

## UNEP AND SMALL ISLAND DEVELOPING STATES<sup>1</sup>

Al Binger, Elizabeth Khaka and Hanneke Van Lavieren

---

**Abstract.** This chapter highlights UNEP's activities in assisting Small Island Developing States (SIDS) in implementing the Barbados Programme of Action for their Sustainable Development. It covers UNEP's response to eight major areas of concern for SIDS, namely climate change and sea level rise, biodiversity resources, coastal and marine resources, coral reef protection and management, natural and environmental disasters management, management of wastes, freshwater resources management, and tourism resources. Future directions with regard to each environmental concern are also identified. The chapter also deals with UNEP's activities with regard to a number of cross-cutting issues in environmental management of interest to SIDS, including multilateral environmental agreements and environmental law, the environmental vulnerability index, capacity building for sustainable development, and environment outlook reports on SIDS.

### 1. UNEP's Mandate to Assist SIDS

Over the past decade sustainable development has occupied centre stage in discussions pertaining to development strategies at the national, regional and global levels. The ideal of sustainable development was endorsed at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro (1992), the United Nations Global Conference on Sustainable Development of Small Island Developing States in Barbados (1994) and the World Summit on Sustainable Development convened in Johannesburg, South Africa (2002).

The international community, in numerous pronouncements, has emphasised the special sustainable development needs of Small Island

---

<sup>1</sup> This chapter draws heavily on the 2004 report *UNEP's Assistance in the Implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States*, edited by Al Binger and Runar Sigmarsdóttir and coordinated by Elizabeth Khaka, Hanneke Van Lavieren and Isabel Martinez (available at <http://www.gpa.unep.org/sids/documents/UNEP-SIDS2004.pdf>).

Developing States (SIDS). As a group, SIDS share several characteristics, which makes them economically, environmentally, and socially more vulnerable to shocks over which they exercise little or no control. Accordingly, the combination of these shared features places SIDS at a distinct disadvantage compared to larger countries (Commonwealth Advisory Group, 1997; UNEP, 1999a; UNEP, 1999b; UNEP, 1999c; UNEP, 1999d). Researchers have computed vulnerability indices for a wide range of countries at different stages of development and concluded that SIDS are more vulnerable relative to larger countries (Briguglio, 1997; Pantin, 1997; UWICED, 2002).

The Barbados Programme of Action for the Sustainable Development of SIDS (SIDS-PoA) identifies UNEP as one of the key UN organisations for implementing its activities. The role of UNEP is described in the SIDS-PoA (Chapter V) "Organs, Programmes and Organizations of the UN". Paragraph 125 states: "As set forth by Agenda 21, UNEP, taking into account development perspectives, should continue to provide policy guidance and coordination in the field of environment, including in the implementation of the SIDS-PoA".

This chapter describes UNEP's response to its mandate. It deals with UNEP's commitment to the sustainable development of SIDS and outlines the way forward. It covers UNEP's response to eight major areas of concern for SIDS, namely (1) climate change and sea level rise, (2) biodiversity resources, (3) coastal and marine resources, (4) coral reef protection and management, (5) natural and environmental disasters management, (6) management of wastes, (7) freshwater resources management, and (8) tourism resources. Future directions with regard to each environmental concern are also identified.

It needs to be emphasised however, that although the concerns are discussed separately, there are substantial degrees of integration. For instance, biodiversity is integrally related to marine and coastal waters, freshwater resources and forest resources. The chapter also deals with UNEP's activities with regard to a number of cross-cutting issues in environmental management of interest to SIDS, including multilateral environmental agreements and environmental law, the environmental vulnerability index, capacity building for sustainable development, and environment outlook reports on SIDS.

## 2. Climate Change and Sea Level Rise

The ecosystems of SIDS are much more fragile than those of countries with larger landmasses, and are consequently more vulnerable to

the negative impacts of climate change and sea level rise. The sensitivity and excessive fragility of the ecosystems of SIDS are partly a function of the population's management practices and increasing demands for resources.

The coastal areas of SIDS contain some of the world's most diverse and productive ecosystems, including mangrove forests, coral reefs, and sea grasses. Low-lying deltas, coral atolls and reefs are particularly sensitive to changes in the frequency and intensity of rainfall and storms. Coral will generally grow fast enough to keep pace with sea level rise but may be damaged by warmer sea temperatures. The biological diversity of SIDS—the source of enormous environmental, economic, and cultural value—will be threatened by rapid climate change.

