, as well as other capacity building activities, are linked to each other in a complementary fashion to ensure a comprehensive phase-out strategy. More specifically, UNEP training is aimed at:

- The establishment and enforcement of ODS licensing systems.
- Good practices in refrigeration, including recovery and recycling.
- Strategies for national customs officers to curb illegal trade.
- Farmer education programmes with strategies to implement methyl bromide alternatives.

To date, more than thirteen regional training programmes, especially on control and monitoring of ODS, have helped more than eighty-five countries to develop their own action plans to implement import/export control systems. UNEP implements national training programmes for customs and enforcement officers as well as training programmes for refrigeration technicians in more than fifty developing countries. The objective of these courses is to prevent unnecessary CFC emissions through good servicing and containment practices and to promote national cooperation and the creation of industry associations where they do not exist.

### Regional networking

Regional networking provides a regular, interactive forum for officers in National Ozone Units to exchange experiences, develop skills and share knowledge and ideas with counterparts from both developing and developed countries. Through regular meetings, e-mail forums and ongoing dialogue, networking helps ensure that National Ozone Units have the information, skills and contacts required for managing national ODS phase-out activities

### The Green Customs Initiative

International illegal trade in ozone depleting substances (ODS) can be reduced, if not completely eliminated, through unified international efforts. Training programmes for customs officers are needed—not just for the Montreal Protocol, but also for other multilateral environmental agreements such as the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Such programmes need to be harmonised so that customs officers receive comprehensive efficient training that covers all multilateral environmental agreements (MEAs).

Recognising this need, the UNEP OzonAction Programme catalysed the formation of the Green Customs Initiative among the above-mentioned conventions in October 2001. The major concern is to build the capacity of customs officers on compliance with MEAs. One of the objectives is to develop a comprehensive and cost-effective plan of action so that the environmental message of all the MEAs reaches the single target group of customs officers in a coordinated

manner. The integration of customs training is the first concrete point of providing cross linking between the MEAs with limited resources.

Over the years the UNEP OzonAction Unit has organised a series of national 'train the trainers' workshops for customs officers across the globe (*see [www.unep.org/ozonaction](http://www.unep.org/ozonaction)*). It has also published a training manual for customs and enforcement officers involved in the control of trade in Ozone Depleting Substances (ODS). The manual provides guidance to National Ozone Units and customs trainers on how to organise and conduct training for the implementation of trade controls on ODS and products containing ODS. It includes generic agendas, concept notes, checklists, evaluation questionnaires as well as all relevant training materials and overheads. The English version is being translated into French, Spanish, Chinese and Arabic. It also encourages closer cooperation between the secretariats of different international environmental conventions in order to develop a more integrated approach towards customs training, in line with the principles of the Green Customs Initiative.

successfully. UNEP currently operates eight regional and sub-regional networks involving 114 developing and 9 developed countries.

Networking activities have resulted in improved data reporting, policy making, implementation of refrigeration management plans and the development of cooperation among National Ozone Units to encourage early steps for Montreal Protocol implementation.

### Perspectives for the future

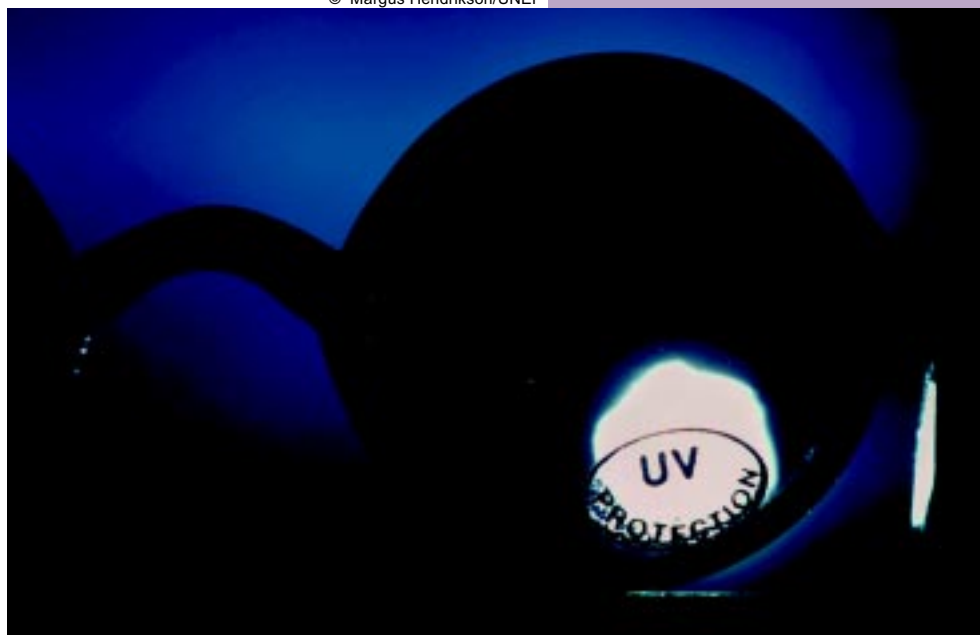
The evolution of the activities of the OzonAction programme has always been driven by the changing needs of developing countries as they move further along in their implementation of the Montreal Protocol.

UNEP has responded to the changing needs and priorities of developing countries during the Montreal Protocol compliance period by re-orienting its programme strategy and its delivery mechanisms into the Compliance Assistance Programme (CAP).

Through the CAP, UNEP is moving from a project management approach to direct implementation, using a team of professionals with appropriate skills and expertise who can directly assist countries to support and sustain compliance. UNEP is also placing its regional offices at the forefront of project implementation. The majority of the CAP team will be based in regional offices where they can work more closely with the countries on an ongoing basis. Through the more direct delivery of services, the CAP will enable UNEP to be more responsive to the needs of developing countries. This innovative regional delivery approach may set a trend in supporting compliance with other multilateral environmental agreements.

The new Compliance Assistance Programme will focus on:

- Promoting country-driven awareness-raising activities and encouraging mutual assistance between developing countries ('South-South support) to encourage greater participation, involvement and ownership of the phase-out process and provide the impetus needed to enable the countries to meet their freeze requirements and control measures.
- Information clearing-house activities on activities that help countries meet specific compliance targets.
- Promoting cooperation with the Ozone Secretariat, global ratification of the Montreal Protocol (Project 2002) and its amendments by focusing efforts on the countries that have yet to ratify.
- Supporting the regionalisation of policy development and enforcement.
- Capitalising on strengths in training and speeding up implementation of training programmes to support implementation of refrigerant management plans in order to assist countries to meet subsequent freeze targets.
- Establishing additional partnerships with international and regional training institutes and organisations.
- Promoting the greater involvement of regional network coordinators following institutional strengthening and training activities in their respective regions.



# The UNEP Sustainable Energy Programme

UNEP has always been concerned about energy because energy production and use cause a wide range of serious environmental local, national, regional and global problems. In recent years, global warming and climate change have thrown a spotlight on the links between energy use and the global environment. At the same time energy poverty hinders the economic and social development of billions of people. UNEP is working to help countries meet the challenge of sustainable energy—the production, delivery and use of energy in ways that support human development in all its social, economic and environmental dimensions.

The goal for UNEP is to insert a longer term, environmental dimension into energy sector decisions. UNEP activities enable decision makers to understand better the link between the energy choices they face and broader sustainable development issues. Working with a wide range of partners, UNEP helps develop and implement approaches for:

- Analysing various energy policies.
- Climate change mitigation.
- Energy sector reform.
- Industrial energy efficiency.
- Environmentally sound transport choices.

Strategies that improve energy policy analysis are complemented by tools that help decision makers achieve practical solutions to energy problems. A special effort is made to help financial institutions understand better the good investment opportunities available in renewable energy and energy efficiency projects, work that builds off UNEP cooperation with banks and insurance companies. A new UNEP partner, the Basel Agency for Sustainable Energy (BASE) is instrumental in this effort.

UNEP efforts are primarily directed at developing countries, and much UNEP work is done jointly with energy/environment/development institutes worldwide. UNEP is now strengthening this informal network of centres of excellence to build a tighter global community of sustainable energy practitioners, a structure where creative solutions to energy and environment problems are more easily shared.

One of the strengths of UNEP in the energy field is the UNEP Collaborating Centre on Energy and Environment (UCCEE). The UCCEE group of international scientists, engineers and economists provides technical and analytical support to UNEP and partners in developing countries. UCCEE works catalytically, supporting research by local institutions, coordinating projects, disseminating information and carrying out a full in-house research programme in close collaboration with an international and multidisciplinary community of sustainable energy and development practitioners.

## The UNEP Energy Programme

The UNEP Energy Programme addresses the environmental consequences of energy production and use, such as global climate change and local air pollution. UNEP assists decision makers in government and the private sector to make better, more informed energy choices which fully integrate environmental and social costs.

UNEP Energy is concerned with issues of:

- Renewable energy.
- Energy efficiency.
- Sustainable transport.
- Energy finance.
- Energy policy.

Most of this work is conducted with partners, including governments, NGOs, academic and research institutions, banks and private sector companies.

Important resources of the programme are the UNEP Collaborating Centre on Energy and Environment (UCCEE) and the Basel Agency for Sustainable Energy (BASE). Financial Support for the programme comes from the UNEP Environment Fund, bilateral donors, the Global Environment Facility (GEF) and the United Nations Foundation.

For more information on UNEP energy work visit [www.uneptie.org/energy](http://www.uneptie.org/energy)

The UNEP Energy Programme brochure is available at [www.uneptie.org/energy/act\\_energy\\_brochure.pdf](http://www.uneptie.org/energy/act_energy_brochure.pdf)

The UCCEE web site is at [www.uccee.org](http://www.uccee.org)

The Basel Agency for Sustainable Energy site is at [www.energy-base.org](http://www.energy-base.org).

For a list of UNEP energy activities and publications visit the UNEP and UCCEE web sites at: [www.uneptie.org/energy/publications](http://www.uneptie.org/energy/publications) and [www.uccee.org/publications](http://www.uccee.org/publications)

## Some UNEP energy projects and activities

### Renewable energy

- The African Rural Energy Enterprise Development Initiative (AREED) is enabling the private sector to deliver affordable energy services based on clean and renewable energy technologies in five African countries. A similar initiative has started in Northeast Brazil (see page 102).
- UNEP has helped Natural Resources Canada to enhance the performance of the RETScreen™ renewable energy pre-feasibility analysis software by adding a greenhouse gas emissions calculator.
- UNEP recently published *Natural Selection: Evolving Choices for Renewable Energy Technology and Policy*, which describes different renewable energy technologies and the policies that can make them a reality. Other publications include: *Technology without Borders: Case Studies of Technology Transfer*, in collaboration with the International Energy Agency and the Climate Technology Initiative; *Managing Technological Change*, which provides a succinct explanatory summary of the IPCC Working Group III Special Report; and *Methodological and Technological Issues in Technology Transfer*.

### Energy efficiency

- The Energy Management and Performance Related Energy Savings Scheme (EMPRESS) project is helping establish specialised energy service companies that provide services to industrial and commercial clients in CEE countries.
- With the World Bank, UNEP is investigating ways to overcome financial sector barriers to lending for energy efficiency projects in Brazil, China and India.
- A GEF-funded effort is helping national cleaner production centres integrate energy efficiency into their mainstream programmes.

### Energy policy

- Efforts in sub-Saharan Africa are aimed at helping governments with power sector reform, energy sector finance, energy subsidy reform, and climate change policy.
- UNEP is creating a Network of Energy Centres of Excellence which promotes sustainable energy approaches through coordinated programmes of policy analysis, practical advice, targeted research and investment promotion.
- Together with the International Energy Agency, UNEP has conducted a series of regional workshops on environmental, social and economic impacts of energy subsidies and their reform. Summary reports of the meetings including policy recommendations are available.

### Energy finance

- By working with various types of financial institutions, insurance companies and expert credit agencies, UNEP is exploring ways to direct finance and investment flows to sustainable energy projects, particularly in developing countries.
- The Renewable Energy Technology/Energy Efficiency Investment Advisory Facility (IAF) helps financial institutions evaluate potential renewable energy or energy efficiency investments in developing countries and countries with economies in transition.
- UNEP is working with rural Indian finance institutions to develop a credit facility for solar system purchases that uses UN Foundations resources to buy down the initial risks of lending to this sector (see page 100).

### Transport

- UNEP manages a Mobility Forum for discussion and joint activities involving representatives of major automotive manufacturers. A report on past activities and remaining challenges in the field of road transport and the environment is under preparation, and indicators for sustainability reporting specific to the automotive sector are being prepared in a stakeholder dialogue process. Furthermore, a campaign on environmentally friendly driving behaviour is planned.
- The joint UNEP/OECD publication *Phasing Lead out of Gasoline: An Examination of Policy Approaches in Different Countries* describes successful programmes to eliminate the use of lead in gasoline.
- As a starting point for its work in the area of aviation and environment, UNEP organised a conference on airports and the environment in early 2002.



## Financing solar photovoltaic systems in South India

Although India has pursued an aggressive rural electrification strategy in the past decade, approximately seven out of ten rural households are still without access to electricity. These households continue to rely on less efficient and polluting energy sources to the detriment of the environment and to their own social and economic development. One solution to this challenge is to shift the energy paradigm away from centralised fossil-fuelled power plants towards clean and cost-effective solutions based on decentralised solar photovoltaic (PV) rural electrification.

The rural solar market in India is nascent but growing, although only amongst the 10 to 15 per cent of rural households and enterprises that can afford to pay cash for PV systems. Lacking access to credit, most rural customers cannot afford to pay up-front for the twenty years of electricity supply that a PV system will provide. Although India has a well-developed rural banking infrastructure, the link between the renewable energy and banking sectors has yet to be consolidated. The goal of this project is to develop a credit facility so Indian banking partners can develop lending portfolios specifically targeted at financing solar home systems in poorly served regions of southern India.

The project is a short-term intervention designed to help kick-start the market for rural credit finance of the solar energy sector in India. It therefore requires terms of concessional finance that will no longer be required once barriers to mainstream financing—such as technology perceptions—have been addressed and the creditworthiness of rural solar customers proven.

### The Global Compact: shared values for the global market

At the World Economic Forum in January 1999, United Nations Secretary-General Kofi A. Annan challenged world business leaders to “embrace and enact” the Global Compact, both in their individual corporate practices and by supporting appropriate public policies. This Compact aims to engage the business community in an effort to advance basic values in the fields of human rights, labour and environment.

The Global Compact was officially launched on 26 July 2000, in New York, at a high-level meeting attended by the UNEP Executive Director, top executives of nearly fifty multinational corporations and members of labour and civil society organisations.

The Global Compact challenges individual corporations and representative business associations to support and enact a set of nine core values within their sphere of influence. Three environment-related principles are taken from the Rio Declaration of 1992. They require businesses to:

- Support a precautionary approach to environmental challenges.
- Undertake initiatives to promote greater environmental responsibility.
- Encourage the development and diffusion of environmentally friendly technologies.

UNEP is one of four key United Nations entities involved in the Global Compact, along with the International Labour Organisation (ILO), the Office of the High Commissioner for Human Rights (OHCHR) and the United Nations Development Programme (UNDP).

UNEP has a tradition of working closely with NGOs and partners from the private sector. At the sectoral level, companies have the opportunity to advance the Global Compact principles through voluntary initiatives that UNEP is promoting.

For more information see the Global Compact web site at [www.unglobalcompact.org](http://www.unglobalcompact.org).

## The project development process

In Spring 2001, the United Nations Foundation (UNF) approved a planning grant for preliminary development of the solar credit facility in preparation for a full project submission to UNF and other foundation boards in 2002. The project development strategy involves five steps:

1. Prepare a brief on the design of a credit facility for one or two states in southern India, specifically addressing portfolio and risk mitigation issues, the use of direct refinance or related guarantees, and the transaction structure.
2. Carry out a set of consultations with stakeholder groups—rural finance institutions, solar vendors and government institutions—to assess the needs for solar PV financing and discuss ways in which targeted support could help banks increase lending for this sector.
3. Based on the consultations, propose a solar credit facility support mechanism and identify rural banking institutions as partners.
4. Design the facility and negotiate its terms with banking partners.
5. Prepare a comprehensive project proposal of \$1.5 to \$2 million for UNF and other foundation support that would allow UNEP and its partners to establish, implement and monitor the credit facility. The proposal would include letters of intent from the partner financial institutions and relevant government offices.

The Solar Credit Facility Support is proposed to take the following forms:

- **Interest rate subsidy**, through the selected banks, to reduce the costs of loans to customers. Providing an interest rate subsidy will allow partner banks to offer loans to customers at concessional rates of interest, which could be between 5 and 8 per cent below the normal 12 to 14 per cent per annum rates. Not being familiar with PV technologies, bankers are not very price sensitive on system costs. However they are enthusiastic about the possibility of offering low interest rates to their customers and therefore an interest subsidy could help banks develop solar financing portfolios without significantly distorting the market price for solar systems. The subsidy is expected to involve about 75 per cent of project funding.
- **Technical assistance** to India's National Bank of Agriculture and Rural Development (NABARD), to enable it to issue suitable policy directives to encourage bank lending (approximately 5 per cent of project funding). UNEP should work closely with NABARD to develop policy guidelines for encouraging loans by banks for buying solar systems. It should also provide the platform for dissemination of awareness among the banks. Support would be in form of technical assistance and/or funds to NABARD for conducting awareness programmes jointly with UNEP.
- **Awareness raising programmes** to educate bankers about the viability and effectiveness of solar PV systems (approximately 20 per cent of project funding). UNEP can sponsor awareness programmes at the grassroots level for banks, for example
  - Awareness programmes for bank branch managers and officers of selected banks.
  - Sponsored conferences and workshops at apex level.
  - Participation in vendor-banker summits and promotional forums.

As of January 2002, project partners had completed project development steps 1 through 3 and had begun step 4 to design the facility and negotiate its terms with banking partners. UNEP, in consultation with banks and vendors, is now in the process of designing a loan product, structuring support mechanisms and resolving market infrastructure issues as a precursor to full proposal submission and implementation of the project.

Reports available  
(electronically upon request)  
from UNEP DTIE:

- *Concept Paper: Designing a Credit Facility for the Financing of Solar Photovoltaic Systems in Southern India*
- *Report on Meetings with Stakeholders*
- *South Asia Solar Rural Electrification Report*
- *South India Solar Rural Electrification Report*

## Brazil rural energy enterprise development

UNEP is initiating the Brazil Rural Energy Enterprise Development programme in northeastern Brazil in partnership with its Collaborating Centre on Energy and Environment (UCCEE) and E&Co, a non-profit energy investment company created by the Rockefeller Foundation. B-REED seeks to develop new sustainable energy enterprises that use clean, efficient and renewable energy technologies to meet the energy needs of underserved populations, thereby reducing the environmental and health consequences of existing energy use patterns. B-REED will offer rural energy entrepreneurs a combination of enterprise development services and start-up financing. B-REED's services will include training, hands-on business development assistance and, for promising businesses, early-stage investment and help to secure financing. B-REED will also work to broaden the skills of organisations in the energy and investment sectors to nurture energy entrepreneurs.

B-REED will work with Brazilian NGOs and development organisations on clean energy enterprise development. The objective is to help prepare NGOs to identify potential energy projects and to provide follow-up business support services. Resource tools that focus on business planning, management structuring and financial planning for the rural energy sector will be prepared and disseminated. B-REED will also work with financial institutions to assess the rural energy business sector and integrate it into their portfolios. This will be achieved through workshops and specific hands-on tools centred on rural energy markets and renewable energy technology enterprises, appropriate project finance models, financial analysis and risk management issues. Opportunities for co-financing will be explored.

### Implementing B-REED

The B-REED initiative will be implemented in three phases. In Phase I, the B-REED team will assess current renewable energy and rural electrification schemes in nine of Brazil's northeastern states. Three states will be selected for B-REED activities. Market opening workshops will be held to identify potential local NGO partners, financing institutions and early candidate enterprises. This planning phase will also seek matching and co-financing funds, and include the possible creation of an investment facility for co-financing local energy enterprises. Phase I is currently being launched. Phase II will develop the capacity of regional and local financial institutions and NGOs to introduce rural energy enterprises as profitable and sustainable avenues for energy service delivery. Phase III will focus on packaging investment opportunities for B-REED's environmental venture funds.

### The B-REED enterprise development approach

B-REED applies a hands-on enterprise development approach used by E&Co that is similar to venture capital but on a smaller scale and with social and environmental ends. The first B-REED support to an energy entrepreneur might be a modest loan (e.g. \$15,000) to support the preparation of a business plan. If this looks promising, a second financing package—usually in the form of a purchase of an equity share—could assist a company start-up. Once the business is operating, a working capital loan might be provided on a cost-sharing basis with the owner(s). In the initial period, significant in-kind support is provided, including a representative of B-REED working closely with the company's management. The support increases the probability that a more bankable project can eventually be presented to investors and partners. Total B-REED support to a company typically ranges from \$50,000 to \$100,000, although it can reach \$250,000. Once other partners are committed to a new company, B-REED's role diminishes. The intervention is considered successful once B-REED's experience is no longer needed and the enterprise has either reached sustainability or is capable of attracting outside investors.

B-REED is helping build successful businesses that supply clean energy technologies and services to rural Brazilian customers. Entrepreneurs considering starting a business to provide clean energy services, or NGOs or financial institutions interested in learning more about how to work with B-REED or similar UNEP supported projects, can contact the UNEP Division of Technology, Industry and Economics' Energy Programme or visit [www.unep.org/energy](http://www.unep.org/energy).

The B-REED approach is now being applied in five countries in Africa under the United Nations Foundation-supported African Rural Energy Enterprise Development Initiative (see [www.areed.org](http://www.areed.org)).

The AREED project has expanded the E&Co approach to also address the three principal stakeholders—enterprise developers, banks and governments—who need to believe in the approach if replication on a larger scale is to occur.

## Finance for cleaner production

Preventive environmental strategies, as embodied in the principles of cleaner production, have the greatest potential and relevance for developing economies. Implementing these strategies requires building capacity at the local level. Towards this end, UNEP and UNIDO have already established eight national cleaner production centres in Africa, in Ethiopia, Kenya, Morocco, Mozambique, Tanzania, Tunisia, Uganda and Zimbabwe. In addition, a number of bilateral cleaner production programmes have been established in the region. UNEP has also been working in Tanzania and Zimbabwe under the project Strategies and Mechanisms for Promoting Investments in Cleaner Production.

Despite its advantages, finding investment funds is a major constraint in making cleaner production widely practised. In 1999 UNEP-DTIE launched a four-year project to encourage the financial community to support preventive approaches and efficient resource management. The immediate objective of this project was to facilitate the financing of cleaner production investments in five developing countries (Guatemala, Nicaragua, Tanzania, Vietnam and Zimbabwe) by:

- Demonstrating how to initiate and facilitate the financing of cleaner production investments.
- Developing financing instruments for effectively promoting cleaner production investments in developing countries.
- Designing enabling strategies for supporting public and private financial institutions and the industrial community to adopt these financing instruments.
- Motivating key decision makers in the international community and the public and private financial sectors to pursue cleaner production investments in developing countries.