Higher sea levels could also cause extreme events such as high tides, storm surges, and seismic sea waves (tsunami). Rising sea levels are already contaminating underground freshwater supplies in several SIDS scattered across the Pacific, Indian Ocean, and the Caribbean Sea. Sea-level rise could damage key economic sectors of SIDS, such as agriculture, fisheries, aquaculture and tourism (IPCC, 2001).

#### *UNEP's Activities in Connection with Climate Change in SIDS*

Possibly the most important contribution of UNEP in this area is through encouraging scientific, technological and socioeconomic research. For example, in 1988 UNEP and the World Meteorological Organisation (WMO) established the Intergovernmental Panel on Climate Change (IPCC). The mandate of the Panel is to assess the state of existing knowledge about climate system and climate change; the environmental, economic, and social consequences of climate change; and possible response strategies. The reports of the IPCC in general confirmed the scientific evidence for climate change. This had a powerful effect on both policy-making and the general public and provided the basis for negotiating the United Nations Framework Convention on Climate Change (UNFCCC).

The UNFCCC entered into force on 21 March 1994. This was 90 days after the receipt of the 50th instrument of ratification. Recognising the interest and urgency of SIDS during the climate change negotiations, a UNEP strategy on adaptation to climate change impacts was developed to focus on activities to support capacity building for efficient adaptation to assessed regional changes in temperature and precipitation. The strategy also included synergistic projects that demonstrate linking carbon sinks, adaptation and

sustainable development and public awareness and insurance programmes to reduce risks from extreme events, and to health, natural resources, and unique ecosystems.

Other UNEP climate change assistance to SIDS include:

- Development of an index of comparative vulnerability to climate change and strategies for climate change adaptation for South Pacific, Western Indian Ocean and Caribbean SIDS.
- UNEP in collaboration with the Caribbean Community (CARICOM) organised workshops on the regional impacts of climate change. A policy document on “Climate Change in the Caribbean and the Challenge of Adaptation” was produced.
- UNEP/WHO/WMO convened an international conference on “Climate and Health in Small Island States” from 24-25 July 2000, in Western Samoa. It was attended by delegates from most members of the Alliance of Small Island States (AOSIS).
- UNEP supported the conference “Climate Variability and Change and their Health Effects in the Caribbean” held on 21-25 May 2002 in Bridgetown, Barbados.

#### *The Montreal Protocol: A Success Story in Capacity Building in SIDS*

The Montreal Protocol has proven to be a successful model for future Multilateral Environment Agreements (MEAs). It has cemented itself into history as a pioneering example of international cooperation to address global environmental issues. The remarkable success of the phase out of ozone depleting substances (ODS) in developing countries thus far can be attributed to the far-reaching policies and measures pursued by the Multilateral Fund of the Montreal Protocol that over the last 12 years has provided targeted financial and technical assistance to the developing countries.

Since 1991, the “Ozone Action Programme” of UNEP’s Division of Technology, Industry and Economics (DTIE) has strengthened the capacity of governments, particularly national ozone units (NOUs), the private sector, NGOs, academic and training institutions, customs agencies, refrigeration institutes, small and medium sized enterprises (SMEs) and the informal sector in developing countries of which 41 are members of AOSIS.

The Programme has helped promote cost-effective ozone depleting substances (ODS) phase out activities at the national and regional levels. The main services provided by the Programme, from which SIDS benefited directly, are (a) an information clearing-house, (b) the formulating and implementing of country programmes (c)

institutional strengthening (d) developing and implementing refrigerant management plans (e) training, regional networking, and (f) preparing and implementing national and regional phase-out plans.

### *Future Directions with Regard to Climate Change in SIDS*

In the past UNEP supported activities aimed at developing and testing of methodologies for assessing vulnerability to climate change and choosing the most cost-effective adaptation options. Subjecting the various adaptation options to rigorous benefit-cost analysis should consolidate this effort. The result of this consolidation is expected to yield high returns to SIDS.