Core teams of national experts—financial analysts and cleaner production promoters—have been built in the five countries to assist the industrial community to generate cleaner production investments (for example by preparing loan applications that are attractive to banks) and to help the financial sector to assess the merits of these proposals. Portfolios of cleaner production loan applications have been prepared in each country with selected local industries, amounting to some fifty projects with investment values ranging from \$5,000 to \$4 million. These investment proposals have also served as valuable cases for local capacity building.

Based on the results of needs assessments conducted in the five countries the UNEP project has developed a menu of four training courses:

- Introduction to Cleaner Production Concept and Practice (one-day awareness course).
- Introduction to Capital Budgeting and Financing of Capital Projects (one-day awareness course).
- Profiting from Cleaner Production (two-day skill course).
- Funding Cleaner Production Projects (two-day skill course).

Based on experiences accumulated during the project UNEP is publishing the following materials for world wide use:

- A booklet *Profiting from cleaner production: Journey to efficient resource management* for senior and middle management in government, finance and business.
- Executive awareness slide presentations *Profiting from cleaner production* for industry, financiers and governments.
- Checklists to facilitate decision making related to cleaner production investments
- Generic versions of the four training modules listed above.
- A trainer's guide to cleaner production.

Full details of UNEP cleaner production work are available at [www.unepdtie.org/pc/cp](http://www.unepdtie.org/pc/cp).



## Transfer of environmentally sound technology

An important element for achieving sustainable development is the transfer of environmentally sound technologies. An example of UNEP capacity building in the field of technology transfer is the work of the UNEP International Environmental Technology Centre (IETC). IETC, based in Japan, was established by UNEP in 1994 to support the sustainable management of urban areas and freshwater basins in developing countries and countries with economies in transition.

IETC pays specific attention to the promotion, adoption and use of environmentally sound technologies in helping solve urban environmental problems such as water quality, sewage, solid waste, energy, urban sprawl, land contamination, transport, air pollution and noise. With urban populations growing two and a half times faster than their rural counterparts, the United Nations estimates that urban populations will represent over 50 per cent of the world's total population by 2005. By 2025, more than 60 per cent of the world's population will live in urban areas. The estimated urban population in that year will be approximately 5.4 billion, of whom 77 per cent will live in developing countries. The management of freshwater basins is also of prime concern to IETC (*see also page 64*).

Over the last five years, IETC information and capacity building services have served the world. IETC publications are distributed globally. The information system and management tool, maESTro, is a global, comprehensive information directory of environmentally sound technologies that is appreciated for its objectivity and neutrality. IETC activities have reached almost 98 per cent of developing countries and countries with economies in transition. The only countries its information materials and services have not reached are those that are unreachable because of war.

To build the capacity of UNEP clients and beneficiaries, IETC global training activities have included:

- A training course on environmental management for least developed countries, co-organised by the government of the Philippines in 1999.
- Two workshops on the full range of selection, application and management of environmentally sound technologies, held in Germany in 1997 and in Australia in 1998.
- Several international expert meetings and round tables, e.g. on solid waste management; environmental management systems; wastewater and stormwater management; and environmental technology verification.
- A symposium on efficient water use, in Japan in 1999.

To enhance the knowledge base in its focal areas, IETC has undertaken two global surveys. The first was on information systems and sources that focus on environmentally sound technologies, done on the request of the Commission on Sustainable Development (CSD) in 1995. The results of this survey served as the basis for the creation of maESTro. The second global survey, although on a limited scale, was on endogenous environmentally sound technologies. Again, this was undertaken in response to a CSD suggestion.

A recent resource tool developed by IETC is the Environmental Management Exchange and Resources Alliance for Local Development (EMERALD). EMERALD is an umbrella initiative that brings together existing initiatives and web sites related to urban and local environmental issues. The aim of EMERALD ([www.urban-emerald.net](http://www.urban-emerald.net)) is to:

- Develop awareness and educate on issues related to urban environments.
- Assist in policy and programme development.
- Facilitate monitoring and evaluation.

IETC activities are also implemented at the regional level. These activities include regional workshops and consultations, and joint research projects with partner academic institutions.

IETC global research projects have produced a series of publications, including:

- International sourcebooks on environmentally sound technologies for municipal solid waste management.
- Regional sourcebooks on alternative technologies for freshwater augmentation in 1995-1997 covering, in separate volumes, Africa, Asia, Central and Eastern Europe, and Latin America and the Caribbean.
- A book on the planning and management of lakes and reservoirs.

## Tools for sustainable production and consumption

UNEP has developed, jointly with industry, governments and other relevant stakeholders, tools and instruments, practices, guidelines and codes of conduct as a means of translating knowledge into environmental action. Judging by the extent of their application and popularity, the evaluation has established that UNEP knowledge products have succeeded in influencing both governments and the private sector to commit themselves to decisions and actions likely to improve human safety and protect the environment.

The following are some of the most successful environmental action tools that have been developed, applied, tested and refined:

- **Industrial estate framework:** This incorporates technical guidelines for the implementation of cleaner production practices in order to reduce pollution and industrial risks where there is a high concentration of industries.
- **Technical guidelines for the iron and steel industry sector:** The guidelines include energy auditing for industrial facilities to support sustainable resource management.
- **Voluntary initiatives:** UNEP has played an active role in cooperation with governments and industries in the inception and promotion of legislation and codes of conduct.
- **International Declaration on Cleaner Production:** A mechanism which asks signatories to voluntarily commit themselves to good practices in cleaner and safer industrial production. Conscious and voluntary commitment to good environmental practices enhances the effectiveness of environmental action. (182 entities, active environmental partners, have committed themselves to comply with the goals of the declaration).
- **Photovoltaic market transformation:** UNEP, in cooperation with the World Bank and GEF, has taken a lead in establishing renewable energy electricity generating technologies and cost-effective technologies.
- **Environmental impact assessment material:** UNEP organised a working group of experts to develop this manual through a process involving stakeholders. The manual is currently being used to integrate environmental impact considerations into development planning. Several institutions base their activities on UNEP work on impact assessment.
- **Studies on the environmental impacts of trade liberalisation:** A synthesis report which takes stock of the situation characterising trade, economics and environment in several countries and also develops policy solutions to address identified negative impacts.
- **Valuation:** UNEP has developed a series of environmental valuation tools, including: *Current Practices on Valuation*, a compendium of case studies on environmental valuation, *Economic Values and the Environment in Developing Countries*, and *Economic Instruments for Environmental Management*. All these tools have been published, disseminated and are currently being used by academics and policy-makers.
- **WTO-UNEP framework agreement:** A document on trade, environment and development negotiated between WTO and UNEP. This global policy instrument seeks to advance sustainable development by addressing the role of trade.
- **Integrated assessment of trade:** The methodology aims to support sustainable development as related to trade. It is being developed through the now accepted and effective process that provides active partnership (and ownership) through expert working groups, consultation and contributions from relevant country experts.
- **Developing an effective capacity to facilitate the development of legally binding environmental instruments:** Based on the Rotterdam Convention and the Convention on Persistent Organic Pollutants, UNEP has developed a replicable process in the conceptualisation and facilitation of global environmental consensus and action.
- **Chemicals management guidelines:** UNEP has developed and disseminated several guidelines for identifying and managing PCBs, dioxin and furan.

## Trade and environment

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Enhanced trade and investment flows associated with globalisation are confronting developing countries and countries with economies in transition with a diverse set of trade, environment and development challenges. It is now widely recognised that capacity building is urgently needed to assist decision makers to addressing these challenges and fully capture the benefits of globalisation. The UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF) was conceived as a response to these needs. Through this joint initiative, UNEP and UNCTAD are pooling their efforts and resources to provide a unique and flexible framework to implement a coordinated and comprehensive set of highly participatory activities.

Through activities in five clusters—thematic research, country projects, training, policy dialogue and networking—the CBTF aims to help beneficiaries address trade-environment-development issues at the national level, and to participate in related deliberations at the international level. Thematic research and country projects, involving a 'learning by doing' process directly enhance the capacities of practitioners to assess and manage policy integration challenges in beneficiary countries. Training raises awareness and broadens the information base on critical trade, environment and development issues. Policy dialogue and networking reinforce the learning process by allowing CBTF beneficiaries to exchange ideas, experiences and perspectives and to develop partnerships which foster greater cooperation.

Following a March 2000 briefing session attended by officials from more than forty Geneva missions, the CBTF terms of reference were established and the task force was officially launched. Meetings with representatives of potential donor countries were held in May 2000 inviting governments to collectively contribute to the funding of the first year of CBTF activities. To date, contributions have been received from the governments of Germany, Norway and the United Kingdom, enabling the establishment of a UNEP-administered trust fund that will underpin the activities of the CBTF. However, additional financial contributions from other donors are being sought to support a broad and balanced offering of CBTF activities.

### Goals and objectives

To strengthen the capacities of countries to effectively address trade-environment-development issues, the CBTF will help beneficiaries, at their request, to:

- Undertake comprehensive analyses of the relationships between trade, environment and development.
- Assess the environmental and developmental impacts of trade policies, as well as the trade and developmental implications of environmental policies with a view to maximising the benefits of trade.
- Develop and implement policy packages to promote integrated national trade, environment and development policies.
- Explore approaches to address trade-environment-development issues at the domestic level with national stakeholders, and at regional and global levels with international experts, practitioners and negotiators.
- Participate effectively in trade-environment-development deliberations.
- Access information from, and build cooperation with, relevant organisations working in the trade-environment-development domain.



Multilateral trade rules can encourage environmentally damaging economic activities at the national level

## Activities

In response to expressed country needs, the CBTF will facilitate five integrated and complementary sets of activities which will be constructed around a collaborative partnership-based approach. These are:

- Thematic research on major issues in the trade-environment-development domain and on practical approaches to sustainably address them, bearing in mind the development priorities of countries.
- Country projects to enhance countries' capacity to develop mutually supportive trade, environment and development policies.
- Training to enhance countries' appreciation of the relationship and complementarities between trade, environment and development.
- Policy dialogue to facilitate awareness raising, consultations and the exchange of perspectives among experts, policy makers and negotiators at the national, regional and international level.
- Networking and information exchange to provide technical and operational support at the national and regional level and to widely disseminate the results of CBTF activities.

All CBTF projects are conceived, designed and proposed by national institutions in developing countries and countries with economies in transition. The selection of projects to be supported as CBTF activities is made jointly by UNCTAD and UNEP based on a number of criteria, which include:

- Proposed project activities falling within the CBTF terms of reference and related to its proposed first year activities.
- Building on acquired experience in the selected area while not duplicating other capacity building activities at the bilateral or multilateral level.
- Willingness and commitment on the part of the national government to be involved in the proposed project activities.
- Policy-relevant and action-oriented nature of the proposed project and its likelihood of supporting a process of policy reform to address national needs and priorities.
- Replicability of proposed project activities within the country or region.
- Research and implementation capacity of the proposing national institution.
- Appropriate geographical distribution and recognition of the special requirements of least developed countries.

### First phase of projects:

Due to the extra-budgetary nature of the CBTF, its activities are launched in phases according to the timing and availability of financial resources contributed by donors. Seven projects from the almost forty proposals received were selected for support and were initiated from 2001:

- Thematic research: two projects in Indonesia on cost internalisation.
- Country projects: A project in Lebanon on regional trade and environment policy coordination; a project in El-Salvador on an assessment of regional trade and technology transfer needed for waste recycling.
- Training: Development of CBTF training programmes for Vietnam, Cambodia and Laos, Cuba and some least developed countries in Africa.
- Policy dialogue: International Conference on Trade, Environment and Sustainable Development:
- Perspectives from Latin America and the Caribbean, in Mexico City, February 2001.

Further information on the CBTF is available at the web site: [www.unep-unctad.org/cbtf](http://www.unep-unctad.org/cbtf) and through CBTF documents available online, and in hard-copy format, upon request. CBTF staff may be contacted by e-mail at [cbtf@unep-unctad.org](mailto:cbtf@unep-unctad.org).



## Trade and environment: country projects

UNEP works closely with governments to enhance institutional and human capacity for integrating environmental considerations into development planning and decision making. UNEP activities in this field include country projects to identify the impacts of trade and trade liberalisation on national environmental resources and to develop policy response packages including economic instruments that address these impacts.

The rapid growth of trade associated with globalisation has raised concerns about its environmental and developmental impacts in many developing countries and countries with economies in transition. Multilateral trade rules can inadvertently encourage environmentally damaging economic activities at the national level. Furthermore, in countries where national trade liberalisation reforms have been extensive, environmental damage from increased trade threatens to reduce net economic gains from exports and thus undermine development prospects.

The effects of trade aside, many countries are finding that domestic development trends and policies are increasing natural resource depletion and environmental degradation. Many thus seek to design and implement economic instruments to better manage their natural and environmental resources. This is particularly important for developing countries characterised by low living standards, poverty and the intensive use of natural resources, where there is a need to protect the environment without retarding economic growth. The challenge for these countries is to identify and adopt instruments that integrate national environmental and economic objectives.

Capacity building is indispensable if countries are to effectively address sustainable development challenges and fully capture the benefits of globalisation. As the pace of globalisation accelerates, the role of UNEP is expanding to respond to the growing need for capacity building on this complex policy interface. UNEP is working closely with developing countries and countries with economies in transition to enhance their institutional and human capacity to assess the environmental impacts of national and multilateral trade and economic development policies. The objective of these assessments is to find ways to internalise environmental costs through the use of economic instruments and other policies that promote efficient environmental management. Following such assessments, UNEP assists countries to develop complementary policies to reduce negative trade-related environmental impacts and enhance positive ones.

### Goals and objectives

UNEP country projects represent the core of UNEP capacity building activities on trade and environment. With UNEP support, participating countries from Asia, Africa, Latin America and Eastern and Central Europe are developing sustainable development policies, including mutually supportive trade and environment policies. This involves undertaking integrated environmental, social and economic assessments of national trade liberalisation policies and multilateral trade rules, and formulating cost-effective regulatory and economic instruments and voluntary initiatives at the national level to promote sustainable development.

Country project objectives include:

- Building capacity for systematic integrated assessment of the impacts of globalisation and related trade liberalisation policies and multilateral trade rules on the environment.
- Understanding and quantifying the economic, environmental and social costs and benefits of different trade policies and multilateral trade rules.
- Developing strategic policy responses to further sustainable development in the country and sector studied.

Further information is available at the UNEP web site: [www.unep.ch/etu](http://www.unep.ch/etu) and through numerous publications, including country reports, available online and in hard-copy format upon request.

The UNEP Economics and Trade Unit staff can be contacted by e-mail at [etu@unep.ch](mailto:etu@unep.ch).

Through a broad-based participatory process, UNEP country studies on trade liberalisation and the environment help countries operationalise sustainable management of natural and environmental resources, including biodiversity, in order to improve the welfare of current and future populations. UNEP country projects are entirely country-driven—conceived, designed and conducted by national teams of practitioners. Project studies encompass new solution-oriented research on unique trade-related environmental problems and their social and economic implications in diverse sectors. Country projects involve multi-stakeholder participation—including local citizens, relevant government departments, United Nations bodies, academia, industry and the private sector—to identify the dynamics involved in environmental degradation and to develop widely acceptable national response strategies.

Each country project concludes by recommending a set of practical measures—comprising command-and-control regulations, voluntary initiatives and economic instruments designed to meet national conditions—that can significantly reduce trade-related environmental degradation while not negatively affecting trade. Projects do not end with published studies. Their final component involves pilot implementation of proposed measures undertaken by national authorities in collaboration with each project's national team and with technical assistance from UNEP.

National teams in participating countries each implement a sequence of activities:

- Developing a work-plan identifying the sector selected and activities to be undertaken during the twelve- to eighteen-month project.
- Establishing, and convening meetings of a national steering committee and convening national stakeholder workshops to launch the project and discuss the recommended policy options and their implementation.
- Performing an environmental impact assessment, a resource valuation analysis, and completing a cost benefit analysis of trade liberalisation in the selected sector, which also takes account of social and economic developmental impacts.
- Designing a corrective policy package that minimises negative and maximises positive environmental impacts identified in the study's environmental impact assessment.
- Implementing the recommended policy package on a pilot basis.
- Follow-up evaluation of the project.

A first round of country projects involved the participation of Bangladesh, Chile, India, the Philippines, Romania and Uganda from 1997 to 1999. Responding to high demand, UNEP launched a second round of country projects in Argentina, Chile, China, Ecuador, Kenya, Nigeria, Senegal, Tanzania and the Philippines in 2000.

The results of the projects in participating countries include:

- Greater awareness and understanding of the factors leading to environmental degradation or benefit associated with trade liberalisation policies and multilateral trade rules in the specific sector, and their effect on sustainable development.
- Enhanced capability of government policy makers and private sector decision makers to develop strategic management responses—including policy packages comprising economic instruments/regulations and voluntary initiatives—to mitigate the negative environmental impacts of trade liberalisation, taking into consideration their economic implications.
- Strengthened institutional and human resource capacity for the implementation of policy packages that support and integrate trade and environmental objectives.

The sectoral coverage of country projects implemented to date includes:

- Agriculture: China, Ecuador and Nigeria.
- Fisheries: Argentina, Bangladesh, Senegal, Uganda.
- Forest Resource Management: Philippines, Tanzania.
- Manufacturing and Transportation: India.
- Mining: Chile.
- Water Resource Management: Romania.
- Waste Management: Kenya.

## Sustainable tourism

Tourism is one of the worlds' leading industries. As one of the major migratory movements in modern society (about 700 million international travellers in 2000), the impacts of tourism on resource consumption, pollution and social systems are significant. While tourism can be compared in its deleterious impacts and environmental risks to any other major industry, it also represents a unique tool for awareness building and learning for guests and hosts alike. The natural and cultural environments are its basic asset, and peace one of its basic requirements. The financial and economic benefits of tourism can lead to increased areas of public and private land set aside for conservation. Private game reserves in eastern and southern Africa may be the best examples of this, although similar conservation areas are to be found in most countries with significant natural beauty.

As tourism increases, it can be carried out in a way that promotes economic redistribution. For small island states and low-income countries, it can be the main foreign exchange and employment generator. Moreover, while many studies refer to tourism mostly in the international sphere, the industry has a strong national component, and its impacts (both negative and positive) are often due primarily to travellers within national borders.

In 1999, the UNEP Governing Council made three recommendations regarding tourism:

- To produce and disseminate consensual guiding principles for sustainable tourism.
- To support voluntary industry initiatives and codes of conduct.
- To support the call by the Commission on Sustainable Development (CSD) for governments to integrate sustainable tourism in international development strategies.

Subsequently, at the 2000 UNEP Coordinating Meeting on Tourism, participants agreed that the UNEP Division of Trade Industry and Environment should prepare a sustainable tourism strategy, with the following objectives:

- To promote sustainable tourism among government agencies and the industry.
- To develop sustainable tourism tools for protected/sensitive area management.
- To support the implementation of multilateral environmental agreements related to tourism (such as CSD, Biological Diversity, Climate Change, Regional Seas, Marine Impacts from Land-Based Activities, Migratory Species, CITES, Ramsar, World Heritage and many others).

These objectives are being reached through partnerships with governments, NGOs, the private sector and intergovernmental organisations. Implementation is being carried out through demonstration projects, training, education and awareness activities and support to voluntary initiatives, such as those for tour operators and cruise lines.

Of special interest to UNEP, because of its relationship with conservation, sustainability and biological diversity, is ecotourism. In the field, well-planned and managed ecotourism has proven to be one of the most effective tools for long-term conservation of biodiversity when the right circumstances (such as market feasibility, management capacity at local level, and clear and monitored links between ecotourism development and conservation) are present. As a development tool, ecotourism can advance the three basic goals of the Convention on Biological Diversity by:

- Conserving biological and cultural diversity by strengthening protected area management systems and increasing the value of sound ecosystems.
- Promoting the sustainable use of biodiversity by generating income, jobs and business opportunities in ecotourism and related business networks.
- Sharing the benefits of ecotourism developments equitably with local communities and indigenous people by obtaining their informed consent and full participation in the planning and management of ecotourism businesses.

## UNEP capacity building work in the field of tourism

- UNEP houses the secretariat of the Tour Operators Initiative for Sustainable Tourism Development ([www.toinitiative.org](http://www.toinitiative.org)), a voluntary initiative of leading tour operators supported by UNEP, WTO and UNESCO.
- UNEP is a partner in the UNEP/UNESCO/Rare Center World Heritage site project on linking conservation and tourism at six World Heritage sites. The sites in Central America and Asia/Pacific have been selected for a four-year programme to build visitor use management capacity and increase tourism benefits to steward populations.
- Along with the World Tourism Organisation, UNEP was appointed as the United Nations task manager for the International Year of Ecotourism 2002. UNEP supported the World Ecotourism Summit in Quebec, Canada, in May 2002, through partnerships with WTO and relevant NGOs. Through publications, preparatory regional and stakeholder-specific meetings, events and awareness campaigns, UNEP aimed to ensure that the Summit achieved its goals of strengthening the capacity of governments and the private sector to use ecotourism as a tool for sustainable development and the conservation of natural and cultural resources.
- UNEP publishes tourism-related documents. UNEP efforts are focused on making technical information available by disseminating texts, and by offering them as instructional materials for many universities and technical training institutions in professional tourism globally. Future decision makers in the industry will thus be made aware of sustainable tourism issues and be prepared to deal with them in their daily work. Titles include *Ecotourism: Principles, Practices and Policies for Sustainability* and *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management*. More information on these and other publications can be found at [www.uneptie.org/pc/tourism](http://www.uneptie.org/pc/tourism).
- The Ecotourism Databank [www.sustainabletourism.colorado.edu](http://www.sustainabletourism.colorado.edu) set up by the Center for Sustainable Tourism at the University of Colorado (supported by UNEP and by the US Forest Service) is a searchable online library on ecotourism, containing useful documents and presentations for capacity building.
- UNEP is working under the umbrella of the International Coral Reef Action Network (ICRAN) and its Coral Reef Unit to develop tools to increase the commitment of both tourism professionals and tourists to conservation of coral reefs (see page 62).

## Some projects and activities under development

- **Business incubators for sustainable tourism:** One of the major shortcomings for the implementation of sustainable tourism is the absence of a critical mass of qualified and committed entrepreneurs in sensitive sites. While business incubators have been extensively used in many fields and have been the target of UNIDO work, no incubator focusing specifically on sustainable tourism in World Heritage Sites has been proposed or implemented. Conservation International, UNESCO and UNEP are developing a proposal on this subject.
- **Local Agenda 21 and tourism:** Based on the upcoming publication under this title, UNEP is examining how to support local authorities and destination managers to incorporate sustainable guidelines into tourism development and management plans at the local level.
- **Private sector voluntary initiatives:** UNEP is working with stakeholder groups and industry sectors to expand and support voluntary initiatives, and to determine how to reproduce the experiences of the Tour Operators Initiative and other initiatives.

While tourism can have negative effects, it also presents an opportunity for awareness raising for visitors and hosts alike (see also 'It's my choice: coral or no coral', page 62).

Sustainable tourism also represents a major potential tool for income generation and the protection of the environment, especially in areas important for their biological diversity and natural beauty..

The UNEP Tourism Programme [www.uneptie.org/pc/tourism](http://www.uneptie.org/pc/tourism) works with governments and the tourist industry to promote sustainable tourism.



## Chemicals and sustainable development

Chemicals are essential for development and everyday life. Modern fertilisers and pesticides have been a boon to agriculture and helped feed our growing populations. Chemicals have served medicine in many ways, ranging from pharmaceuticals to the equipment and materials used in hospitals. From transportation to information technology to entertainment, our quality of life would not be the same without a healthy chemicals and manufacturing industry.

The global chemical industry is growing astonishingly fast. There are some 70,000 different chemicals on the market; 1,500 new ones are being introduced every year. But as we have come to learn, chemicals are not all good. Some have been implicated in causing cancers, reproductive disorders and birth defects, neurobehavioural disorders and impaired immune functions. Many thousands of accidental poisonings result from the inappropriate use of highly toxic pesticide formulations, or their use in locations where protective equipment is unavailable or unused. Chemicals deplete the ozone layer, cause climate change and affect the world's biodiversity. They accumulate in poorly managed stockpiles and waste sites. Many persist in the environment and bioaccumulate, leading to ever-increasing levels in humans and wildlife. These are just some of the effects we know of. There is not enough data on most of the chemicals in use today to understand their risks properly. And basic protection measures for consumers, workers and the environment are often lacking.

Although the problems had often been recognised nationally or regionally, the first integrated policy response to them began in 1992 with the Rio Earth Summit. Chapter 19 of Agenda 21 identified several key areas needing increased attention. Policy and coordination mechanisms were created to bring the key players together. The Inter-Organisation Programme for the Sound Management of Chemicals (IOMC)—involving UNEP, WHO, ILO, FAO, UNIDO, the United Nations Institute for Training and Research and the OECD countries—brought together major intergovernmental programmes on chemical safety. The Intergovernmental Forum on Chemical Safety (IFCS) provided a forum where government and non-government stakeholders could address such issues. Within these partnerships, UNEP provides leadership for the global environmentally sound management of chemicals, while other organisations provide leadership within their particular areas of expertise.

Some of the main chemicals issues in today's world are governed by legally binding instruments:

- The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure was adopted in 1998. Jointly administered by UNEP and FAO, it provides a first line of defence in controlling the risks from hazardous pesticides and chemicals. It addresses the international trade in chemicals, and helps developing countries to keep dangerous ones from being exported into their territory.
- The Stockholm Convention on Persistent Organic Pollutants (POPs), adopted in 2001, aims to protect human health and the environment from this particularly dangerous group of chemicals. It provides the means to prohibit their production and use, and to reduce and—where feasible—ultimately eliminate their release to the environment. It currently covers twelve chemicals, but has a process for adding new POPs. It also contains a financial mechanism.
- These new treaties join the Basel Convention on the Transboundary Movement of Hazardous Wastes, ILO Conventions 170 and 174 aimed at protecting workers, and several regional agreements in a suite of powerful tools to protect people and the environment from toxic chemicals.

Capacity building is available under the several international agreements covering chemicals, and through the Global Environment Facility, to enable developing countries to address issues related to the use and, where relevant, the phase-out of chemicals harmful to the environment.

Beyond these legally binding instruments there have been many recent developments to better help us to understand and protect ourselves and wildlife from toxic substances. These include:

- A recently concluded globally harmonised system for classifying and labelling chemicals.
- Expanded risk assessment initiatives, such as those conducted under the OECD, to develop needed health and environmental hazard data and risk information on many additional chemicals.
- Expanded capacity building and assistance to developing countries and countries with economies in transition on POPs and other chemicals—including the prospect of financial assistance available through donors and the Global Environment Facility.
- Identifying and disposing of the hundreds of thousands of tonnes of obsolete and unwanted pesticides and other chemicals that have accumulated worldwide.
- The initiation of a global assessment of mercury.
- The recent Bahia Declaration on chemical safety and priorities for action beyond 2000 adopted by IFCS. The declaration is forward-looking, identifying several key new targets for advancing the work begun by Chapter 19 of Agenda 21.



### Moving forward

Despite the excellent work carried out since the Rio Earth Summit much remains to be done. Increasing globalisation and the enormous market for chemicals—and the products in which they are used—mean that safety programmes must be strengthened and steps taken to better integrate them into sustainable development. A crucial first step will be for countries to ratify the Rotterdam and Stockholm Conventions, amongst others, so they can be effectively implemented.

Discussion are taking place in the context of international environmental governance on how the various international chemicals-related activities and conventions can work together more closely. Initially, the Basel, Rotterdam and Stockholm conventions are under discussion. Much is likely to be gained from this process, not only in terms of improving their performance globally, but also in strengthening the operations and impacts of activities at regional and national level, such as the Basel regional centres, national cleaner production centres and programmes to assist enforcement and compliance. The clustering process should also help to integrate life cycle management of chemicals and wastes into national priorities, and to leverage scarce capacity building resources for chemicals and waste programmes.

Many activities are under way internationally that will give greater effect to efforts to protect health and the environment. Their success depends on the involvement of all stakeholders, and the reflection of their interests, aspirations and concerns. A possible mechanism for bringing these together is through developing a strategic approach to international chemicals management. Such an approach could provide a policy and procedural framework for addressing both ongoing and emerging issues of international concern, and serve to interweave necessary policy, coordination and sustainable development linkages. This possibility was discussed at the Global Ministerial Environment Forum in Cartagena in 2002.

Visit the UNEP chemicals web site at [www.chem.unep.ch](http://www.chem.unep.ch) for more information on persistent organic pollutants, the prior informed consent procedure, the global mercury assessment, and links to the Basel, Rotterdam and Stockholm chemicals convention web sites.

## Chemicals and waste in West Asia

The industrial sector of the West Asia region is composed mainly of extracting and manufacturing industries. Over the last decade, the contribution of manufacturing industries to gross domestic product has steadily increased. This contrasts with the continued reduction of extracting industries, reflecting a trend towards industrial diversification and a desire to shift away from high dependency on crude oil and raw minerals exports.

Even though manufacturing in the region remains dependent on primary production, the sector has slowly grown. Some of the fastest growing companies in the Arab region are manufacturers of cement, bottled water, textiles and cables. However, energy-intensive products continued to characterise manufacturing in oil-exporting countries during the late 1990s, namely fertilisers, steel and petrochemicals. More diversified economies of the region continue to focus on traditional industries such as food processing and textile fabrication, which are less environmentally damaging. There has also been a gradual shift towards the production of intermediate and capital goods, particularly chemicals, rubber, plastics, iron and electrical machinery. This production diversification brings with it a new set of potential environmental problems.

UNEP, through its Regional Office for West Asia (ROWA) is working with member states to encourage environmentally sound management of chemicals and waste, and the implementation of cleaner production techniques and environmental management systems. A wide range of workshops and meetings have been held, involving both governments and industry, to address environmental management of industrial activities. These workshops and their subsequent recommendations have led to the further development of the UNEP/ROWA Industry Programme.

At a regional workshop on hazardous waste management in September 2001, in Bahrain, delegates developed a series of recommendations that will form the basis of capacity building activities in the region for the next biennium. The main focus of these activities is to build capacity within the member states to develop implementation plans for the chemicals-related conventions (Basel, Stockholm, Rotterdam, etc.). The recommendations included:

- Promoting an integrated hazardous waste management strategy in the region through coordination and cooperation between member states and encouraging bilateral agreements on import/export of hazardous waste within the context of the Basel Convention and other relevant legal instruments.
- Encouraging member states to establish integrated systems and facilities for hazardous waste management in their countries.
- Introducing the concepts of risk assessment and life cycle assessment in tracking chemicals.
- Calling for technical guidance and support for the proposed sub-regional centre for training and technology transfer under the Basel Convention in Bahrain.
- Requesting the secretariat of the Basel Convention to work with the authorities in Egypt to enhance the activities of the regional centre in Cairo.
- Calling upon relevant United Nations entities to assist countries in the region to identify, assess, manage and dispose of obsolete or unwanted chemicals, pesticides and herbicides.
- Supporting the development of a regional waste exchange programme, linking waste producers with those industries (existing or new) that would utilise the waste in their production processes, in accordance with the provisions of the Basel Convention.

On 16 January, 2002, Jordan established its own national cleaner production centre and signed the Cleaner Production Declaration. This is the first national cleaner production centre in the region.

The United Arab Emirates and Palestine are currently developing proposals for the establishment of their own national cleaner production centres, with the technical support of UNEP-ROWA. Other member states, for instance Syria and Qatar, are also showing an interest.

Discussions are also under way to develop a regional cleaner production centre in cooperation with the Organisation of the Islamic Conference and the Islamic Development Bank.

## Capacity building and the Basel Convention on the Control of Movements of Hazardous Wastes and their Disposal

The Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal has undertaken a number of awareness-raising, training and capacity building activities in the last five years. Latterly these activities have been conducted by and through the Basel Convention regional centres for training and technology transfer, which target developing countries and countries with economies in transition.

The main goal of these regional centres is to build capacity through public awareness work, information gathering and dissemination and networking. Various awareness seminars have been conducted and many more are planned. Topics include:

- The threat of hazardous waste to society.
- The role of linkage centres in training and technology transfer.
- General courses on hazardous waste management.
- Management of medical wastes.
- Transportation of hazardous waste.
- Hazardous wastes project development and management.

As of December 2001, twelve regional, sub-regional and coordinating centres had been established or planned. The mandate for the establishment of these centres was stipulated in Article 14 of the Basel Convention: "The Parties agree that, according to the specific needs of different regions and sub-regions, regional or sub-regional centres for training and technology transfer for the management of hazardous wastes and other wastes and the minimisation of their generation should be established. The Parties shall decide on the establishment of appropriate funding mechanisms of a voluntary nature." The third meeting of the Conference of the Parties of the Basel Convention in September 1995 selected sites for the establishment of the regional and sub-regional centres. Basel Convention regional centres for training and technology transfer currently exist in South Africa, Senegal, Nigeria, Egypt, China, Indonesia, India, Slovakia, Russia, El Salvador, Trinidad and Tobago, and Uruguay.

- Promoting the implementation of the Cleaner Production Strategy in the region and the establishment of national cleaner production centres and/or pilot demonstration projects. Encouraging industry in the region to participate in voluntary initiatives, in the areas of pollution prevention, cleaner production, integrated chemicals and hazardous waste management.
- Urging countries to sign, ratify and implement the Rotterdam Convention on Prior Informed Consent and the Stockholm Convention on Persistent Organic Pollutants.
- Calling upon United Nations entities and concerned regional organisations to implement capacity building programmes throughout the region through the provision of technical expertise.
- Strengthening the role of UNEP/ROWA in the area of chemicals management.
- Implementing a regional programme for the assessment of chemicals in member states.
- The provision of expert advice, capacity building and information towards the development and implementation of national chemical management programmes.

Delegates of member states expressed their grave concern about the alleged illegal transport and disposal of hazardous waste into Palestinian land and other Arab occupied territories in violation of the Basel Convention and called upon the secretariat of the Basel Convention, UNEP and other relevant United Nations agencies to investigate and report the findings to their concerned governing bodies.

This workshop was followed by a workshop on the implementation of the Stockholm Convention on Persistent Organic Pollutants, at which the requirements of ratification were identified and the participants introduced to the stages of implementation.



## Managing persistent organic pollutants

UNEP is involved in global action to control and phase out what are often seen as the most toxic chemicals ever produced. Persistent organic pollutants (POPs), whether produced by natural or anthropogenic processes, have a particular combination of physical and chemical properties that ensure that, once they have been released into the environment, they remain intact for exceptionally long periods. They are transported by air and water, and so are distributed widely across the globe—even to regions where they have never been used. They accumulate in living organisms—including humans—and so are found at greater concentration at higher levels of the food chain.

Humans and wildlife have been exposed to POPs around the world for generations. This has resulted in a wide range of both acute and chronic toxic effects, including cancer and effects on reproduction. The risks POPs pose have caused increasing concern in recent decades. This has resulted in action being taken at national, regional and global levels to protect human health and the environment from these toxic chemicals.

In February 1997, UNEP Governing Council concluded that sufficient scientific information was available to warrant taking immediate international action on POPs. It urged governments to take action on POPs, and asked UNEP to undertake several supporting activities. It also called for the development of an international legally binding instrument on POPs by 2002.

A series of eight regional and sub-regional workshops were held in 1997 and 1998 to prepare countries for negotiations on a POPs convention and to support national and regional actions on these chemicals. Representatives of governments and other stakeholders from 138 countries attended these workshops before the negotiations began, under the auspices of UNEP, in Montreal in June 1998. The intergovernmental negotiations were concluded in Johannesburg on 10 December 2000, and the Stockholm Convention on Persistent Organic Pollutants was adopted on 22 May 2001. The treaty is widely supported by countries from all regions of the world. Since the Stockholm Convention was opened for signature, 105 countries and the European Union have signed it.

UNEP, as an implementing partner in the Global Environment Facility (GEF), is engaged in number of activities to enable countries to meet their obligations under the Stockholm treaty. It is assisting forty countries to prepare their POPs enabling activities that will lead to the preparation of national implementation plans in accordance with Article 7 of the Stockholm Convention on POPs.

UNEP is also assisting the following twelve countries to prepare POPs national implementation plans: Barbados, Bulgaria, Chile, Ecuador, Guinea Conakry, Lebanon, Malaysia, Mali, Micronesia, Papua New Guinea, Slovenia, Zambia. In addition, through the convening of sub-regional workshops to which all GEF-eligible countries will be invited, more than 100 additional countries will benefit from the implementation of this project.

The GEF secretariat has also approved the POPs enabling activity proposals of the following countries: Tunisia, Kenya, Côte d'Ivoire, Mauritania and Fiji. More than twenty-five other projects are under active preparation and will be finalised in the near future, including Benin, Burkina Faso, Cambodia, Cameroon, Cuba, D.R. Congo, Gambia, Haiti, Jordan, Madagascar, Niger, Panama, Senegal, South Africa, Sri Lanka, Syria, Uganda and Ukraine.

UNEP, in collaboration with the GEF secretariat, is also implementing a Medium-Sized Project totalling to support the early signature and ratification of the Stockholm Convention on POPs. Eight sub-regional workshops covering all GEF-eligible countries describe the provisions and obligations of the convention, as well as the financial assistance available through the GEF for the development of national implementation plans.

## Health and the environment

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Human health and environmental health are intricately intertwined. Up to 25 per cent of the global burden of disease can be attributed to environmental factors. Much of the environmental component of the global burden of disease is preventable by better assessment of the link between environment and health, and management of the environment. UNEP is working jointly with the WHO, the International Agency for Research on Cancer (IARC), FAO, WMO, UNICEF, UNESCO and a range of non-governmental and governmental organisations in environmental health-related activities.

UNEP has published extensively, with its partners, on the assessment of environment and health linkages and the management of environmental health hazards. Furthermore, UNEP, with its partners, has conducted several training courses and has prepared training material for capacity building of environmental health managers, particularly in developing countries.

Training activities, including manuals, include:

- Environmental management for vector control.
- Integrated management of pests.
- Climate change and human health.
- Safe management of environmental mutagens and carcinogens.
- Assessing the risk of genetic damage.
- Health impacts of ultraviolet radiation.
- Health opportunities in water resources management.
- Public health impacts of pesticide use.
- Linkage methods for environment and health analysis.
- Health effects of air pollution, safe management of municipal solid wastes.
- Health effects of the domestic environment.
- Research and training in ecohealth.
- Urban environmental health management.
- Integrated water resource management.
- Setting an agenda for research on health and the environment.
- Reviews of school curricula in environmental health.
- Safe management of mycotoxins in Asia, Africa, eastern Europe and Latin America.
- Prevention of health consequences of vegetation fires.

UNEP has published a textbook *Basic Environmental Health* jointly with WHO. Several 'train the trainers' courses have been held in the use of the basic textbook. In addition, UNEP, jointly with WHO, WMO and Health Canada is preparing *Guidelines for Assessing the Health Impacts of Climate Change*. More recently, UNEP, jointly with IDRC, Canada, has been promoting the concept of ecosystem approaches to human health management through training, research, networking, promotional material and a global forum.





# **Environmental assessment, monitoring and reporting**



## GEO: capacity building for environmental assessment

In 1995, UNEP launched a new approach to global environmental assessment under the Global Environment Outlook (GEO) project. The GEO process is cross-sectoral, participatory and consultative. It involves a wide range of partner institutions, including a worldwide network of collaborating centres. The collaborating centre network ensures that comprehensive regional perspectives are incorporated in the overall assessment of the state of the global environment.

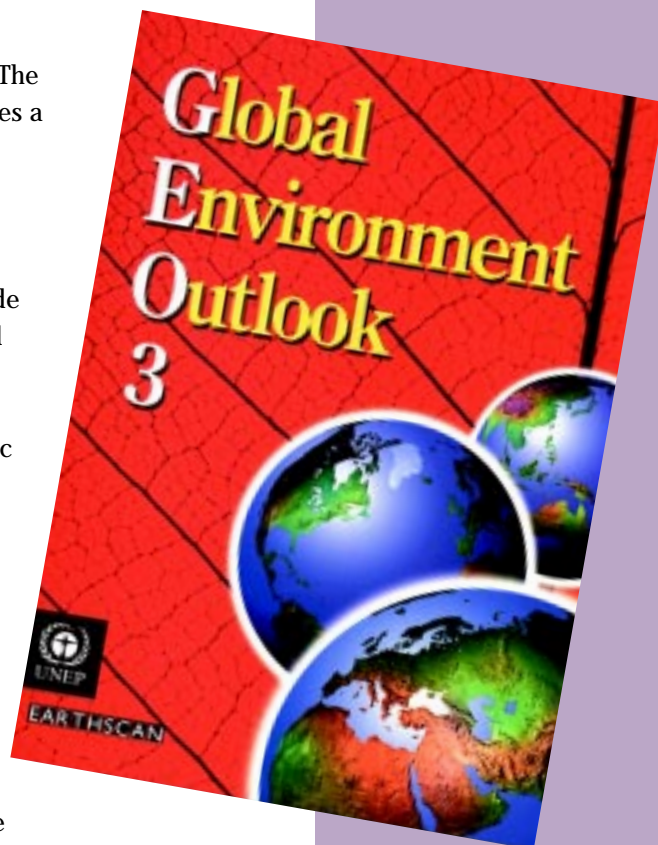
The range of outputs generated by the GEO process to date include three issues in the biennial GEO report series (*GEO-1*, *GEO-2000*, and *GEO-3*), regional, sub-regional assessments such as the *GEO for Latin America and the Caribbean* and the *Africa Environment Outlook, Pachamama*, a version of GEO for youth, and a wide range of thematic and technical reports. In addition, a significant number of national assessment reports have now been prepared by partner national institutions with capacity building assistance, using integrated environmental assessment methodology.

Integrated environmental assessment and related methodologies used for GEO require specific skills and techniques in analysis and integration, including data and policy analysis, modelling and scenario development. Therefore, capacity development has been an important central component of the GEO process to improve integrated environmental assessment at various levels and support the preparation of GEO reports. Between 1997 and 2000 considerable resources have been dedicated to capacity building from a number of donors. Significant in-kind contributions have also been made by some GEO collaborating centres.

The primary target for capacity building has been GEO collaborating centres from developing countries and countries with economies in transition, in order to enhance their ability to participate fully in GEO production. National and regional organisations involved with state of the environment assessment and reporting have also been assisted. Each set of capacity building activities has built on the foundation created by the previous activities. Collaborating centres from developing countries have been able to gain hands-on experience of global assessment and reporting, and a manual for conducting integrated environmental assessment has been developed for wide application at national level as well as for GEO partners. It has served as the basis for ten training workshops around the world to date. About 250 individuals have participated so far, with the objective that these individuals will then disseminate what they have learnt within their institutions.

Substantial funding was received from the Ministry of Development Cooperation of the government of the Netherlands to support developing country collaborating centre participation and capacity building for *GEO-2000*. In 1999 and 2000 funding obtained from the United Nations Foundation for International Partnerships (UNFIP) and the Environment Fund of UNEP was used to strengthen specific collaborating centres in each of five regions. This included the development and implementation of a number of more specific training modules on data management, vital graphics and scenario analysis, as well as support for the collaborating centres to participate fully in the global reporting and assessment process. Results of this capacity building contributed to the production of the *GEO-3* report in 2002.

The benefits of these capacity building efforts have been demonstrated through substantially improved regional inputs to the highly regarded *GEO-2000* report, and *GEO-3*.



The third UNEP Global Environmental Outlook report—*GEO-3*—was published in 2002, ten years after the Earth Summit, and thirty years after the Stockholm Conference on the Human Environment.

*GEO-3* tracks and analyses the important environmental issues in the thirty years preceding the World Summit on Sustainable Development and provides an outlook for the next thirty years based on four possible scenarios.

As was clearly demonstrated by the UNFIP-funded GEO User Profile and Impact Study, participation in the GEO assessment and reporting process has had additional institutional benefits for the collaborating centres involved, including:

- Enhanced capacity to undertake integrated regional and national environmental assessment and reporting.
- Increased professional interaction and networking at national, regional and global levels, resulting in improved networking and collaboration.
- New assignments resulting in the acquisition of additional resources.
- Improved quality of products and services, resulting in enhanced reputation and standing and increased satisfaction amongst stakeholders.

The feedback confirms that there is a demand for assessment and reporting capacity building, and that GEO offers an approach that is applicable at the regional and national scale. This is reflected in the fact that an increasing number of countries are adopting the GEO approach to conduct their own integrated environmental assessment and reporting.

Despite these positive trends, until now the capacity building efforts within the GEO process have been undertaken on a project basis, whenever time and resources have permitted. In addition, these efforts have focused primarily on supporting the GEO production process. Therefore, the need to strengthen assessment capacity and expertise in an integrated way at national and sub-regional levels remains. To address these shortcomings, UNEP has developed a comprehensive capacity building strategy which will meet specific national, sub-regional and regional integrated environmental assessment needs. Initial funding has now been secured from the governments of Belgium and Norway to commence a third phase of GEO capacity building. The goals are to:

- Build upon and harmonise existing integrated environmental assessment capacity building activities.
- Bring on board professional trainers to complement current integrated assessment expertise.
- Provide a comprehensive capacity building package that includes training modules and materials, the training of participants and trainers, and twinning arrangements and exchanges between GEO collaborating centres and other partners, particularly at national level.

This approach will meet existing assessment and reporting needs in a structured and comprehensive way. UNEP capacity building in integrated environmental assessment will no longer be tied to GEO reporting activities, although it will remain a vital component of the GEO process.