The strategies that could be evaluated and subjected to benefit-cost analyses include:

- Preventative measures such as building barriers against sea-level rise or reforesting degraded hillsides.
- The redesign of crop mixes to ensure a guaranteed minimum yield even under the worst-case scenario.
- Measures to mitigate the burden on those directly affected by climate change, such as spreading or sharing losses through insurance or public disaster relief programmes.
- Changing a use or activity that is no longer viable, or changing the location of an activity. For example, relocating agricultural activities from steep hill slopes.
- Exploring improved water storage management to help reduce vulnerabilities. New supplies could be developed or existing supplies could be used more efficiently.
- Devising long-term strategies for water supply and demand management such as regulations and technologies for directly controlling land and water use, incentives and taxes for changing behaviour, construction of new reservoirs and pipelines to boost supplies, improvements in water management operations and institutions, and the encouragement of local or traditional solutions.
- Other adaptation measures such as protecting watersheds, restoring river channels to their natural form, and reducing water pollution.

### **3. Biodiversity Resources**

The rich biological diversity and high degree of endemism of many species in SIDS is well known. According to the World Conservation Monitoring Centre (UNEP/WCMC) over 1,000 species of animals and

3,000 plants are endemic to SIDS. One consequence of the relative isolation of SIDS is the high incidence of unique biological adaptations (flightlessness in birds, gigantism and dwarfism in other groups, and many modifications of form, diet and behaviour). Restrictive habitats and small populations, both consequences of remoteness and size of SIDS, often generate unique features and adaptations to prevailing environmental and climatic conditions. But under such circumstances species often lack the ability to adapt to rapid changes and are therefore extremely fragile.

In the context of SIDS it is conceptually convenient to examine biodiversity by focusing on deforestation and forest degradation, subsistence farming systems, *in situ* and *ex situ* conservation facilities, coastal and marine ecosystems,<sup>2</sup> freshwater biodiversity, and aquaculture. Deforestation and forest degradation in SIDS have led to extinction of many animal and plants species, or irreversible losses of genetic resources and ecosystems.

#### *UNEP Biodiversity Activities in SIDS*

*Activities undertaken by UNEP/World Conservation Monitoring Centre (WCMC):* Programmes and projects carried out by UNEP/WCMC, in close collaboration with governments and international organisations continue to provide support for the implementation of biodiversity-related conventions and programmes in SIDS. Examples of activities include:

- Coordinated pilot project in the Seychelles to analyse current procedures in national reporting to the Convention on Biodiversity (CBD). This project highlighted potential ways of facilitating the management of national biodiversity data and information in SIDS to implement their international commitments more effectively, thereby reducing the burden placed on their limited resources.
- Continued support for existing and new agreements on the protection and conservation of marine turtles. SIDS are the main partners in this work, as a high proportion of nesting grounds for marine turtles are located in their territory.
- The contribution of UNEP to the implementation of the Jakarta Mandate of the CBD which is directly relevant to coral reefs and coral bleaching, is addressed through the UNFCCC. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) controls the trade in corals and

---

<sup>2</sup> Coral reefs are an important component of the marine ecosystem but, for clarity of presentation, these are discussed separately in a separate section.

marine aquarium specimens, where SIDS play an active and critical role.

*Technical publications:* Activities undertaken with regard to publications include:

- *The World Atlas of Biodiversity* published by UNEP/WCMC (2002) provides an assessment of trends, with respect to the state of global biodiversity. SIDS are featured throughout this publication with respect to changes, threats and impacts on biodiversity resources.
- UNEP/WCMC worked with the SPREP and the IUCN World Commission on Protected Areas to produce a volume describing each of the protected areas in the Pacific. Although this volume requires updating, it remains the only source of systematic information on the region's protected areas. Similar work was initiated in the Caribbean, in partnership with UNEP Regional Coordinating Unit (RCU) based in Jamaica.
- UNEP/WCMC contributed to the Barbados Global Conference on the Sustainable Development of SIDS (1994) by providing more than 40 documents to participants, describing SIDS biodiversity.
- UNEP also contributed to the Five-year Review of the SIDS-PoA by preparing a discussion paper on biodiversity and SIDS for CSD 7 in 1998.