### Capacity building for environmental assessment: the UNEP strategy

The UNEP assessment strategy involves the development of a cooperative assessment framework and its implementation through networks of national, sub-regional, regional and global partners. Of necessity, targeted capacity building is central to this work because assessment inputs, particularly in the case of the Global Environment Outlook (GEO), are based on the concept of a balanced combination of national and regional inputs into the global assessment process. Overall strategic guidance and methodological harmonisation is coordinated by UNEP.

To further integrate capacity building into the assessment process, UNEP revised its early warning and assessment programme of work for 2002–3 to promote three objectives:

- To ensure the undertaking of timely and relevant assessments of the state of the global environment, emerging issues, trends and potential environmental threats to support informed decision making.
- To ensure that reliable information on the state of the environment is available at national and international levels to support UNEP assessments and to issue early warning notices.
- To ensure that customised and targeted environmental information products derived from assessments are readily available and accessible to policy decision makers and practitioners.

Capacity building, including technology and methodology transfer, is built into all the above objectives. The programme is focused on ensuring that participating institutions in developing countries and countries with economies in transition are not only willing but also able to contribute to the UNEP assessments.

The emphasis is on participation, 'learning by doing' and on targeted training and technology transfer to institutional partners. These partners consist of collaborating scientific and technical bodies, national governmental bodies and intergovernmental and non-governmental organisations at the sub-regional level. The programme is constrained only by the availability of human and financial resources in any given year.

## Africa Environment Outlook

The *Africa Environment Outlook* report, launched in July 2002, was initiated at the eighth session of the African Ministerial Conference on the Environment (AMCEN) in Abuja, Nigeria, in April 2000, and approved as part of the AMCEN medium-term action programme. AMCEN requested UNEP to coordinate the production of the report.

The *Africa Environment Outlook* report provides credible environmental information in a way that is relevant to policy making. The structure combines comprehensive environmental information and policy analysis within the overall context of socioeconomic conditions and development imperatives.

The *Africa Environment Outlook* is the first attempt at state of the environment report covering the African continent, and is a significant milestone in the harmonisation and dissemination of integrated environmental and socioeconomic data and information for Africa. While it is mainly targeted at AMCEN and member governments, it is equally important to the people of Africa and partners of the region in development. The report will appeal to various other African organisations and institutions at the regional, sub-regional and national level, including intergovernmental and private organisations. It is an important resource for universities, colleges and schools, professional and community associations, women's organisations, trade unions, the private sector and the media. By providing up-to-date information on sustainable development in Africa and its sub-regions, the aim is to encourage the region's various stakeholders to make informed decisions, and to act individually, collectively and/or multilaterally to put Africa on a sustainable development path.

The *Africa Environment Outlook* report development process was based on wide consultation and participation between UNEP and various partners in the Africa region and reflects a variety of sub-regional perspectives and priorities. The process involved six collaborating centres producing sub-regional state of the environment and policy retrospective reports for central Africa, eastern Africa, northern Africa, southern Africa, western Africa and the western Indian Ocean islands. These centres engaged individual and institutional experts at the national and sub-regional level. Consultants at regional level were then brought into the process to integrate the inputs and produce drafts of the various chapters. Consultations with regional experts, representatives of governments, NGOs and youth groups were organised to review and enhance various aspects of the report. Internal and external experts from specialised organisations were also involved in the review process of the report to ensure sub-regional balance, scientific credibility, and comprehensiveness.

The Africa Environment Outlook process has successfully built capacity in state of the environment reporting, policy analysis, scenario development and integrated reporting at national, sub-regional and regional levels in Africa. Capacity building workshops have been organised at sub-regional level for national experts and NGOs on the methodologies of state of the environment reporting and policy retrospective reporting using the SPIR framework (state, pressure, impacts and responses), including methods of data collection, assembly, and dissemination. The collaborating centres and some regional experts were trained in scenario development and use as policy tools.



The *Africa Environment Outlook* report responds directly to Agenda 21, Chapter 40, which states: "While considerable data already exist, as the various sectoral chapters of Agenda 21 indicate, more and different types of data need to be collected, at the local, provincial, national and international levels, indicating the status and trends of the planet's ecosystem, natural resource, pollution and socioeconomic variables. The gap in the availability, quality, coherence, standardisation and accessibility of data between the developed and the developing world has been increasing, seriously impairing the capacities of countries to make informed decisions concerning environment and development."



## Capacity building and technology transfer for monitoring, assessment and reporting

Policy development and planning for sustainable development and coherent environmental management demands information on the state of the environment. As assessments and analyses become multi-sectoral, the need for integrated information increases. This demands organisational infrastructures for the acquisition, integration, analysis and dissemination of data and information. The increasing need for nations to manage their resources wisely demands that they have all the necessary tools at their disposal. Low capacity to mobilise information effectively in developing and transitional economy countries reduces the effectiveness of environmental assessments and undermines ability to devise and implement solutions to environmental issues.

It is unrealistic for multilateral organisations and industrialised nations to caution the world about unwise resource use and to make major institutional demands without investing in developing the basic components of reliable data programmes. Information gathered by national data collection programmes is ultimately needed and used by both national and international institutions for development. UNEP is mandated to undertake assessments of issues of international significance. To this end, UNEP has created an international collaborative assessment framework. In developing the framework, UNEP recognises the need for partner institutions in developing and transitional economies to acquire the necessary capacity to contribute meaningfully to the international assessment process.

Capacity building is formally programmed into the Global Environment Outlook (GEO) process (*page 120*). Using a common framework, UNEP has been working with its partners to develop regional and sub-regional capacity for integrated environmental assessment, scenario development and related data management and report production processes in support of the GEO assessments, and to develop regional and national state of the environment reports and outlooks.

Complementary to this process, UNEP has been improving national, sub-regional and regional information systems and institutional networks for integrated environmental assessment and reporting. UNEP is also developing procedures and tools to identify emerging global and regional environmental issues, support vulnerability and risk assessments and to develop environmental early warning capacity. These methodologies and tools are now being used in several developing countries.

In developing national assessment and networking capacity, UNEP follows four stages of programme implementation:

- **Needs assessment:** On the request of a government or a collaborating centre, a study of capacity and needs is conducted.
- **Feasibility study and pilot activities:** Where appropriate, start-up activities are conducted to create networks and compile and generate specified environmental information products (state of the environment reports, metadatabases etc.), resulting in a detailed medium or long-term implementation proposal.
- **Implementation:** In collaboration with donor partners, capacity building projects are implemented using local and international consultants under UNEP coordination and supervision.
- **Operational network:** The result is a fully operational national environmental information network and system. The nodes of this network participate in national, regional and international environmental assessments and related activities.

Three issues are crucial for national assessment capacity and the future sustainability of regional networking:

- **Reflect user needs more precisely.** User needs for environmental information are different in each country, region and internationally. They have to be systematically assessed and taken into account when establishing environmental information networks. In particular, the end-users—decision makers, media and educational systems—will have to play a more prominent role. Assessments and associated information products will have to be targeted to niche audiences, be more user-friendly and contain information and recommendations to allow users to act directly.
- **Streamline national environmental reporting.** International demands for environmental reporting are already considerable. With the ratification of additional conventions they are expected to grow. Action has to be taken to streamline reporting (*page 35*) to avoid duplication, and to make it more cost-efficient and less burdensome.
- **Encourage environmental information management to be more market-oriented.** Government funding alone will never be sufficient to cover environmental information management. Innovative methods have to be developed whereby end users contribute to the cost of the information.



# Capacity building within GIWA

## Network development

The objective of the Global International Waters Assessment (GIWA) is to develop a comprehensive, strategic framework for the identification of priorities for remedial and mitigatory actions in international waters. The global assessment of international waters will emerge from numerous sub-regional assessments conducted by teams of local experts. Assessments are being carried out in 66 sub-regions throughout the world. As of October 17, 2002, the project had involved more than 1,500 experts throughout the world.

Using local experts' knowledge in their sub-regions of the environmental deterioration processes related to the international waters, their environmental and socio-economic impacts, the variables that have driven those processes and the policy measures that can be implemented to mitigate or reverse them, is a necessary condition to meet the objective of GIWA. It is obvious that the success of GIWA depends on the capacity of the teams that conduct the assessment. Capable teams have, among others, the following characteristics:

- Balance among experts from the countries that comprise the sub-region.
- Balance between natural scientists and social scientists (including economists and policy analysts).
- Excellent knowledge of the assessment protocol.

The first step towards establishing a sub-regional task team is to select an institution that can serve as focal point. Potential GIWA focal points undergo a screening process to establish that they have a solid scientific reputation and management capacity, characteristics which enable them to convene experts from different nationalities and different disciplines.

## The Global International Waters Assessment

The Global International Waters Assessment (GIWA) was inaugurated in October 1999. It is a four-year programme funded by the GEF, UNEP, the governments of Finland, Sweden and the United States and the municipality and university of Kalmar, Sweden. It is designed to assess key issues and problems facing the aquatic environment.

Water problems are often transboundary in nature, with water resources being shared by two or more countries. GIWA's focus is therefore on the problems of shared, transboundary waters. GIWA is analysing current problems, including their root causes, developing scenarios for the future condition of the world's water resources, analysing policy options and providing scientific advice for decision makers and managers concerned with water resources.

GIWA is global, addressing water issues in 66 sub-regions around the world. It is international, focusing on water resources shared by two or more countries. And it is holistic, addressing political, economic, social and environmental factors affecting water resources.

Five priority areas have been identified for scrutiny under GIWA:

1. Fresh water shortages.
2. Pollution.
3. Habitat and community modification.
4. Unsustainable exploitation of fisheries and other living resources.
5. Global change.

The GIWA web site is at [www.giwa.net](http://www.giwa.net).



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### **Training workshops**

The next step is to train the task team members in the use of the assessment protocol. The protocol has two phases. The first one is descriptive, encompassing the identification of international waters systems within sub-regions, and the major environmental and socio-economic impacts attributable to international waters-related problems. The second phase of the protocol aims at analysing the root causes of the problems and at identifying policy options for remedying or mitigating those problems. Training workshops have been organised all over the world to acquaint representatives of all the GIWA task teams with the GIWA protocol.

### **Cooperation with other institutions**

In implementing the sub-regional assessments, GIWA is collaborating closely with several national and regional organisations. These include the Russian Academy of Sciences for the Arctic and Barents Sea and the East Pacific, the United States Environmental Protection Agency for the Gulf of Alaska and Bering Seas, START and the Chulalongcorn University for the Mekong River and South China Sea, the Cooperative Research Centre in Townsville for sub-regions in Australasia, the Coastal Management Centre in Manila for the East Asian sub-regions, and the European Environmental Agency for assessments in Western Europe.

A valuable GIWA by-product is its extensive network of experts, stakeholders, governmental bodies and collaborating institutions. In addition, links with various parts of the UNEP family have been developed and strengthened. In some cases UNEP regional organisations are assisting GIWA in the implementation of the sub-regional assessments. For instance, the Mediterranean Action Plan (Athens) is collaborating with GIWA in the implementation of the Mediterranean assessments, and the UNEP Regional Office for West Asia in Bahrain is helping to implement the Western Asian assessments.

Finally, a cooperative relation between GIWA and the University of Kalmar, Sweden, has been established. GIWA personnel and GIWA experts regularly participate in workshops and presentations at the University of Kalmar. A university course on Integrated Coastal Zone Management will soon be offered.

## Enhancing access to environmental information

### The UNEP Infoterra network

The UNEP Infoterra network was established in 1974 in response to Recommendation 101 of the Stockholm Conference on the Human Environment which called for a mechanism to exchange environmental information and experience. The very first decision of the first UNEP Governing Council called for “the provision of assistance to governmental or non-governmental efforts aiming at increased availability of environmental information related to development” and further requested the UNEP Executive Director to “support and encourage the development of effective mechanisms for collecting, analysing and disseminating information bearing on environmental problems available in scientific, technical and legal literature and in various research institutions, keeping in mind the special needs of developing countries.”

Exchanging information inherently generates a need to build capacity and effective mechanisms among suppliers to deliver the data and information that the user community needs. Particular attention needs to be paid to the special needs of developing countries. Capacity building has therefore always been a core activity of the Infoterra network, and partnerships between developed and developing countries have been established to facilitate greater access to information on environmental matters.

The Infoterra network structure was designed around a system of national focal points, usually located in the principal environmental authority of each country. However, environmental information is multidisciplinary in nature and covers many thematic areas within the natural environment and the built environment. This wide coverage is additionally complicated by cross-linkages to trade, economics, law, education, culture and heritage.



While information technology has an ever greater role in access to environmental information, the provision of information via non-electronic media remains crucial. Over the past twelve years, ENFO—the environmental information centre operated by the Department of Environment and Local Government in the Republic of Ireland—has worked closely with UNEP to build capacity for the design and operation of information centres similar to itself in countries such as Denmark, Bulgaria, Macedonia, Trinidad and Tobago, and Lesotho. A publicly accessible centre is a visible way of opening doors to facilitate access to environmental information by anybody who needs it.

### Infoterra, UNEP.Net and Agenda 21

The UNEP Infoterra network is implementing Chapter 40 of Agenda 21, which called on UNEP to establish networking and coordinating mechanisms among a wide variety of actors, particularly in the non-governmental and private sectors, to share information and experience on sustainable development

The main purpose of the Infoterra network is to disseminate information and catalyse the exchange of environmental data and information. At the national level, the Infoterra centres also act as dissemination outlets for all UNEP publications and environmental publications from other United Nations agencies. The dissemination of the Global Environmental Outlook (GEO) reports and related products and general promotion of GEO at the national level are priority activities.

The development of UNEP.Net as the premier environmental portal on the Internet has significant implications for the Infoterra network. The filtering of authoritative data and information on environmental matters from national level sources into the UNEP.Net portal framework will be a crucial task. Coordination will be needed among national level suppliers to deliver the information resources that UNEP.Net will re-package and make available to the global Internet community. Within a given country, institutional sources will have to act as one coherent national environmental network working with UNEP to implement UNEP.Net at the national level. Tools and training will have to be provided to ensure that capacity is built within institutional suppliers of data and information.

Within a country, this broad environmental knowledge base is distributed across many disparate institutional sources. Consequently, a broad-based information service cannot be provided by a single institutional provider, irrespective of how comprehensive and authoritative the data and information resources of that provider may be.

Therefore, in 1998, the Infoterra network of 177 member countries started to undergo a reform process to broaden the resource base of information providers and build capacity at the national level to deliver a fully integrated service to meet user demands. The new structure called for a networking partnership among key suppliers of environmental information within each country to form a national consortium that will collectively establish and operate the service. The basic components that constitute the structure of this integrated service are:

- A publicly accessible environmental information and data centre located within the principal environmental authority.
- A national network of key information providers and major user groups.
- A national environmental web portal providing electronic access to authoritative data and information.

### **The UNEP.Net network**

In late 2000, UNEP embarked on a new initiative to consolidate existing UNEP networks, such as Infoterra and the Global Resources Information Database (GRID) centres, and develop a global facility that provides access to information via multiple pathways depending on the different needs and interests of users. UNEP.Net is a set of global environmental information portals on the Internet. It provides a single point of entry to authoritative and structured data and information covering a broad spectrum of environmental issues. UNEP.Net was designed to take advantage of cutting-edge information and communications technologies to provide a gateway to environmental information on the Internet. The idea of UNEP.Net is that anyone with access to a computer linked to the Internet will be able to acquire environmental data and information about any environmental topic, country and region simply by clicking on a map, choosing from a list or typing in a search word.

UNEP.Net is building global, regional and national partnerships for sharing environmental information, thereby fulfilling the UNEP mission to inspire, inform and enable humankind to sustainably improve the quality of life on Earth. The objectives of UNEP.Net include:

- Increasing the availability and accessibility of authoritative data and information on environmental matters via a single gateway on the Internet.
- Supporting informed decision making by linking science and policy through data and technology.
- Harmonising UNEP networking initiatives at global, regional and national levels into one integrated network.
- Building capacity at the national level to collect, manage and disseminate environmental information under the aegis of UNEP.Net.

### **Building sub-regional capacity for sharing environmental information**

In 1990, the governments of the United States and the Republic of Ireland embarked on a joint project to build the capacity of the countries of the Southern Africa Development Community (SADC) to share information on environmental issues of mutual interest through a sub-regional component of the Infoterra network.

In each country the capacity of the principal environmental authority to collect, manage and disseminate information was increased through a number of activities including the provision of infrastructure such as computers, printers, telecommunications equipment, Internet access, photocopiers etc., and the training of staff in database management, web tools, information centre management and the production of information resources and awareness raising materials.

ENFO—the environmental information centre operated by the Department of Environment and Local Government in the Republic of Ireland—provided fellowships for the training of information specialists in Ireland.



## Access to environmental information (*continued*)

UNEP.Net has completed its pilot phase, whereby the concept was proved to be viable, and is now entering the development phase. A major feature of UNEP.Net is its encouragement of partnerships to enlarge the network's science framework and to enhance the development of application solutions. UNEP.Net has encouraged and will continue to encourage a wide range of partnerships with, for instance, the World Bank, the Organisation for Economic Cooperation and Development (OECD), the European Environment Agency (EEA), various United Nations entities like the Economic Commission for Europe (UNECE), FAO and UNDP, leading environmental NGOs, governmental bodies (ministries, environmental protection agencies) and research institutes. These organisations have mandates ranging from the global to the national level and this is indicative of the range of data and information that will be made accessible through UNEP.Net.

The UNEP.Net global partnership for the delivery of environmental data and information is comprised of three interlocking components:

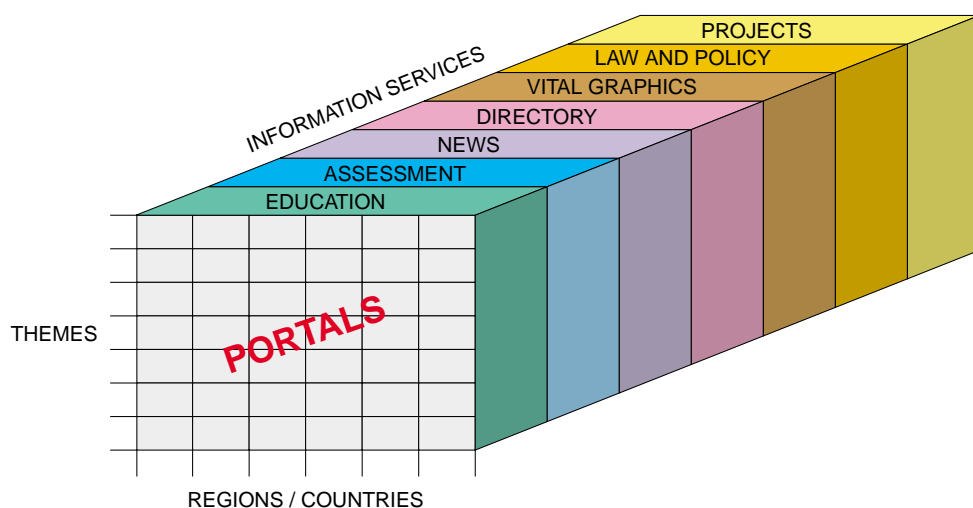
- A global environmental network of the United Nations: the network of providers of environmental data and information working with UNEP or known to UNEP.
- A global environmental information portal: one Internet gateway to a multitude of sources accessible via multiple pathways.
- A global environmental information system: a system comprised of a networking component and various information delivery mechanisms.

The three visible components of UNEP.Net are:

- A regional portal that can present environmental information and data covering major themes relevant to a particular region or group of countries.
- A thematic portal that can present environmental information and data on a particular theme (or issue) across all regions of the world.
- An information service that can deliver a particular type of information across all themes and covering all regions, for example, environmental news or maps showing protected areas worldwide.

### UNEP.Net Information Structure:

Regional and thematic portals harvesting information from various information services



UNEP.Net is a set of global environmental information portals on the Internet. It provides a single point of entry to authoritative and structured data and information covering a broad spectrum of environmental issues.

The pilot implementation of UNEP.Net is accessible at [www.unep.net](http://www.unep.net)

## The legislative mandate for information access: Rio Declaration Principle 10 and the Aarhus Convention

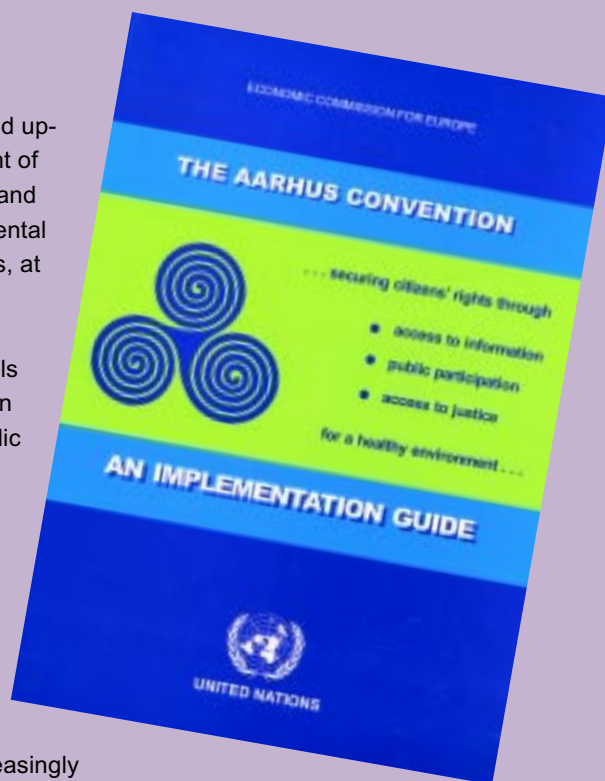
UNEP.Net enhances the ability of decision makers to use accurate and up-to-date environmental information and data for the better management of the world's resources. By doing so it helps to fulfil the UNEP mission and supports Principle 10 of the Rio Declaration, which states: "Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided."

The Rio Declaration was adopted by more than 178 governments at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, in June 1992. Several multilateral environmental agreements (MEAs) also stress the importance of access to information as a prerequisite for better environmental decision making. Consequently, governments are increasingly accepting their responsibility to increase the level of access to information held by public authorities and to encourage other institutional suppliers from the non-governmental and private sectors to make their environmental information resources more widely available. Many countries have enacted legislation on freedom of access to information and under such a legislative framework citizens have a right of access to environmental information in keeping with the right-to-know principle.

In June 1998, thirty-nine European countries and the European Community signed the Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters. The Aarhus Convention entered into force in October 2001 after the required sixteen ratifications and approvals had been obtained. This convention has its origins in Principle 10 of the Rio Declaration, and with its entry into force practical steps will have to be taken to make the convention work. The establishment of a formal information service on environmental matters based on the UNEP Infoterra network in each signatory country is a visible, practical step.

In 1999, the twentieth session of the UNEP Governing Council passed three decisions related to access to information, public participation in decision making and access to justice in environmental matters. This was the first time in UNEP history that the member states of the Governing Council addressed the issue of access to environmental information in such an in-depth way. Each decision emphasised the need for capacity building to increase access to environmental information and to provide advisory services to national and regional institutions to ensure that information is available and accessible for decision making processes in keeping with the spirit of Principle 10 of the Rio Declaration.

In 2000, UNEP, in collaboration with the Regional Environmental Centre (REC) in Budapest and the pan-European NGO coalition group ECO-FORUM, established a special task force to identify and document best practices in the use of electronic tools and media to support the implementation of the Aarhus Convention. Case studies were compiled from several countries and the case study gallery is available at [www.rec.org/e-aarhus](http://www.rec.org/e-aarhus). A hard copy compendium was also published by the REC. The objective is to provide a useful platform for decision makers to exchange ideas and know-how with respect to the implementation of the three pillars of the Aarhus Convention—access to information, public participation in decision making, and access to justice.



## Mitigation of and adaptation to climate change

UNEP input to the implementation of the United Nations Framework Convention on Climate Change (UNFCCC) focuses on:

- Technical literature and assessment models.
- Technical comments on country sectoral reports.
- Drawing up the agenda for technical workshops.
- Organising technical workshops and training programmes on issues including inventories of greenhouse gases, abatement analysis, vulnerability assessment and adaptation.

UNEP is supporting the governments of twenty-four countries to prepare national communications on their implementation of the UNFCCC: Bahrain, Bangladesh, Cameroon, Central African Republic, Comoros, Côte d'Ivoire, Djibouti, Haiti, Kenya, Lesotho, Libya, Mauritania, Mauritius, Mongolia, Nepal, Niue, Pakistan, Rwanda, South Africa, Tanzania, Turkmenistan, Vietnam, Zambia and Zimbabwe. In addition, UNEP has successfully implemented, in collaboration with UNDP, a \$3 million Global Support Programme on

### Sources and sinks of greenhouse gases

From September 1992 to October 1995, a GEF-funded project called Country Case Studies on Sources and Sinks of Greenhouse Gases was implemented. The project had the main objective of drawing up comprehensive inventories of greenhouse gas (GHG) emissions and sinks through country case studies within the framework of the United Nations Framework Convention on Climate Change (UNFCCC), and using the guidelines of the Intergovernmental Panel on Climate Change (IPCC)/Organisation for Economic Cooperation (OECD)/International Energy Agency (IEA). Country studies were carried out in nine developing countries and countries with economies in transition (Costa Rica, Gambia, Mexico, Morocco, Poland, Senegal, Uganda, Tanzania and Venezuela) by national country study teams with technical assistance from abroad.

Capacity building objectives and activities were an integral part of the project. In addition to the significant contribution of the project in establishing a scientific basis for future GHG inventory work and follow-up activities in the fields of mitigation assessments and GHG emission reduction policies, the project was highly successful in building capacity in the participating countries for complying with the requirements of the UNFCCC objective for national GHG inventories. Expertise was established in the countries to continue work on GHG inventoring and to further disseminate knowledge and expertise in this field to other countries. Project activities included national and regional workshops, networking among the national teams and partner organisations, actual implementation of the study by local experts and the establishment of links with other relevant projects and programmes.

The project led to the refinement and finalisation of the IPCC/OECD/IEA *Guidelines for National GHG Inventories*, and the subsequent approval of the guidelines by the Conference of the Parties to the UNFCCC as a standard method that the Parties to the convention may use to meet GHG inventory reporting requirements.

### Impacts and adaptation assessments

Another GEF-funded project—Country Case Studies on Climate Change Impacts and Adaptations Assessment—contributed significantly to capacity building in the field of climate change. The project was implemented in 1996 and 1997 with the objective of further improving the methods and guidelines for climate change impact studies and the development of adaptation strategies through testing and applying the IPCC Technical Guidelines for Climate Change Impacts and Adaptations Assessment in four country case studies. Studies were carried out in Antigua and Barbuda, Cameroon, Estonia and Pakistan by national study teams with technical assistance coordinated by the Centre for International Climate and Environmental Research (CICERO).

The guidelines were successfully tested in countries and produced usable information for policy makers and on refinement of the guidelines. The implementation of the studies also developed capacity within the participating countries to undertake future climate change-related impacts and adaptation assessments. The project also enhanced awareness among the policy making community and the general public about climate change issues and what it might mean for the countries, and the value of and need for multidisciplinary research. Convening of national workshops on the project was an important vehicle for raising awareness. Two of the country studies led directly to the creation of permanent institutions to address climate change issues.

Climate Change, aimed at building the capacity of countries eligible under the Global Environment Facility (GEF) on issues related to the preparation of national communications of non-Annex I countries to the UNFCCC. UNEP will assist the following least developed countries to prepare their national adaptation action plans: Bangladesh, Central African Republic, Haiti, Mauritania, Nepal, Rwanda, Tanzania, Zambia and Zimbabwe.

In the area of direct support to the implementation of environmental conventions, UNEP-GEF has implemented and completed projects in four countries: Cameroon, Lesotho, Tanzania and Zambia. These projects aim to enable the countries to fulfil their reporting commitments and obligations under the UNFCCC. UNEP has successfully helped these countries to produce their initial national communications for submission to the UNFCCC secretariat. This activity also helped the countries to build capacity and awareness at community and government decision making levels concerning climate change as it relates to sustainable development. During 2001 new enabling activities were approved for Rwanda and Libya, and second-phase GEF funding was awarded to Zimbabwe, Côte d'Ivoire, Turkmenistan and Niue.

Under a new GEF initiative in 2002, UNEP will assist twelve least developed countries to develop their national adaptation action programmes. The countries are Bangladesh, Cameroon, Comoros, Central African Republic, Djibouti, Haiti, Lesotho, Mauritania, Tanzania, Nepal, Rwanda and Zambia.

### **El Niño Southern Oscillation (ENSO)**

The term El Niño means 'Christ Child' and was first used by Peruvian fishermen in the late 1800s to describe the warm current appearing off the western coast of Peru around Christmas time. Today El Niño describes the warm phase of a naturally occurring sea surface temperature oscillation in the tropical Pacific Ocean. The corresponding cold phase is called La Niña.

El Niño events are linked to extreme weather across the globe. The 1997–1998 El Niño event was labelled as the 'El Niño of the century'. Climate-related natural disasters caused by this El Niño created havoc in many parts of the world, including loss of life, destruction of infrastructure, depletion of food and water reserves, displacement of communities and disease outbreaks.

To help mitigate the effects of future El Niños and El Niñas UNEP initiated a project entitled Reducing the Impact of Environmental Emergencies through Early Warning and Preparedness: The Case of the 1997-98 El Niño. The project was implemented jointly with the National Center for Atmospheric Research (NCAR), the World Meteorological Organisation (WMO), the United Nations University (UNU) and the United Nations International Strategy for Disaster Reduction (ISDR), with funding from the United Nations Fund for International Partnership (UNFIP).

The project studied the impacts of the El Niño event on sixteen countries in four major areas: Asia, Southeast Asia, sub-Saharan Africa and Latin America. The project reviewed the forecasts and impacts of the 1997-98 El Niño, and climate-related early warning and disaster preparedness systems in the countries to improve their ENSO coping mechanisms. Based on the review, the project identified research and policy needs and developed suggestions for regional and national disaster preparedness plans for ENSO warm and cold events and their impacts.

### **Vital Climate Graphics**

In November 2000, UNEP released *Vital Climate Graphics on the Impacts of Climate Change*. The graphics and accompanying texts were based on the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report and the Special Report of the IPCC on Regional Impacts of Climate Change. They were made available as overhead slides and CD-ROMs and also on the Internet as a tool for educational purposes and for raising awareness on the climate change issue. The effort also contributed to the implementation of Article 6 on Public Awareness, Education and Training, under the United Nations Framework Convention on Climate Change (UNFCCC). Further activities on outreach and information on climate change are being planned and implemented.



## Environmental emergency management

**E**nvironmental emergencies are sudden natural or human-induced disasters—droughts, cyclones, earthquakes, eruptions, floods, forest fires, oil spills, chemical accidents etc.—that cause or threaten to cause severe environmental damage and loss of human lives. The goal of environmental emergency management is to eliminate or reduce disasters, to prevent loss of life and property, and to ensure environmental safety at all levels. UNEP is involved in several initiatives to promote capacity for managing disasters that have profound environmental consequences.

Natural and human-induced disasters are getting more severe and more destructive, and appear to be becoming more frequent. They affect the lives of millions of people directly every year through death, injury and economic losses and also have serious impacts on human health, property and the environment. Disasters particularly affect communities in developing countries. The poor, who always suffer most from major disasters, are unlikely to be insured against losses. Disaster events therefore pose major threats to both sustainable development and poverty-reduction initiatives. Furthermore, the environmental impacts of disasters—loss of environmental services such as water resources, forests, biodiversity and ecosystem functions—are still difficult to assess and in most cases underestimated.

A number of factors have contributed to the recent increasing severity of disasters:

- Growing vulnerability due to demographic and land use changes, including the unplanned expansion of urban areas and the massive overloading of city systems.
- Increasing erosion of the earth's defences (e.g. deforestation and the loss of wetlands).
- Weak or nonexistent early warning and response systems.
- Weak or absent environmental legislation or institutions for disaster management.
- Rapid industrialisation and increased use of chemicals in countries without the corresponding capacity to prevent, prepare for and respond to emergencies.
- Conflicts and poverty.

Limited capacity to address these factors remains a major burden, particularly in developing countries, where an estimated 97 per cent of natural disaster-related deaths occur every year. At the first Global Ministerial Environment Forum, in May 2000 in Malmö, Sweden, the UNEP Governing Council identified increasing environmental emergencies as a priority for UNEP action. It also emphasised the role of UNEP in emergency prevention, preparedness, assessment, mitigation and response. The provision of environmental information, assessment and research—including environmental emergency response capacity—and the strengthening of early warning and assessment functions, are areas of concentration for UNEP. UNEP is also mandated to lend its environmental expertise to the coordination of United Nations system-wide responses to natural disasters to support United Nations assistance to affected countries, particularly developing countries.

In line with this mandate, UNEP is working to improve human and institutional analytical and methodological capacity for environmental emergency prevention and mitigation, particularly in developing countries where rapid industrial development is taking place, but where capacity to prevent, prepare for and respond to disasters is limited.

### Preparing for environmental emergencies

The Strategic Framework on Emergency Prevention, Preparedness, Assessment, Mitigation and Response is an important instrument that UNEP has developed in close cooperation with governments, United Nations entities and NGOs. The strategic framework identifies the institutional and global contexts for action on the management of environmental emergencies arising from natural and human induced disasters. The framework serves as key information source for developing regional, sub-regional and national programmes for disaster management and has therefore been widely distributed to governments and other relevant organisations.

UNEP has also developed a brochure on environmental emergencies which provides relevant information on environmental emergencies, including types of disasters, challenges and factors contributing to the increasing severity of disaster. It details the UNEP environmental emergency programme with examples of responses to the challenges. These two documents are important services for understanding issues relating to disasters that have profound consequences on the environment.

More information on the management of environmental emergencies is available from the Disaster Management Branch of the Division of Environmental Policy Implementation (*page 163*) and from [www.unep.org/depi/disastermanagement](http://www.unep.org/depi/disastermanagement).

### **Strengthening environmental vulnerability and assessment in Venezuela**

Following the floods and landslides which occurred in Venezuela between November 1999 and February 2000, UNEP made a preliminary environmental damage assessment. Subsequently a joint UNEP/UN-HABITAT technical mission visited Venezuela in June 2000 to identify areas for assistance in flood mitigation and management. On the basis of the recommendations made by the joint mission and by the preliminary assessment mission, UNEP and the government of Venezuela developed a project for strengthening environmental vulnerability and risk assessment.

A workshop was held in Caracas, Venezuela in June 2001 to define and revise cartographic legends for environmental vulnerability assessment and to develop an example of a spatial information management system at the national level in Venezuela to support the production of environmental vulnerability and risk assessment maps. Twenty-nine participants from various government ministries and agencies participated in the workshop. The project produced an inventory of damage caused by the floods and landslides, and detailed vulnerability and risk assessment maps for the El Avila region.

### **Strengthening the understanding of flood events in Mozambique**

Following the devastating floods that hit Mozambique between January and March 2000, a joint UNEP/UN-HABITAT mission was sent to Mozambique to assess the impacts of the floods on the environment and on human settlements. The joint mission report provided a framework for raising awareness of the extent to which Mozambique is vulnerable to natural disasters and formed a basis for the development of project proposals, three of which were included in the United Nations Consolidated Appeal for Emergency Relief and Initial Rehabilitation for Mozambique. The joint mission also prepared a comprehensive programme for mitigating the effects of floods on the environment and reducing vulnerability to future floods. The programme also raised awareness of environmental emergency management.

### **Strengthening capacity to support assessment of environmental vulnerability to earthquakes**

A major earthquake hit northwestern Turkey in August 1999 affecting human lives, housing, infrastructure and the environment. A second earthquake in November 1999 hit the region to the east of the area affected by the August earthquake. At the invitation of the Turkish government, a joint UNEP/UN-HABITAT mission visited Turkey to identify possible follow-up actions to assist the Turkish authorities to develop preparedness and mitigation measures in the field of environment and human settlements. The mission report provided concise information in key thematic areas on how to prepare for emergencies and to mitigate their impacts on the environment. The thematic areas were:

- Institutional arrangements and strengthening.
- Development of policy and legal frameworks.
- Risk/hazard/vulnerability assessment.
- Urban and environment planning in seismic risk zones.

### **Development of a Disaster Management Act for Lesotho**

UNEP sent a mission to Lesotho in 1997 to assist in the development of a Disaster Management Act. The Act not only provided an understanding of issues involved in disaster management—prevention, preparedness, response and mitigation—but also served as a basis for the development and establishment of measures and frameworks for emergencies arising out of disasters. In particular the Act provided for:

- Establishment of a national disaster relief task force.
- Establishment of a disaster management authority.
- Development of a disaster management plan.
- Development of a disaster relief plan.
- Development of post-disaster reconstruction, rehabilitation and recovery plan.

## Flood events and their impacts in South Asia

To strengthen national capacity and promote technical cooperation in flood mitigation and management among South Asian countries, UNEP, in cooperation with UN-HABITAT, fielded two scoping missions at the request of the Chinese government to assess the impacts on the environment and human settlements of the devastating floods in the Yangtze River Basin in 1998 and 1999. On the basis of these missions, three projects were initiated to assist China and South Asian countries to improve their capacity in combating floods by tackling their root causes:

### Mitigation and management of floods in the Yangtze River Basin

Within the framework of this project, national, provincial and local authorities were assisted in planning for the management and mitigation of the potential impacts of flood events and their ecological and human consequences. The first meeting of the Expert Group was held in Beijing in October 1999 during which the following were agreed:

- Development of an environmental early warning system in the Yangtze River Basin.
- Development of a strategic action plan, focusing on ecological protection and conservation and on relevant environmental factors affecting human settlements in the Yangtze River Basin.
- Establishment of protected areas in the headwater area of the Yangtze River Basin.

A second meeting was held in Beijing in June 2000. This workshop focused on the development of the early warning system and a proposal for assessing the vulnerability of human settlements and the environment to floods in the Yangtze River Basin. A third meeting of the Expert Working Group was held in Beijing in June 2001. This meeting discussed draft methodologies for assessing vulnerability to floods in the Yangtze River and Dongting Lake basins.

On the basis of the above, a project was developed and implemented to undertake vulnerability assessment. The overall outcome of the project was as follows:

- Methodology for assessment of vulnerability to floods in the Yangtze River Basin.
- Methodology for assessment of floods in the Dongting Lake Basin.
- Assessment of vulnerability to floods in the Dongting Lake Basin.

### Mitigation and management of floods in South Asia

The main thrust of this project was to develop a programme for mitigating and controlling floods in South Asian countries. The project promoted technical exchanges and cooperation on flood mitigation among South Asian countries facing common challenges and having complementary response capabilities. Activities implemented within the programme included the establishment of a web site on flood management in South Asia.

An Expert Group Meeting on floods in South Asia was held in New Delhi, India, in January 2000. The main outcomes of the meeting were:

- An agreement on the terms of reference for conducting various studies of floods.
- A preliminary identification of common challenges brought about by floods.
- Identification of priority challenges.
- Opportunities for the exchange of technical services.

The second meeting of the Expert Group, in Beijing, China, in June 2000, reviewed the studies undertaken and agreed on areas for follow-up collaboration. The meeting produced an agreement on the establishment of a web site on flood management in South Asia linked to participating country web sites, the exchange of printed technical material, and joint development of know-how and tools on specific technical issues, including vulnerability assessment, training and skills development.

## Capacity building and consultative workshops to address environmental factors contributing to impacts of flood events on the Yangtze River.

Within the framework of this project, three main capacity building workshops were organized together with UN-HABITAT and SEPA:

- Integrated Management of Mountain Ecosystems in the Yangtze River Basin.
- Renewable Energy Technology and Development of Human Settlements in the Yangtze River Basin.
- Restoration, Management and Multiple use of Wetlands in the Yangtze River Basin.

The objectives of these workshops included:

- Strengthening the nature conservation and management capacity of provincial and local governments.
- Providing forums for officials and experts from central, provincial and local governments and relevant institutions to exchange views and experiences on coordination and cooperation regarding flood planning, management and mitigation.
- Undertaking a preliminary survey of successful existing local technologies and experiences on the management of watersheds and mountain ecosystems, multiple and competing uses and functioning of lakes and associated wetlands, human settlement and renewable energy.
- Elaborating priority issues to be addressed with future pilot projects.

The workshop on renewable energy technology and development of human settlements in the Yangtze River Basin focused on:

- Demonstration, awareness and capacity building on renewable energy technologies among local government officials and village leaders.
- Identification and elaboration of factors constraining the promotion and application of renewable energy technologies and possible solutions to these constraints.
- The application of renewable energy technologies to the development of human settlements in rural areas.

The workshop on restoration, management and multiple use of wetlands in the Yangtze River Basin focused on issues relating to the functions of wetlands on flood water retention and their relation to basin-wide flood prevention and mitigation. Specific techniques were addressed for wetland restoration, the multiple use of wetlands and the reconversion of agricultural land to wetlands.

The workshops on integrated management of mountain ecosystems in the Yangtze River Basin focused on issues relating to the possibilities for rehabilitation of degraded lands or sub-watersheds and denuded mountain and valley slopes along the upper reaches of Yangtze River, the implementation of an ecosystem approach for mountain and watershed management, mountain ecosystem and watershed dynamics and case studies on soil conservation techniques.

All these workshops provided an understanding of the contributing factors to flood events. They enhanced the capacity of provincial and local governments in nature conservation and promoted an exchange of views and experiences in coordination and cooperation regarding flood planning, management and mitigation.



UNEP is working with the Chinese State Environmental Protection Administration to mitigate vulnerability to flooding in major river valleys and lake basins in China. Measures include integrated management of mountain ecosystems and the restoration and multiple use of wetlands.



## Conflict and the environment

Post-conflict environmental assessment is an important means of identifying the environmental risks generated either directly or indirectly by a given conflict. It offers a framework for planning remedial action and serves as a crucial implementing step to cover all emergency response mechanisms. Failure to address the environmental impacts of a conflict can lead to long-term economic and social instability due to effects on crops, livestock, biodiversity, potable water, sanitation, air quality etc. Furthermore, an environment that is severely stressed by the consequences of military conflict hampers the process of recovery and reconstruction, and may serve to trigger renewed crisis.

Since 1999 UNEP has implemented a variety of activities relating to the assessment of the impacts of conflicts on the environment. The most recent area of UNEP concern is Afghanistan, where that country's new government faces enormous environmental challenges as it prepares for reconstruction after two decades of conflict. UNEP expertise relevant to post-conflict Afghanistan has been honed in several projects to assess the effects on the environment of the wars in the Balkans in the 1990s. These projects, which have strong sensitisation, awareness raising and capacity building components include:

- Post-conflict environmental assessment in the Federal Republic of Yugoslavia.
- Post- conflict environmental assessment in Albania.
- Post- conflict environmental assessment in FYR of Macedonia.
- Post- conflict environmental assessment of depleted uranium weapons in Kosovo.

Although each of these activities had its own scope and methods, they were all targeted at providing independent, neutral, credible and timely information and understanding of the environmental impacts of conflicts and the need for institutional capacity strengthening and enhanced cooperation on environmental matters at all levels for sustainable development. The assessments aimed at providing useful information for the international community and other stakeholders seeking to assist and assess the needs of these countries.

### Environmental assessment following the Balkans crises

This project produced assessments and reports analysing the state of the environment in the Balkans regions, identifying regional environmental trends and providing early warning information on the environmental threats due to the crisis. The aim of the project was to assist policy makers to develop effective regional and national agendas to respond to current and emerging environmental challenges in the Balkans and neighbouring countries.

The assessments were undertaken by the Balkans Task Force, which was established in May 1999 to investigate the environmental and human settlement impacts of the conflict in the Federal Republic of Yugoslavia and to identify priorities for risk reduction. The Balkans Task Force report *The Kosovo Conflict: Consequences for Environment and Human Settlements* was released in September 1999. The report highlighted a number of important conclusions on the post-conflict situation in the area and in particular singled out four heavily polluted environmental hot spots for immediate humanitarian assistance. In line with the recommendations made in the report, UNEP started a clean-up project in August 2000 aimed at creating know-how and preparing guidelines for the United Nations on the planning and management of environmental emergency response and strengthening capacity for environmental management and the application of clean technology principles.

The capacity building activities implemented in connection with the clean-up activities were chosen to provide support for efficient implementation. In addition the capacity of local stakeholders to identify their environmental priorities was strengthened. Seminars and training activities provided tools to local and national stakeholders to address identified problems and to integrate environmental considerations into their work and develop plans.

The most recent workshop on environmental conventions, organised in Belgrade in November 2001, invited high-level officials from the federal authorities and environmental authorities from the Republic of Serbia and the Republic of Montenegro. It gathered more than 160 local participants, and was a timely opportunity to integrate the Federal Republic of Yugoslavia more fully into work of some of today's most important treaties on the natural environment and industrial pollution.

In 2002, the project continued to support workshops and training activities for local and national stakeholders on relevant environmental issues. The topics included:

- Environmental mitigation measures.
- Hazardous waste management.
- Local environmental management (including local environmental action plans).
- Environmental management systems.
- Cleaner production.
- Regional and international environmental cooperation.

### **Post-conflict environmental assessment in Albania**

This project sought to conduct an independent and objective assessment of the direct and indirect environmental impacts in Albania caused by the Kosovo conflict, particularly those arising from large refugee flows into and out of the country during and after the conflict. The project also identified and analysed environmental hot spots and reviewed Albania's institutional capacity for identifying, assessing, monitoring and resolving the environmental problems encountered there.

The outcome was the September 2000 report *Post-Conflict Environmental Assessment: Albania*. The report contains data and information, plus recommendations for specific actions which are not only useful to local authorities, UNEP and other decision makers, including donor agencies and the public, but also enhance understanding of the direct and indirect environmental impacts of the Kosovo conflicts in Albania.

### **Post-conflict environmental assessment in FYR of Macedonia**

Similar to the project implemented in Albania, this project was part of the overall assessment of the environmental consequences of the Kosovo conflict. The assessment focused on Macedonia's environmental needs in the context of regional developments, especially considering that the country was undergoing a broad transformation of its democratic institutions and that environmental protection was evolving alongside economic development. The project was implemented in 2000 and the outcome was a report *Post-Conflict Environmental Assessment: FYR of Macedonia*. The report provides information on the country's severely polluted sites requiring immediate attention, the environmental consequences of refugee influxes from the Kosovo conflict and actions that can strengthen Macedonia's environmental institutions and policies.

### **Promoting awareness, understanding and cooperation on environmental issues in refugee situations**

In July 1999, at the request of the Government of Guinea (Conakry), the United Nations Secretary General asked UNEP to look into the environmental impacts of the refugee situation in Guinea. Over the years many Sierra Leoneans and Liberians have been forced to flee their homes because of conflicts in Sierra Leone and Liberia. As many as 800,000 moved into the border area in Guinea. To ascertain the impacts on the environment of the large concentration of refugees in Guinea, UNEP, in close collaboration with UN-HABITAT and UNHCR, undertook a rapid assessment of the environment. The findings of the assessment outlined the types of damage caused by refugees and immediate measures that the government could undertake to address the environmental situation.

Given the awareness raised by the mission to Guinea, the issue of the consequences on the environment of refugees has become an area of focus, particularly in Africa where the population of refugees was over 6 million in 1998. For this reason, UNEP organised a brainstorming meeting, in close collaboration with UNHCR, on the environmental impact of refugee settlement and flows in Africa. The meeting was held in Nairobi, Kenya, in September 2000 with the objective of exchanging views and experiences on environmental damage prevention and mitigation in refugee situations. It also reviewed a UNEP proposal on Prevention and Mitigation of Environmental Impacts of Refugee Settlement and Flows in Africa. The meeting provided an understanding of the areas for cooperation as well as suggestions on how the project proposal can further be developed. The project proposal has been finalised and funding is being sought for its implementation.

## Awareness and preparedness at local level

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The Awareness and Preparedness for Emergencies at Local Level (APELL) process helps people prevent, prepare for and respond appropriately to accidents and emergencies. APELL is a modular, flexible methodological tool for preventing accidents and, failing this, to minimise their impacts. This is achieved by helping decision makers and technical personnel to increase community awareness and to prepare coordinated response plans involving industry, government and the local community for unexpected events that could endanger life, property or the environment.

APELL is a tool for bringing people together to allow effective communication about risks and emergency response. The process of dialogue should help to:

- Reduce risk.
- Improve effectiveness of response to accidents.
- Allow ordinary people to react appropriately during emergencies.

APELL was developed by UNEP, in partnership with industry associations, communities and governments, following major industrial accidents that had serious impacts on health and the environment. APELL is now being implemented in nearly thirty countries around the world. It was originally developed to cover risks arising from fixed installations, but it has also been adapted for specific applications: *APELL for Port Areas* was released in 1996; *TransAPELL, Guidance for Dangerous Goods Transport: Emergency Planning in a Local Community* was published in 2000; and *APELL for Mining* released in 2001.

The *APELL Handbook*, launched in 1988, sets out a ten-step process for the development of an integrated and functional emergency response plan. The process creates awareness of hazards in communities close to industrial facilities, encourages risk reduction and mitigation, and develops preparedness for emergency response. Communication is often between the three main groups of stakeholders—company, community and local authorities. Discussion on hazards usually leads to the identification of risk reduction measures, thus making the area safer than before. Structured communication between emergency response bodies (public and company) results in a better-organised overall emergency response effort.

None of the elements of APELL is radical or new. The programme simply provides a common-sense approach to accident prevention and response. APELL can apply to any risk situation, whether industrial or natural. It can be initiated by any party, although companies can be expected to take the lead. It can be facilitated by governments or by industry associations. APELL can be applied in developed and developing countries and in remote or urban areas.



Full details of the UNEP APELL process are available from the UNEP Division of Technology, Industry and Economics or [www.uneptie.org/pc/apell/home.html](http://www.uneptie.org/pc/apell/home.html)

The *APELL Handbook* has been translated into many languages by local groups. The APELL process consists of ten steps:

1. Identify the emergency response participants and establish their roles, resources, and concerns.
2. Evaluate the hazards and risks that may result in emergency situations in the community.
3. Have participants review their own emergency response plans to ensure a coordinated response.
4. Identify the required response tasks not covered by existing plans.
5. Match these tasks to the resources of the identified participants.
6. Make the changes necessary to improve existing plans, integrate them into an overall community plan and gain agreement.
7. Commit the integrated community plan to writing and obtain approval from local governments.
8. Educate participating groups about the integrated plan and ensure that all emergency responders are trained.
9. Establish procedures for periodic testing, review and updating of the plan.
10. Educate the community about the integrated plan.

The APELL process is designed as a local programme meant to be carried out by local authorities and people from the community. It can, however, involve organisations and institutions from all levels, from the international level to the local. It is often useful to bring into the community someone who already has direct experience in starting such a programme. Such an outsider is also more easily seen as neutral by local interest groups. The exchange of information and guidance based on experience elsewhere is generally arranged through national or regional APELL seminars and workshops. It is important that these seminars and workshops be locally generated, using outside experience if and when requested.



### **Promoting public awareness of the environmental and safety hazards of the mining industry**

On 30 January, 2000, there was a break in a dam encircling a tailings pond at a mine in northwest Romania. The result was a spill of about 100,000 cubic metres of liquid and suspended waste containing between 50 and 100 tonnes of cyanide, as well as copper and other heavy metals. At the request of Romania, Hungary and the Federal Republic of Yugoslavia, UNEP and the United Nations Office for Coordination of Humanitarian Affairs (OCHA) sent an assessment mission to the three countries in February 2000. The mission assessed the impacts of the spill on the environment.

The main outcome of the mission was a comprehensive report which increased public awareness of the environment and of the safety hazards of the mining industry. Also a special web site was established in which specialist information detailing analytical methods and findings was posted to allow the public authorities, industry and the public at large to follow the evolution of events and gain a better understanding of the technical issues involved in mining emergency response procedures.

The web site can be found on [www.natural-resources.org/environment/Baiamare](http://www.natural-resources.org/environment/Baiamare).







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# 6

## Promoting public participation in environmental management

## Best practices and success stories

UNEP has embarked on the development of an Internet-accessible database on success stories and best practices to allow better sharing of information and ideas on issues related to the sustainable protection, management and use of the environment. The database goes beyond UNEP programmes to include inputs from collaborating United Nations entities, research centres, NGOs and civil society. It will provide a basis from which the UNEP audience can benefit by learning from the successes of environmental initiatives globally. More than just a database, the web site will play host to a network of individuals, private sector organisations, capacity building NGOs and governments dedicated to sharing and applying lessons learned from innovative practices.

The database is targeted at a wide audience, including the private sector, the media, educators and students, scientists, women, central and local government, financial institutions, NGOs, workers, local community groups, children and youth, farmers etc. Members of this audience can use the database to:

- Increase their awareness on efforts to combat environmental problems.
- Nominate initiatives that have best practices or those that are success stories in one or more environmental fields for general information or for consideration for award.
- Discuss or submit for discussion topics on environmental issues not being adequately represented on the site.
- Collect materials for use in reporting on successes or new practices and technologies in the mass media.
- Gather material that may be used for teaching.
- Find best practices that can be replicated in a given area to yield a desired result.

The UNEP-wide database on best practices and success stories will work through a decentralised network of partners including government agencies, local authorities, civil society organisations, professional associations, the private sector and training institutions. These institutions and organisations will serve as regional and thematic resource centres to ensure geographic coverage and the coverage of key sectoral and crosscutting issues. Initially, UNEP offices will be the main contributors to the database. Other best practices will come from a variety of institutions and organisations once the database is operational. The project will be managed and coordinated by the UNEP Division of Environmental Policy Implementation (DEPI).

Best practice means a composition of processes that clearly demonstrate, qualitatively and quantitatively, positive and tangible impacts that are transferable. A success story is a case study that contains all the elements of a best practice and shows in great detail how it has had a positive impact.

All environmental best practices and success stories have three principal characteristics:

- **Impact:** A process which has resulted in improved livelihoods and reduced degradation of natural resources. Measurable impacts may include: income/savings generation; employment creation; food security improvement; community empowerment (especially women); environmental resources utilisation and conservation; clean water provision; and human health improvement.
- **Sustainability:** A sustainable practice is one that continues to provide benefits to the target audience or community for which it was carried out after the completion of the initiative.
- **Replicability:** This is a necessary characteristic of a best practice. It is only when a practice has transferable components in its character that it can be considered to be a useful example to be fully emulated in the same or other parts of the world.

Principle 9 of the Rio Declaration states that countries should “cooperate to strengthen endogenous capacity building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.”

Some the indicators used to determine best practices include:

- **Technological impact:** Has the initiative resulted in the creation or adoption of technologies, new and old, that have contributed positively in the improvement of livelihoods and the conservation of the environment?
- **Environmental impact:** Has the initiative positively contributed to the protection, reclamation, conservation and management of the environment?
- **Economic impact:** Has the initiative contributed to community economic empowerment? This can be an overall improvement in lifestyle created by, but not specific to, increased job creation and opportunities, education, availability of credit facilities etc.
- **Social impact:** Has the initiative made an impact on people's attitudes and behaviour towards their environment, both in perceptions and personal practice, and has it strengthened local social structures?
- **Institutional impact:** Has the initiative enhanced institutional capacity at various levels, and has it been exemplary and visible enough to encourage governments / donors, NGOs etc. to inject funds to replicate the initiative on a larger scale or to start similar initiatives in other areas?

### Best practices and success stories database

The short-term goals of the Best Practices and Success Stories Database project are:

- To develop a large collection of environmental best practices and success stories.
- To develop a network of partners and collaborators for the purpose of nominating and validating the entries as best practice or success stories.
- To initiate dialogue among these partners about the availability of information on these practices and stories.

The long-term goals are:

- To build awareness of proven solutions, demonstrated experiences and innovative strategies that can be used for policy and decision making at all levels.
- To develop and disseminate effective learning tools and processes for implementing local and national plans of action.
- To promote the transfer of knowledge, expertise and experience derived from best practices through peer-to-peer learning, transfers and cooperation.



Farmers in the Colca Valley in Peru have reclaimed degraded cropping land through the rehabilitation of traditional terraces and irrigation systems that date from the Inca time. This initiative is exemplary of the interlinkage between improved care of natural resources, improved livelihoods and food security.



## Working with NGOs and civil society

One of the barriers to sustainable development is the insufficient recognition given to civil society organisations in developing countries as true partners in national development. Enhancing the capacity of NGOs and other major groups to address the links between economic growth, social equity and environmental protection continues to be a major UNEP priority. The NGO/Civil Society Unit of the UNEP Division of Policy Development and Law is forging partnerships with major groups throughout the world. The main objectives are:

- To enhance their capacity to address environmental challenges.
- To facilitate their participation in various forums where they are given an opportunity to voice their opinions with a view to creating synergies with governments for the benefit of better environmental protection and governance.

### Support for African NGOs

In line with its objective of creating broad partnerships, UNEP invited thirty-one NGOs from twenty African countries to a three-day meeting in Nairobi in September 1999 to help build the capacity of African environmental NGOs in preparation for the 1999 International Conference for Non-governmental Organisations which took place in Seoul, Republic of Korea, in October 1999. Participants adopted a declaration confirming their capacity and responsibility as world citizens to take the initiative in implementing strategies for sustainable development in the face of environmental challenges. Subsequently, the Conference of Non-governmental Organisations in Consultative Status with the United Nations (CONGO) and UNEP provided funds to NGO representatives to attend the Seoul event. As a consequence, African NGOs were able to convey a strong advocacy message in favour of the involvement of NGOs in all phases and levels of initiatives in development.

### Global NGO forum

UNEP supported the organisation of an NGO forum in conjunction with the First Global Ministerial Forum in Malmö, Sweden, in May 2000, and the establishment of a formal mechanism to solicit civil society input into the Forum's deliberations and into the Malmö Declaration. Over forty NGO representatives from all regions participated in the meeting. This event enabled civil society organisations to exchange ideas, develop their networks and present their own views in a participatory manner. The NGO statement from this Forum was presented during the ministerial session. The major output was the Malmö Ministerial Declaration which clearly underlined the importance of civil society in addressing environmental issues and bringing these issues to the attention of policy makers. The Declaration emphasised the need to strengthen major groups through broad participation in environmental decision making, as well as through access to justice on environmental issues.

### The international environmental governance (IEG) process

UNEP prepared and organised a consultative meeting with civil society in Nairobi, Kenya, and Cambridge, United Kingdom, in May 2001. This process enabled civil society organisations to define a common position on international environmental governance using a participatory approach. Drawing inspiration from the outcome of the May process, five representatives from civil society, assisted by a panel of experts, presented a common position to governments in July 2001, in Bonn, Germany. The participatory approach of civil society organisations in the IEG process culminated in February 2002 with discussions and the presentation of a civil society organisation statement on the issue during the second Global Ministerial Environment Forum held in Cartagena, Columbia, in February 2002.

Agenda 21 strongly advocates the need for new forms of participation in support of common efforts for sustainable development.

It calls on UNEP to raise "general awareness and action in the area of environmental protection through collaboration with the general public, non-governmental entities and intergovernmental institutions."

It mentioned as major groups: women, children and youth, indigenous peoples, farmers, local authorities, business and industry, workers and trade unions and NGOs.

## Input to the WSSD process

UNEP organised NGO/civil society forums prior to each ministerial preparatory meeting:

- Africa: Nairobi, Kenya, October 2001.
- Asia: Phnom Penh, Cambodia, November 2001.
- Latin America and the Caribbean: Rio de Janeiro, Brazil, October 2001.
- West Asia: Bahrain, September 2001, and Lebanon, November 2001.
- Europe and North America: Geneva, Switzerland, September 2001.

Each of these regional preparatory conferences for WSSD provided an opportunity for civil society organisations to define their posture for WSSD and to present their regional statements and proposals to the ministerial conference. It also enabled civil society organisations to strengthen their regional networks and to build their capacity to get acquainted with the ministerial process and how to influence it.

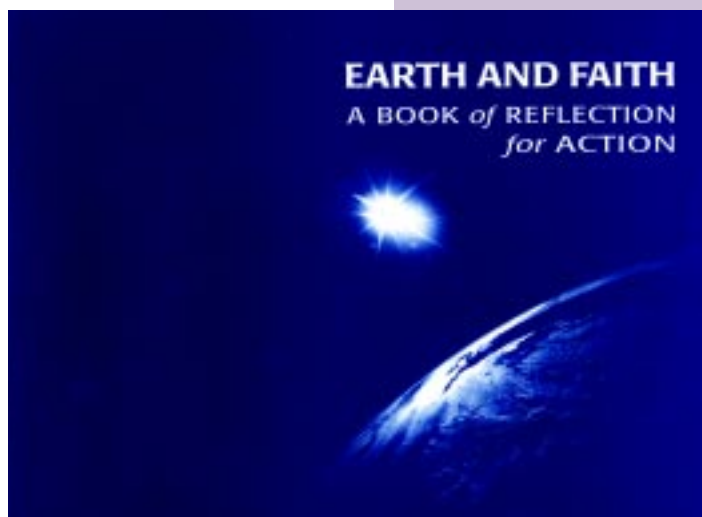
After these regional conferences, three civil society organisations from each of the five regional WSSD forums were invited to the global civil society organisations' forum held in Cartagena, Columbia, in February 2002. The civil society organisations had an opportunity to present their respective regional statements and to participate actively in the Global Ministerial Environment Forum. The main outcome of this global meeting was the formulation of a clear common civil society position on WSSD. This statement was presented to the inter-ministerial conference.

## Input to the UNEP Governing Council 2002

A civil society forum was organised in conjunction with the seventh Special Session of the UNEP Governing Council in Cartagena, February 2002. The forum deliberated on civil society priorities for WSSD, international environmental governance and civil society engagement in UNEP work. The representatives of the civil society forum presented statements on these themes to the ministerial meeting in Cartagena.

The major output of the various forums organised under the aegis of the Division of Policy Development and Law is that the Governing Council Special Session in Cartagena requested UNEP to conduct civil society forums prior to all inter-ministerial meetings. The format of such forums will reflect the inter-ministerial agenda. UNEP will provide all necessary information to civil society organisations well in advance in order to enable them to formulate their views on issues for discussion and strengthen their networking capacity.

In response to the draft decision on the enhancement of civil society engagement in UNEP work, the seventh Special Session of the UNEP Governing Council adopted decision GC.VII/5 Enhancing Civil Society Engagement in the Work of the United Nations Environment Programme. The UNEP Secretariat has issued a draft implementation plan for this decision. The plan calls for an inventory of the current status of civil society engagement in UNEP work, including that of the private sector. Contact with the United Nations Non-governmental Liaison Service has been established to seek information on existing arrangements for civil society engagement in various United Nations bodies. An inter-divisional task group is also being put in place to coordinate the implementation of the above-mentioned decision.



UNEP launched *Earth and Faith, A Book of Reflection for Action* in 2000. This publication is the result of nearly fourteen years of work with the Interfaith Partnership for the Environment, representing many faith communities.

Born from a dialogue between the scientific and faith communities, *Earth and Faith* compiles sacred words in homage to our Earth. Against this backdrop, *Earth and Faith* reaffirms core teachings to inspire care for our natural world in order to engage and mobilise people across borders, including across the borders of faith.

It explores the lessons that various faith traditions offer and provides accessible information on freshwater, oceans, coral reefs, small islands, biological diversity, biotechnology, environmental justice, production and consumption patterns, and globalisation.

## Environmental education and training

People and their activities are responsible for most environmental damage. Environmental education and training therefore tries to address this and encourage sustainable consumption and production. UNEP operates an environmental education and training programme which:

- Raises awareness on environmental education and training, provides related information, and extends networking with players in this field.
- Assists governments, institutions and individuals to acquire the necessary knowledge, skills and tools for assessing and solving environmental problems in their countries and regions.
- Collaborates closely with other UNEP Divisions and with other United Nations agencies in the programme implementation of awareness, education and training.

UNEP environmental education work is coordinated through the UNEP Environmental Education and Training Unit, which publishes *ET-Worldwide: A Periodic Compendium of Environmental Education and Training Opportunities*. Now in its sixteenth edition the publication is also available online at [www.unep.org/training/link.htm](http://www.unep.org/training/link.htm). It gives a listing of environmental education and training opportunities around the world, as well as information on financial assistance for environmental studies abroad. The list contains information from and for all regions.

The goals of UNEP environmental education activities include:

- Sensitising individuals, groups, communities and nations to their ecological, economic, social and cultural interdependence and developing general environmental and development awareness.
- Providing everyone with the opportunity to acquire awareness, knowledge, skills and commitment in order to protect and improve our environment for sustainable development.
- Incorporating environment, development and population dimensions into the educational processes of all countries.
- Creating new environment-friendly behaviour patterns and lifestyles and fostering ethical responsibilities.
- Fostering environmental education for all.
- Promoting effective public participation in decision making with respect to environment and development issues.

The target audience of UNEP environmental education and training initiatives includes students and teachers in pre-primary, primary, secondary, industrial and agricultural schools, people involved in general university education, educational decision makers, and the general public. The list includes economists and ecologists, technicians, sanitation workers, researchers, planners and designers, architects and engineers, farmers and foresters, fishing communities, people involved in industry, trade and the media, and other grassroots decision makers.

At management level UNEP also has specific training programmes for senior decision makers in charge of environment in governments of developing countries and countries with economies in transition. The postgraduate programme in environmental management for developing countries at Dresden University of Technology (*see facing page*) is one example where beneficiaries have gained skills that have enabled them to participate in national, sub-regional regional and global negotiations on various environmental agreements and to apply these skills to their needs of their countries to ensure effective and efficient compliance and enforcement of environmental management agreements. A number of the graduates have

For more details of UNEP environmental education and training, contact the UNEP Division of Environmental Policy Implementation's Environmental Education and Training Unit.

also risen to head key government ministries and institutions, thus directly and indirectly influencing the adoption and application of sound environmental management for sustainable development.

**E**nvironmental education considers the environment holistically, encompassing natural, technological, social and cultural issues. UNEP environmental education and training:

- Focuses on current and potential environment and development situations.
- Examines major environment and development issues from local national, regional and global perspectives.
- Stresses the value and necessity of local, national and international cooperation.
- Explicitly considers environmental aspects in planning for sustainable development and growth.
- Enables learners to discover the real causes of environmental and development problems.
- Enables learners to assume roles in planning their learning experiences and making decisions.
- Emphasises the complexity of environmental and development problems and thus the need to develop critical thinking and problem-solving skills.
- Employs diverse learning environments and educational approaches to teaching and learning.

UNEP environmental education and training has contributed to general awareness about the environment and fostered environmental education in member states. The environmental education and training programme has:

- Developed environmental education guidelines and strategies as well as educational materials, curriculum prototypes, modules, posters and audiovisual aids and promoted their local adaptation.
- Trained key educational personnel to serve as a multiplier effect for fostering the development of environmental education.
- Fostered international cooperation in environmental education through technical and financial support, field missions and participation in relevant activities of international governmental and non-governmental organisations.
- Supported member states, of which ninety-five countries have adopted environmental education as a key component in their national formal and non-formal education, while more are doing so.
- Developed curriculum prototypes for primary and secondary schools and for teachers on the basis of sub-regional environmental and educational needs and priorities for Africa, the Arab states, Latin America and the Caribbean, and the Asia-Pacific region.

### **The UNEP/UNESCO/BMU Postgraduate Course on Environmental Management for Developing Countries**

The UNEP/UNESCO/BMU Postgraduate Course on Environmental Management for Developing Countries is tailored to meet the education and training needs of developing countries and countries in transition in environmental management. The programme, which started off in 1977 as one ten-month course per academic year for only fifteen participants, has grown into an important programme of capacity building for sustainable development comprising four courses with eighty-four fellowships per year. The main six-month course covers integrated environmental management. Beside this course there are several short courses of between two to four weeks duration on specific topics (e.g. water management, waste management etc.)

The course is a joint programme of UNEP, UNESCO and the German Ministry of Environment, Nature Conservation and Nuclear Safety. It represents a success story of cooperation among various organisations and institutions to strengthen the capacity of developing countries in environmental management for sustainable development. The course is located in Dresden University of Technology, Germany. During the past 25 years, 982 participants from 122 countries from Asia and the Pacific, Africa and Latin America and the Caribbean have successfully completed the various environmental management courses. At a ceremony to celebrate the twenty-fifth anniversary of the course, held in June 2002, it was decided to continue and further strengthen the course.



## Environmental training: Asia and the Pacific

In 1993, the UNEP Regional Office for Asia and the Pacific established the Network for Environmental Training at Tertiary Level in Asia and the Pacific (NETTLAP) to enhance the region's capacity to manage the environment in a sound and sustainable manner. NETTLAP explicitly recognises that tertiary institutions such as universities, technical and training institutes and teacher training colleges play a major role in building capacity for sustainable development.

Staff of these institutions were identified as agents of change for two reasons. Firstly, a large multiplier effect is associated with actions that strengthen tertiary institutions and enhance the ability of staff to transfer state-of-the-art understanding and international best practices to colleagues and students. Graduates of these institutions are soon improving environmental management policies and practices in industry, government and the community. Secondly, in the Asian and Pacific region, governments and industry keenly seek the advice and guidance of staff from universities and technical institutes. Industry in particular recognises the ability of such people to bring innovative solutions to current environmental problems and creative approaches to preventing the occurrence of new problems.

Initially NETTLAP focused on strengthening key tertiary institutions in thirty-five developing countries in the region. The early efforts of NETTLAP did more to recognise the enormity of the need and, in relative terms, little to address it. But incrementally NETTLAP has made a difference throughout the region and the benefits of the multiplier effect have begun to be seen. This was particularly so in the case of the design, preparation and dissemination of environmental curricula and instructional methods, materials and tools for use in tertiary and other relevant institutions in the region. The approach taken here was to facilitate a process whereby academics and professional trainers from government and industry were brought together in intensive workshops and asked to share and critique their individual and collective approaches to human resources development. These efforts resulted in curriculum guidelines and associated training methods, resource materials and tools in such topics as environmental economics, hazardous waste management, toxic chemicals management and coastal zone management. These outputs are still widely sought, and extensively used in the region.

In the mid and late 1990s, NETTLAP matured in several ways. Significantly, it shifted its target from institutional strengthening and human resources development in the tertiary sector to helping developing countries to plan and implement their own capacity building activities for achieving effective environmental management.

In-country initiatives can be much broader than the early NETTLAP focus on tertiary institutions. Countries can take a comprehensive approach that targets other important agents of change such as politicians, government officials, NGOs and leaders from the private sector. Therefore, in recent years NETTLAP has focused on building national networks that can facilitate the linking of policy makers, development planners, environmental managers from industry and key staff from tertiary institutions. In addition to sharing expertise, experiences and best practices, the networks are also designed to help identify current and emerging needs that can best be addressed through a symbiotic relationship between these key players. Through these national partnerships, NETTLAP is linking research, training and education to improve capacity to prevent or minimise adverse impacts on the environment. This involves identifying and implementing responses that are sustainable, responsive to identified needs, assured of achieving the desired results, supportive of related policies (e.g. appropriate economic and social development),

innovative but consistent with traditional indigenous practices, and which add value to other initiatives and encourage complementary activities.

NETTLAP has played a key role by facilitating nationally owned and driven environmental capacity building networks in the Philippines, Malaysia and Thailand. The major achievements of the latter two networks for training and research in environmental management have resulted, in part, from significant funding from DANCED, an initiative of the government of Denmark. Given the success of its current approach of regional cooperation with national implementation, NETTLAP is in advanced discussions to help develop similar networks in China, Vietnam, India and the Mekong countries.

The Fourth Asia-Pacific Ministerial Meeting on Environment and Development, which was held in Kitakyushu City, Japan, in September 2000, reiterated the importance of capacity building within the framework of the Regional Action Programme for Environmentally Sound and Sustainable Development, 2000–2005, which was adopted by the Ministerial Conference. It specifically recommended that “regional cooperation and collaboration through networking, such as the UNEP Network for Environmental Training at Tertiary Level in Asia and the Pacific, should be strengthened as environmental problems transcend national boundaries”.

More recently a demonstration project has been launched by the UNEP Regional Office for Asia and the Pacific entitled “Environmental Education, Awareness and Training in Asia and the Pacific” (EEATAP). This project aims to document and disseminate best practices on environmental education, training and awareness raising across the region, and is built on the principles of experiential learning and networking.

UNEP is building environmental awareness and capacity for sustainable development in the Asia-Pacific region through supporting education and training at the tertiary level. More information on NETTLAP and EEATAP is available from the UNEP Regional Office for Asia and the Pacific or from [www.roap.unep.org](http://www.roap.unep.org).

## UNEP Environmental Education and Training Activities in the Asia-Pacific Region 1993-2000

The Network for Environmental Training at the Tertiary Level for Asia and the Pacific (NETTLAP) links thirty-five countries in the Asia-Pacific region. It consists of over 200 institutional members and 2,000 individual members. NETTLAP aims to enhance the environmental expertise of decision makers, policy formulators and educators at the tertiary level throughout the Asia-Pacific region.

NETTLAP has developed the *Directory of Institutions and Individuals Active in Environmental Education and Training in the Asia-Pacific Region*. The updated and expanded directory is accessible on-line at [www.roap.unep.org](http://www.roap.unep.org).

Between 1993 and 1995, NETTLAP convened nine training and resource development workshops in the region, whose outcomes have been widely disseminated. Three main topics were covered:

- Toxic chemicals and hazardous waste management.
- Coastal zone management.
- Environmental economics.

The three thematic workshops were repeated and adapted for the three sub-regions of South East Asia, South Asia and the South Pacific.

Activities under the National Partnerships for Environmental Training Strategy (NPET), with funding from the government of Denmark through the NETTLAP Technical Cooperation Trust Fund, and from other partners directly to implementing agencies, have been conducted in Thailand and Malaysia on an inter-university collaborative basis.

The outputs of the NPET activities are also being disseminated to Mekong sub-region, and the possibility of establishing a Mekong Network for Environmental Education and Training is being explored.

More recently, NETTLAP partners have been involved in developing and implementing sub-regional environmental education and training strategies and action plans, including:

- An action strategy for environmental education and training in the Pacific region, 1999–2003.
- The 2000-2005 ASEAN environmental education action plan.
- The 2002-2007 South Asian action plan on environmental education and training.

## Environmental training network for Latin America

The Environmental Training Network for Latin America and the Caribbean is a horizontal cooperation programme that promotes environmental education for all the countries of the region. It was established to create awareness of the region's environmental problems, and the knowledge, methods and techniques to comprehend and solve them. The network addresses the ecological, economical and cultural roots of environmental problems, and is designed to build endogenous capacity for sustainable development in the region.

Since 1981, the Environmental Training Network has strengthened institutional capacity by providing technical assistance and academic consultancy on request to governments, universities, training centres and NGOs for the development of programmes, courses, seminars and meetings in the region. The network provides training in areas such as:

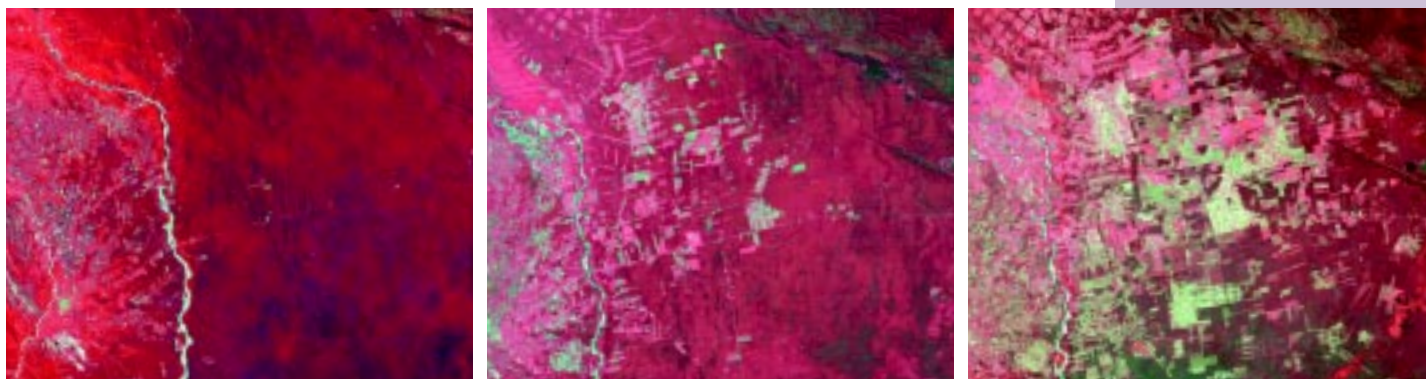
- Environmental health.
- Environmental law.
- Urban development.
- Citizen awareness building.
- Biodiversity.
- Agroforestry and sustainable agriculture.
- Desertification control.
- Trade and environment.
- Ecotourism.
- Energy and human settlements.
- Community forestry training.

More specifically, the Environmental Training Network provides capacity building by:

- Promoting the incorporation of an environmental dimension in all levels of formal and non-formal education, and assisting governments, universities, training institutions and NGOs for this purpose.
- Establishing and consolidating a system of postgraduate courses on environment and sustainable development.
- Developing activities for the training of teachers at different levels of the educational system.
- Developing scientific capacities and expertise in priority environmental issues, to orient policies towards sustainable development.
- Community training for participatory management of natural resources.

In 1995, the Environmental Training Network launched a publishing programme for environmental training in priority fields. Outputs include a series of manuals for environmental education, a series of environmental forums and debates, and a series on Latin American environmental thinking that provides basic educational and training material for schools, universities, governments and NGOs.

Satellite images showing the expansion of the city of Santa Cruz, Bolivia, 1975–2000.





## Eco-schools for sustainable development

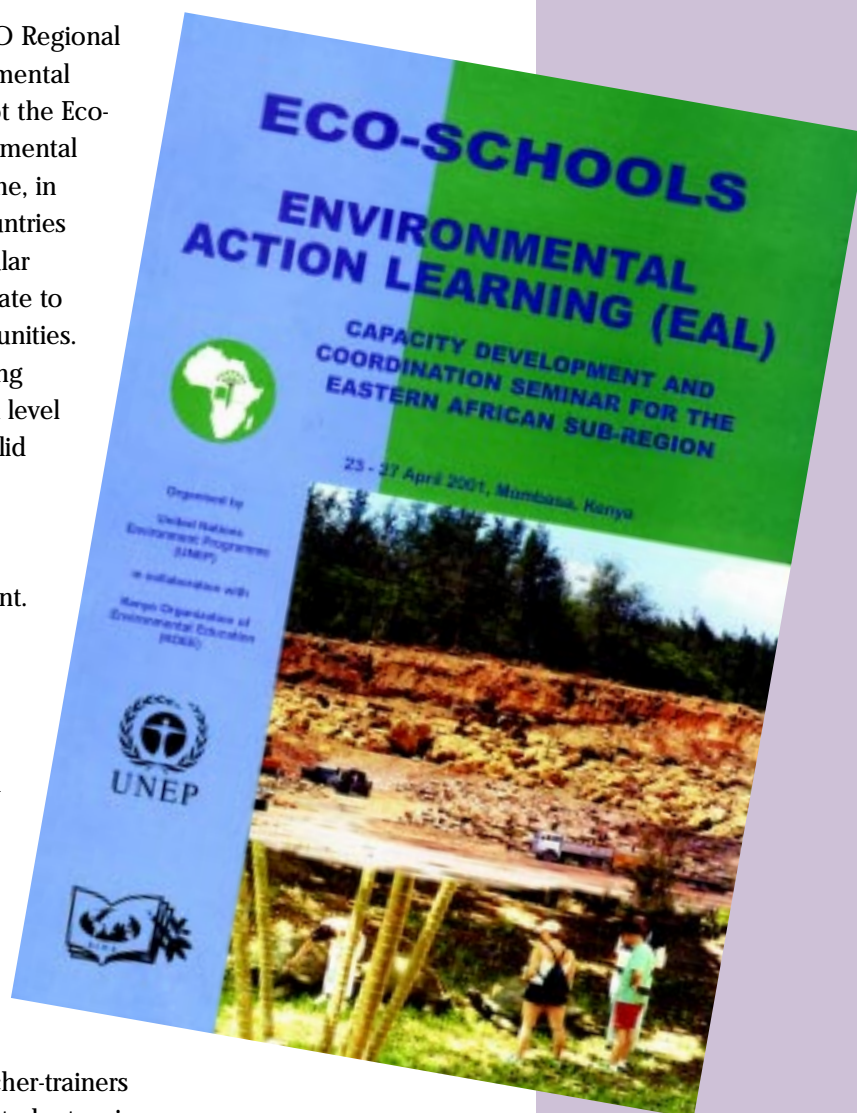
In 1999 UNEP, in collaboration with the UNESCO Regional Office for Africa, launched the regional environmental action-learning (REAL) programme in Africa to pilot the Eco-Schools programme of the Foundation for Environmental Education in the region. The idea of this programme, in which more than 300 schools from 17 African countries participate, is to promote curricular and co-curricular environmental education activities that directly relate to the needs of schools and their surrounding communities.

The programme is highly action-oriented to bring about change in environmental conditions at local level in such fields as mitigation of land degradation, solid waste reduction, collection, re-use, recycling and disposal, water quality assessment and improving water supply through the economical use of freshwater and sustainable wastewater management. The programme encourages communities to see how they can derive direct benefits from their investments in schools through planning and implementing micro-projects that solve and pre-empt environmental problems at the local level. In this way UNEP has helped to increase public participation in environmental management for sustainable development. Results also demonstrate that there is great potential in this initiative to help generate income and reduce poverty.

The Eco-schools programme provides multifaceted environmental education, where teacher-trainers educate teachers, teachers educate students and students raise awareness within the community. Examples of activities being undertaken jointly between schools and communities include:

- The promotion of simple environmentally sound technologies, for example: greenhouses, solar cookers, water catchment and purifying techniques and biogas generation for the sustainable utilisation of natural resources.
- Fruit tree planting to increase agricultural biodiversity and increase the nutrient basis for local populations.
- Environmental action learning to produce compost and other organic fertiliser for sale to local farmers and households, and at the same time to minimise the application of pesticides, fungicides and other chemicals which contaminate air, soil and water bodies.
- Actions to improve environmental health and to reduce the spread of diseases such as malaria, hepatitis, typhoid and others by eradicating the environmental conditions that cause the diseases.

This initiative is the first step in expanding the Eco-Schools programme as a global model for environmental education for sustainable development. UNEP plans to do this through its technical expertise and regional presence, working closely with the Foundation for Environmental Education, development partners, other United Nations agencies, international and national organisations and civil society.



UNEP is helping to generate income and to reduce poverty through environmental activities at the local level by promoting Eco-Schools as a global model of environmental education for sustainable development.



## Women and natural resource management

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Women have an intricate relationship with natural resources owing to their traditional roles and responsibilities which require them to gather food, collect water and meet the energy needs of their households. However, most energy and water related institutional and technological interventions have traditionally failed to consider women as primary beneficiaries, even though they are primarily responsible for managing energy and water requirements at the household level. Strategies to alleviate water and energy scarcity therefore need to be sensitive to prevailing gender-based inequities.

A UNEP pilot project Incorporating the Energy and Water Needs of Women in the Rural Areas of the Himalayas is being implemented between 2002 and 2004 in Nepal, Bhutan and India in collaboration with the International Centre for Integrated Mountain Development (ICIMOD). The project aims to increase the capacity of women in the rural areas of the Himalayas in energy and water management through training and the implementation of pilot projects. The lessons learnt from this project will be used to replicate this project on a larger scale in the Himalayas and the wider sub-region.

The use of mechanical rather than manual technologies, and changes in the energy use and water management practices—for example biogas and solar-powered energy systems, instead of wood fuel, and indigenous renewable energy and water harvesting technologies—can drastically reduce the burden on women, contributing to improvements in health through the reduction of hard physical labour and fuelwood smoke-related ailments, as well as to the conservation of biodiversity. The use of solar technologies and micro-hydropower for cooking, heating, and motive power applications will also reduce greenhouse gas emissions by replacing the use of fossil fuels.

There is growing concern about the environmental impacts of current energy consumption and production patterns in the developing world. At the national level this concern is reflected as an increasing focus on local pollution consequences, particularly in rapidly expanding urban areas. Internationally, it is clearly expressed in connection with the ongoing negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) which focuses on the reduction of greenhouse gas emissions.

Increased use of RETs (Renewable Energy Technologies) and enhanced energy efficiency are ways of meeting the growing demand for energy, while simultaneously providing economic, social and environmental benefits. Over the last decades, numerous programmes have demonstrated the technical potential of many RETs, but implementation still remains limited due to various barriers preventing their increased application, especially in developing countries. Paragraph 14 of the Malmö Ministerial Declaration stresses the potential of civil society in addressing those environmental issues. With regard to uptake of RETs, this applies to major groups, particularly women, who play a major role in energy consumption and production. Women are the principal consumers and users of household energy and transport. They decide on the major portion of total household energy use as purchasers of stoves, fans and other energy-using appliances as well as being the selectors of cooking fuels.



Interventions for women should aim to:

- Reduce the number of hours worked.
- Reduce hard physical labour.
- Minimise hazards and risks to health.
- Increase productivity.
- Enhance equity in the sharing of work and benefits.
- Widen the options for productive work through the saving of time and energy.

In developing countries, women have an especially critical interest in improved access to sustainable energy supplies because:

- Women are the major victims of environmental pollution due to energy use. They are particularly vulnerable due to their household responsibility for cooking.
- Women are the primary educators and therefore form their children's future energy conservation and consumption habits.
- Rural women and their children are the primary collectors of wood and residue fuels, which account for 80 per cent of all household energy use in many developing countries. Based on FAO estimates, the proportions of rural women affected by fuelwood scarcity range from 60 per cent in Africa, to nearly 80 per cent in Asia and nearly 40 per cent in Latin America. Time spent in fuel collection in fuel-scarce areas can range from between one and five hours per household per day.
- The real rural energy crisis is rural women's time, with women working longer work days than men in providing human energy for activities such as fuel and water carrying, cooking, food processing, transport, agriculture and small enterprises. This unpaid work is largely invisible in national energy accounts and labour statistics.
- Many income activities of women in the informal sector—often critical to family economic survival—are fuel intensive, and the viability of these activities is affected by energy prices and availability.
- More than half the world's households cook daily with wood, crop residues, dung and untreated coal, as a result of which women and children have the highest exposures to indoor air pollution, linked to acute respiratory infections, chronic obstructive lung diseases, low birth weights, lung cancer and eye problems.
- Other occupational health hazards for women involved in energy use and production include bone fractures, back disorders and miscarriages due to fuelwood load carrying.
- Physical and psychological violence against women has been reported: rapes while gathering fuelwood around refugee camps in Kenya and Somalia, undergoing sniper fire to gather fuel in Sarajevo, and bride suicides related to women's inability to meet their family's fuelwood needs in India.

Women play an important role as primary educators of their children, thus influencing future lifestyles. UNEP is committed to increasing the involvement of women in providing leadership in caring for the environment.

### Global pilot seminar for women on renewable energy

Although women throughout the developing world are the daily managers of natural resources they are often not involved in decisions that affect these resources and the environment. Women are excluded from decision making by cultural factors, by the fact that authorities, and sometimes the women themselves, are unaware of the importance of their contribution, and because they often lack the confidence and communication skills to articulate their needs.

As global and national attitudes gradually change, initiatives have emerged to include women in development activities, but often this has had only limited success. For instance, women may have been put on development committees only as figureheads to meet the requirements of a particular project. There is therefore an urgent need to empower women in the management of natural resources management.

An example of female empowerment in the field of natural resources management comes from the global pilot seminar on Women Leaders on the Uptake of Renewable Energy Technology, held in Perth, Western Australia, in June 2001. The seminar was the first event of a UNEP awareness and education programme for women leaders on the uptake of renewable energy technologies, supported by the Swedish government. It involved a total of thirty participants from twenty-two developing countries in Latin America, Africa, Asia and the Pacific.

The seminar's objectives were to:

- Train participants to advocate for the political will and resources to support integrated and holistic energy policies which take into account women's needs.
- Educate participants on sustainable energy issues and concerns relevant to women's needs so that they can share this knowledge with others.
- Provide technical education to increase women's access to friendly energy technologies.
- Promote women's collaboration with energy and other organisations in improving access to sustainable energy for both women and men.
- Encourage women to participate in energy policy and planning discussions, and to play their role as stakeholders.

## Capacity building for children and youth

### The International Children's Conference

The International Children's Conference on the Environment (ICC) is held every two years for children between the ages of 10 and 12 to learn about the state of the environment and voice their concerns. The most recent ICC was held in Victoria, BC, Canada, in May 2002. It was used to develop a statement from children to the World Summit on Sustainable Development. Four hundred children from over eighty countries participated. The 2003 ICC will be held in New London, Connecticut, USA.

### Leave It To Us: UNEP children's magazine

The *Leave It To Us* UNEP children's magazine is a half-yearly magazine on children and the environment. It carries information on selected activities of children around the world and on topical environmental issues of interest to children and schools. It is shared with schools and schoolchildren, particularly those who participated in the International Children's Conference on the Environment.

### Youth version of the UNEP community handbook on the environment

UNEP is developing a youth version of its community handbook *Taking Action: An Environmental Guide for You and Your Community*. The publication will provide young people between 15 and 25 years of age with information on environmental issues and tips on how they can take action in their communities. It will be launched in February 2003.

### Other information materials for children and schools

UNEP has developed fact sheets with tailor-made information on water and oceans, forests and biodiversity, climate change, ozone depletion, urbanisation, and sport and environment for use by schools and community groups to raise environmental awareness among children. UNEP also publishes an environmental picture booklet for children. This publication uses winning entries from the International Children's Painting Competitions alongside environmental stories to promote environmental awareness among children. The second edition of this publication came out in May 2002.

### Tree planting campaign

The Plant Tree, Plant Life campaign by UNEP and the Foundation for Global Peace and Environment aims to contribute to efforts in checking deforestation. The campaign seeks to engage schools and children in selected countries to adopt areas to plant trees and to care for them as their science education project. These green spaces, which will be sponsored by companies, will inspire schools to embark on major afforestation projects in their cities and communities and promote the culture of planting and caring for trees. The pilot phase of this global campaign is being launched in Bangladesh and Kenya in 2003.

### Nature and sport training camps

The Nature and sport training camps are intended to provide leadership training on the environment, culture and sport to children, 16 years and below, in underprivileged



"At the beginning of this Summit, the children of the world spoke to us in a simple yet clear voice that the future belongs to them, and accordingly challenged all of us to ensure that through our actions they will inherit a world free of the indignity and indecency occasioned by poverty, environmental degradation and patterns of unsustainable development.

As part of our response to these children, who represent our collective future, all of us, from every corner of the world, informed by different life experiences, are united and moved by a deeply felt sense that we urgently need to create a new and brighter world of hope."

*Johannesburg Declaration, paragraphs 3 and 4.*



communities in Africa, Asia and the Pacific, Latin America and the Caribbean. The camps, which are run by community organisations or national branches of the Global Sports Alliance, build awareness and provide basic training on the development of community environmental activities (recycling, clean-ups, etc.) and on various sports activities (soccer, tennis, basketball etc.). The first Camp was established in Nairobi, Kenya, in August 2001. Similar camps are planned in Cambodia and Brazil in 2002 and 2003.

### **UNEP Global Youth Retreat**

The Global Youth Retreat is held every two years in conjunction with the regular sessions of the UNEP Governing Council/Global Ministerial Environment Forum. The Retreat provides youth leaders with an opportunity to discuss youth input into UNEP work and to suggest ways of enhancing cooperation between UNEP and young people worldwide. It also provides training opportunities for youth and it is used to elect members of the UNEP Youth Advisory Council—twelve young people who advise UNEP on how to include youth in its activities. Young people also participate as observers in the UNEP Governing Council. They interact and share experiences with decision makers, and are able to lobby on youth-related issues.

### **Youth for Sustainable Development**

In preparations for the World Summit on Sustainable Development (WSSD) a Youth for Sustainable Development process was launched by UNEP, Sweden and Denmark to involve youth worldwide. The process started with a Youth Conference on Environment and Sustainable Development in Borgholm, Sweden, in May 2001. National youth reviews were carried out on progress made on environment and sustainable development issues since 1992.

The process concluded with a Global Youth Forum in Denmark in March 2002, where a youth statement on sustainable development for WSSD was prepared and a catalogue of ideas compiled on youth participation in environmental issues. The process also facilitated the participation of youth and children in preparations for WSSD and in the Summit itself.

### **Mexican Children Summits: 1999 and 2000**

The first and second Children's Summits on the Environment targeted children between the ages of 10 to 14 living in Mexico City, Mexico. The overall goal of the summits was to listen to children and give them a space for

### **Youth and sustainable consumption**

Sustainable consumption first appeared on the international policy agenda at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil, in 1992 when the link between environmental degradation and the production and consumption of goods and services was officially made. Recognising the importance of the role young people play in the protection and development of the environment, the UNEP Governing Council gave UNEP the task of developing a strategy to investigate the role of youth in promoting sustainable consumption. Youths comprise nearly 30 per cent of the world's population and the consumption patterns acquired by them today will influence their adult lifestyles and hence future global consumption patterns.

Following a decision by the Governing Council in 1999, UNEP developed a sustainable consumption strategy in collaboration with its Youth Advisory Council. It involved a survey and campaign on Youth and Sustainable Consumption. The UNEP Youth and Sustainable Consumption Campaign, launched in seventeen countries in all five continents, aimed to increase the involvement of youth in activities promoting sustainable consumption by educating young people on the impact of their consumption on the environment. The campaign was coordinated by UNEP in conjunction with its Youth Advisory Council. Each Youth Advisory Council group relayed the general message on sustainable consumption, but was free to emphasise that aspect of sustainable lifestyle which was most likely to be adopted in their country (water, energy, food etc.).

A research survey was also carried out asking young people what they knew about the impact their lifestyles and consumption patterns had on the environment, economy and society. The survey covered 15,000 young people in 25 countries. The results have provided a resource base for dialogue with young people on what youth from different cultures and continents really know and need.

UNEP has also produced a Youth for Sustainable Consumption Handbook and video (*see [www.unep.org/children\\_youth/ysc/](http://www.unep.org/children_youth/ysc/)*), launched in February 2001, during the twenty-first UNEP Governing Council. The handbook aims to provide youth with a better understanding of how consumption patterns affect the environment and why we should aim towards sustainable consumption.



## Children and youth (*continued*)

reflection and analysis on environmental problems from their personal experiences. In the first summit, 185 children participated; 257 in the second. They came from a wide variety of backgrounds: private and public schools, children living on the streets and children with some kind of disability. The children wrote a declaration calling for action from the government and the citizens of Mexico City. The Declaration was addressed to parents, teachers and all children, in spite of their age. It was disseminated through the mass media, including a special newspaper announcement.

### Rescue Mission Planet Earth, Mexico

The Rescue Mission Planet Earth contest in the Mexican Republic involved boys and girls aged between 5 and 15 years old from elementary and secondary schools within the country between September 1996 to March 1997. The contest was organised in partnership with *Ediciones Larousse* and *El Correo del Maestro* to sensitise girls and boys on environmental problems and to invite them to participate in environment conservation activities. UNEP provided technical advice to teachers and school authorities to enable them to incorporate subjects and tasks related to the environment into their school curricula, thus promoting environmental education in schools and at home. More than 200,000 children participated to the benefit of their families, schools and communities.

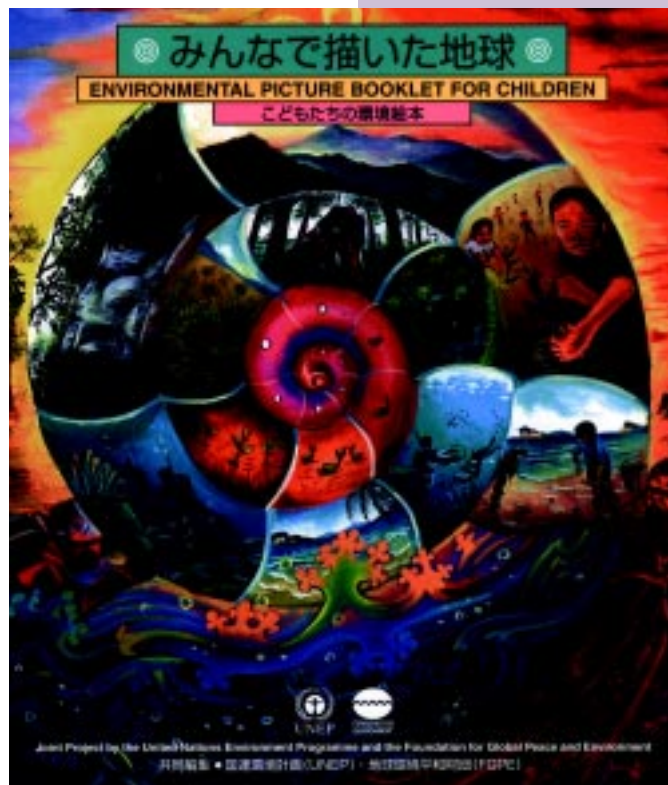
### Teen Planet Magazine

*Teen Planet* is an outreach magazine produced by the UNEP Regional Office for Europe, targeted both at young audiences and at anyone who has an interest in youth development. UNEP first launched the youth periodical *Teen Planet* magazine in December 2000. As of 31 December 2001, UNEP had published four issues of *Teen Planet* which were widely disseminated in English, French, Russian and Spanish.

The first issue entitled 'Environmental Rights', was based on the United Nations Economic Commission for Europe Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (*see also page 129*). The second issue, based on the United Nations Convention on Biological Diversity, looked at biological diversity-related issues in everyday life and how young people can help protect biodiversity. The third was a special issue entitled 'Children of Rio', produced to coincide with regional preparations for the 2002 World Summit on Sustainable Development, and reflecting the views and concerns of young people in light of these. The fourth issue, 'Children's Environmental Health and the Right to a Healthy Environment' focused on the impact of environmental deterioration on children's health and the threats that could have a significant impact on their future growth.

### Internships

The UNEP Children and Youth/Sport and Environment Unit provides opportunities to several young people each year to gain international experience through its internship programme. Most of these young people are university students or young people who have been seconded from their organisations.



The extensive work of the UNEP Children and Youth Programme is featured at [www.unep.org/children\\_youth](http://www.unep.org/children_youth).

## World Environment Day

World Environment Day (WED) is celebrated every year on 5 June in an effort to raise environmental awareness and action in more than 100 countries around the world. Growing interest is evidenced by the thousands of events and activities organised and the hundreds of thousands who access the WED web site [www.unep.org/wed](http://www.unep.org/wed). For example, from 1 to 9 June, 2001, an average of 200,000 hits per day were received on the WED web site with a total of 1,800,000 hits recorded overall. During this period the WED site was the most visited UNEP site.

WED activities and events involve all sectors of society, including governments, NGOs, business, industry, intergovernmental organisations, civil society, media and schools. Some of the programmes undertaken to commemorate WED include clean-up efforts, tree planting, exhibitions, art and essay competitions, environmental awareness campaigns, conferences, concerts and sports activities.

To assist the various partners, UNEP produces an information kit which is distributed widely around the globe. The kit includes: a press release, a poster, stickers, a logo sheet, messages from the Secretary-General of the United Nations and from the Executive Director of UNEP, and a special issue of the UNEP quarterly magazine *Our Planet*.

### Global 500 Roll Of Honour for environmental achievement

A major WED event each year is the announcement of the Global 500 Roll of Honour. Established by UNEP in 1987, the Global 500 Roll of Honour has, for the last fifteen years, paid tribute to the commitment of environmentalists at the grassroots and community level. This recognition also aims to encourage them to continue their work and inspire others to join the global coalition dedicated to protecting the environment. The Global 500 Roll of Honour also contributes to raising the profile of UNEP and of the various environmental issues in the regions.

At the global level, the laureates have created the Global 500 Forum, which serves as a networking vehicle for all laureates. UNEP and the Global 500 Forum work together to enhance relations amongst laureates through a web site [www.global500.org](http://www.global500.org), a newsletter and by sharing information on relevant environmental issues and UNEP activities.

At the regional level, a shining example of capacity building is the establishment of the Global 500 Japan Network, which provides laureates from the Asia/Pacific region the possibility of sharing experiences and exchanging knowledge and ideas. The Japan Network regularly organises conferences and seminars on environmental issues and distributes information on environmental preservation to the public. The Japan Network also organises every year, with the collaboration of UNEP, a forum for laureates from the Asia/Pacific region. The outcome of these conferences are reported to government ministers and the United Nations Economic Commission for Asia and the Pacific. A number of regions are aiming to replicate this example.

The recipients of the Global 500 get wide media coverage both nationally and internationally, thus raising environmental awareness.



### The UNEP Sasakawa Environment Prize

The UNEP Sasakawa Environment Prize honours individuals who have distinguished themselves by making outstanding contributions to the management and protection of the environment. Much like the Global 500 Roll of Honour, this prize hopes to encourage committed environmentalists to continue their work and to inspire others to become involved in the environmental movement. The prize, made possible by the Nippon Foundation, clearly demonstrates collaboration between the intergovernmental sector (UNEP), the private sector (Nippon Foundation) and individuals from various environment-related fields.

Since 1999, the prize secretariat has coordinated the Pastrana Borrero Lecture, which is given every year on a pressing environmental issue at the UNEP Sasakawa Environment Prize award ceremony by a leader in the field of the environment. Both the prize winner and the lecturer receive media coverage, thus increasing awareness of UNEP and a specific global environmental issue.

More details about the UNEP Sasakawa Environment Prize and previous winners is available at [www.unep.org/sasakawa2/](http://www.unep.org/sasakawa2/)

## UNEP: communicating with the world

### UNEP publications

UNEP outreach and public awareness raising through the printed word takes many forms: documents and technical reports, newsletters, books, magazines, media releases and information notes, and material available on the Internet. UNEP also publishes approximately 100 titles a year. Through the online bookshop at [www.earthprint.com](http://www.earthprint.com) readers can order some 800 UNEP titles and can have access to thousands of other environmental publications from sister agencies and NGOs working in the field of the environment. UNEP also has a print catalogue *Environment in Print 2002/3*, which is also available on the Internet at [www.unep.org](http://www.unep.org).

The UNEP magazine *Our Planet* is published quarterly and reaches a readership of 80,000 for the print version and over 1 million on the Internet per issue. Contributors include political and scientific leaders and the issues cover matters of global environmental concern. Recent issues have focused on Chemicals; Ecotourism and Mountains; WSSD; and the Global Environment Facility. The magazine is translated into French, Spanish, Japanese, Korean and Russian.

### UNEP web site

Until January 2000, UNEP did not have a proper web site, merely a series of linked web pages. In April 2000 UNEP unveiled its new web site [www.unep.org](http://www.unep.org). The site organises the information provided by the UNEP substantive Divisions into a database giving fast links to information on the full UNEP programme of work, as well as linking users to a vast array of environmental data and information available from UNEP, UNEP partners and related environmental institutions.

The family of UNEP web sites under the umbrella [www.unep.org](http://www.unep.org) addresses several target audiences: government officials, development professionals, NGOs and civil society organisations, media, youth and the general public. The objective of [www.unep.org](http://www.unep.org) is to:

- Help people to take action or make decisions on environmental policy.
- Increase awareness of environmental issues among all sectors of society.
- Enhance access to environmental information.
- Facilitate networking.

In September 2001 the web site was again completely redesigned to be more dynamic and news oriented. The new layout features easier access to information products and the UNEP sub-programmes from the home page, improved use of html codes for registering and placement on public search engines and a more harmonised design throughout the site. To improve the population of the site by UNEP Divisions, Units and Regional and Outposted offices, a special set of graphics and templates has been created and made available online.

The traffic statistics on the UNEP web sites show a steadily improvement. The number of visits to the main UNEP site in 2001 was three times more than in 2000. From March 2001 to February 2002 [www.unep.org](http://www.unep.org) was visited by 2 million unique visitors. In the first months of 2002 the whole family of UNEP sites received between 2.5 and 3.5 million hits per month. The media pages were the most visited; the most popular topic was ozone.

### Clean Up The World

Clean Up the World, an inspiring community-based environmental campaign organised in conjunction with UNEP, is held every year the third weekend in September. Clean Up the World helps to build partnerships between government, business and the community to promote action and achieve long term environmental protection. Established in 1993 Clean Up the World has motivated more than 40 million people around the world to volunteer to make their environment a cleaner and healthier place. Hundreds of organising committees from more than 124 countries have registered with the organising team in Sydney, Australia, to participate in Clean Up the World.

Instructional kits are distributed free of charge to assist committees to organise Clean Up the World in their area. The kits are available in three languages and include a planning guide, promotional video, posters, T-shirts and bags. Clean Up the World organising committees range from individual groups working independently in their local community, to national initiatives where the work of many groups is coordinated by a central management team across the entire nation. Committees include community groups, schools, scouts and guides, government departments, consumer and industry organisations and individuals.

The UNEP web site provides information on all UNEP activities. It also contains links to many related sites, including the *Earth Report* web site [www.oneworld.org/tve/earthreport](http://www.oneworld.org/tve/earthreport), which contains listings of current and forthcoming *Earth Report* programmes, plus a wealth of background material on the environment.



## Tierramerica

*Tierramerica* is a communication programme designed to highlight issues related to sustainable development and the environment in Latin America and the Caribbean. A shared project between UNEP and UNDP, *Tierramerica* targets government institutions, the education sector, NGOs and civil society in participation with the World Association of Community Radios-Latin America and the Caribbean and fourteen newspapers in the region.

*Tierramerica* began as a regular newspaper supplement published throughout Latin America and the Caribbean. During the programme's first phase, thirteen issues of *Tierramerica* were published between April 1995 and December 1997. These were thematic supplements on topics such as: biodiversity, water, cities, women and the environment, energy, consumption patterns, health and the environment, environment and economy, and food security.

The current phase is building on the previous phases of the *Tierramerica* programme to consolidate its outreach and gains. It is also addressing the issue of how to make the supplement self sustainable. In its first phase *Tierramerica's* circulation reached 6 million copies. Today the fourteen Spanish and Portuguese language newspapers featuring a weekly *Tierramerica* supplement represent a circulation of close to 1.5 million copies.

*Tierramerica* is also being posted online. A web site [www.tierramerica.net](http://www.tierramerica.net) has been created containing environmental information and educational material in Spanish, English and Portuguese. *Tierramerica* also produces a weekly radio programme that is aired by around 500 radio stations mainly in Latin America but also in Europe and the United States, increasing environmental awareness and interest in an estimated audience of 5 million.

## Earth Report

Despite the growth of the Internet, television remains the most effective medium of mass communication worldwide. In a recent poll in the European Union, four out of five people cited television news and current affairs as their first source of information about the world. Through its long-standing partnership with the independent Television Trust for the Environment (TVE), UNEP reaches millions throughout the world with the *Earth Report* series.

Each 30-minute *Earth Report* bulletin takes an in-depth look at issues of sustainable development and the environment. Among the most successful *Earth Report* bulletins are those under the Hands On series. Hands On concentrates on examples of the practical, affordable and replicable actions people are taking round the world to meet the challenges of sustainable development. The collaboration between UNEP and TVE also produces video news releases and public service announcements, contributing to wide media coverage and audience knowledge of sustainable development issues worldwide.

## Heart and Soul: a soap opera for Africa

UNEP is collaborating closely with other United Nations partners in a new partnership in Africa aimed at raising awareness about the major social issues of the day. The soap opera *Heart and Soul* is a groundbreaking initiative supported by the private sector and all twenty-four United Nations agencies based in Kenya. *Heart and Soul* explores a broad range of social and development issues based around five key themes: HIV/AIDS, poverty reduction, environmental protection, governance and human rights, and gender.

While it emphasises these United Nations messages, *Heart and Soul* is first and foremost entertainment. The pilot series of *Heart and Soul* was launched in June 2002, when six episodes were broadcast on television and radio in Kenya and eleven other countries in Africa. Research found that *Heart and Soul* competed well with existing soap operas in terms of audience recognition and entertainment value, and scored particularly highly for audience perception of social relevance and educational content.

*Heart and Soul* is part of a multimedia communication strategy which should have a powerful impact on social attitude and practice across Africa. Complementary support media, such as rural theatre roadshows, billboards, newspapers and magazine articles and audio-visual education packs will be introduced over the project's life to enhance message understanding and retention. Using such 'edutainment' techniques across a range of mass media, *Heart and Soul* will reach a broad audience in sub-Saharan Africa, helping to address the underlying causes of negative social patterns by conveying information in subtle and credible ways.

Although *Heart and Soul* is set in no specific country, all the actors and scriptwriters are Kenyan. An international team of consultants, led by a seasoned drama director responsible for the BBC serial *East Enders*, has worked with local talent to make a product that will, hopefully, help the people of East Africa and beyond to improve their lives.



## Appendix 1: Acronyms

ACSAD	Arab Centre for the Study of Arid Zones and Drylands.
AMCEN	African Ministerial Conference on the Environment.
APPELL	Awareness and Preparedness for Emergencies at Local Level.
AREED	African Rural Energy Enterprise Development.
BASE	Basel Agency for Sustainable Energy.
CBD	Convention on Biodiversity.
CBOs	Community-based Organisations.
CEE	Council for Environmental Education.
CGIAR	Consultative Group on International Agricultural Research.
CICERO	Centre for International Climate and Environmental Research.
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora.
CMS	Convention on Migratory Species.
CORAL	The Coral Reef Alliance.
CSD	United Nations Commission on Sustainable Development.
DANIDA	Danish Agency for Development Assistance.
ECE	United Nations Economic Commission for Europe.
ECNC	European Centre for Nature Conservation.
EEA	European Environment Agency.
EIA	Environmental Impact Assessment.
EMERALD	Environmental Management Exchange and Resource Alliance for Local Development.
EMINWA	UNEP Environmentally Sound Management of Inland Waters Programme.
EU	European Union.
FAO	United Nations Food and Agriculture Organisation.
GCRMN	Global Coral Reef Monitoring Network.
GIS	Global Information Systems.
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.
GRID	Global Resources Information Database.
IAEA	International Atomic Energy Agency.
IARC	International Agency for Research on Cancer.
ICARDA	International Centre for Agricultural Research in Dry Areas.
ICARM	Integrated Coastal Area and River Basins Management.
ICIMOD	International Centre for Integrated Mountain Development.
ICLARM	The World Fish Centre.
ICRAN	International Coral Reef Action Network.
ICRI	International Coral Reef Initiative.
ICRI-CPC	ICRI Coordination and Planning Committee.
IDRC	International Development Research Centre.
IETC	UNEP International Environmental Technology Centre.
IFCS	Intergovernmental Forum on Chemical Safety.
IGAD	Intergovernmental Authority on Development.
ILO	International Labour Organisation.
IMO	International Maritime Organisation.
INECE	International Network for Environmental Compliance and Enforcement.
IPCC	Intergovernmental Panel on Climate Change.
IPGRI	International Plant Genetic Resources Institute.

ISDR	United Nations International Strategy for Disaster Reduction.
ISP	Inter-American Strategy for Participation
ISRIC	International Soil Reference and Information Centre.
IUCN	The World Conservation Union.
LMOs	Living Modified Organisms
MaESTro	Environmentally Sound Technologies Database.
MEAs	Multilateral Environmental Agreements.
NCAR	National Center for Atmospheric Research (USA).
NETTLAP	UNEP Network for Environmental Training at Tertiary Level in Asia and the Pacific.
NEPAD	New African Partnership for Development
NGOs	Non-governmental Organisations.
NIS	Newly Independent States of the Former Soviet Union.
OAS	Organisation of African States.
OCHA	United Nations Office for Coordination of Humanitarian Affairs.
ODS	Ozone Depleting Substances
OECD	Organisation for Economic Cooperation and Development.
OPEC	Organisation of the Petroleum Exporting Countries.
PADELIA	Partnership for the Development of Environmental Law and Institutions in Africa.
Ramsar	The Ramsar Convention on Wetlands.
REC	Regional Environmental Centre for Central and Eastern Europe.
SACEP	South Asia Cooperative Environment Program.
SADC	Southern African Development Community.
SEPA	China State Environmental Protection Administration.
SPREP	South Pacific Regional Environment Programme.
UNCCD	United Nations Convention to Combat Desertification.
UNCED	United Nations Conference on Environment and Development.
UNCTAD	United Nations Conference on Trade and Development.
UNDP	United Nations Development Programme.
UNECE	United Nations Economic Commission for Europe.
UNESCO	United Nations Educational, Scientific and Cultural Organisation.
UNF	United Nations Foundation.
UNFCCC	United Nations Framework Convention on Climate Change.
UNFIP	United Nations Fund for International Partnerships.
UN-HABITAT	United Nations Human Settlements Programme.
UNHCR	The UN Refugee Agency.
UNICEF	United Nations Children's Fund.
UNIDO	United Nations Industrial Development Organisation.
UNU	United Nations University.
WCD	World Commission on Dams.
WCMC	UNEP World Conservation Monitoring Centre.
WMO	World Meteorological Organisation.
WOCAT	World Overview of Conservation Approaches and Technologies.
WRI	World Resources Institute.
WSSCC	Water Supply and Sanitation Collaborative Council.
WTO	World Trade Organisation.
WWF	Worldwide Fund for Nature.

## Appendix 2: UNEP contact information

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<sup>1</sup> All UNEP Divisions are located at UNEP Headquarters with the exception of DTIE.

<sup>2</sup> Internet access to all UNEP Divisions and additional e-mail addresses are available from the UNEP web site [www.unep.org](http://www.unep.org).

<sup>3</sup> Divisional list compiled according to the UNEP Operational Manual (available from UNEP, Chief, Programme Coordination and Management Unit, P.O. Box 30552, Nairobi 00100, Kenya). Branches and units located outside UNEP Headquarters are listed under UNEP Outposted Offices and Collaborating Centres.

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