*Institutional and infrastructure support:* Such support included:

- *Caribbean fisheries restricted areas database:* Through extensive consultations with fisheries managers and experts in the wider Caribbean region it was found that little information on Caribbean restricted fishing zones is accessible to the public. In collaboration with the IUCN World Commission on Protected Areas, UNEP/WCMC is developing a web-accessible database and interactive maps of fisheries restricted areas in the region. The resulting database and maps will serve as a management tool for authorities seeking ways to achieve the conservation of fish stocks and the integrity of coral reef ecosystems in the region.
- *Oil spill response:* In collaboration with the oil industry through the International Petroleum Industry Environmental Conservation Association, UNEP/WCMC has developed an interactive mapping service in the Caribbean. Future developments of the system are already envisaged for other SIDS in the South Pacific and South East Asia. The interactive map service provides access to information about key biodiversity issues in a format readily accessible to decision-makers. Its key focus is the support of the oil spill response industry in mitigating the effects of oil spills on the environment through the provision of timely, accurate information via the Internet.

### *Future Directions with Regard to Biodiversity*

Several areas of future activities for UNEP in SIDS are emerging:

- The issue of isolation was raised, in the context of SIDS, at the 55th Session of the UN General Assembly in 2000. It stressed the “Importance of information technology for networking between SIDS and reducing the effects of remote location and isolation” (UNGA Resolution A/55/582/add.4). This concern could be addressed with the production of a SIDS atlas that focuses attention on issues of particular relevance to SIDS. These include geographical isolation, levels of threatened and non-threatened endemic species, protected area coverage, international agreements and programmes, marine resources and their sustainable use, invasive alien species, influence of climate change, and tourism.
- WSSD agreed to achieve by 2010 a significant reduction in the current rate of loss of biological diversity. SIDS might provide a suitable, if not ideal, framework and examples for defining baseline(s) against which the rate of national biodiversity loss could be measured in the years leading up to 2010.
- Capacity building initiatives in SIDS were identified as a priority at WSSD. UNEP/WCMC has developed a proposal to produce a Regional plan of action for illegal, unreported and unregulated fishing in the Wider Caribbean Region (WCR). The proposal has been fully supported by the CARICOM Fisheries Unit. This initiative promotes projects that seek to better coordinate and integrate watershed and marine ecosystem management. The site for the pilot programme will be the WCR.
- Implementation of the CBD Clearing-House Mechanism (CHM) in SIDS is important for the primary purpose of promoting scientific and technical cooperation through the use of tools and procedures, which share information and experiences. Resources for starting this process are available through Global Environment Facility (GEF), yet the programme is not developing in a coherent planned manner because capacities, needs and understanding vary widely. Collaboration between UNEP/WCMC and the CBD Secretariat, working closely with key regional and thematic organisations could provide a significant focus for CHM development in SIDS, leading to improved implementation of the CBD and potentially also other agreements and programmes.

## **4. Coastal and Marine Resources**

The marine and coastal environments of SIDS represent a vital resource for socio-economic development. Marine and coastal areas

encompass diverse ecosystems and habitats, which perform a number of functions and services. Marine species provide many ingredients for food, industrial products (e.g., cosmetics, chemicals and dyes) and medicinal applications.

Coastal ecosystems such as coral reefs, mangroves, sea grass beds, estuaries, coastal lagoons and wetlands are essential to SIDS because of their many roles (e.g., nursery grounds to commercial fish species; protection to shorelines from storms; buffer from land-based activities such as nutrients and sediments and much more).

Because of their unique characteristics and their resource limitations, the adverse effects of coastal degradation on SIDS will have more immediate repercussions relative to countries with larger landmasses. The vulnerability of many island states to natural disasters and the close links between resource use and the livelihoods of coastal communities are examples pointing to the need for commitment in minimising destruction of coastal and marine ecosystems which form the backbone for growth and long-term economic sustainability of SIDS.

The SIDS-PoA explicitly identifies coastal and marine resources as an area requiring urgent action and asks for the “establishment and/or strengthening of programmes within the framework of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and the Regional Seas Programmes, to assess the impact of planning and development on the coastal environment, including coastal communities, wetlands, coral reefs habitats and the areas under the national jurisdiction of SIDS and to implement the PoA” (Chapter II D 15b). Chapter IV of the SIDS-PoA also calls for the use of ongoing work of UNEP Regional Seas Programmes to “assist SIDS with the development and implementation of integrated coastal zone management plans, to improve international coordination in that field and to develop strategies to prevent further marine and coastal degradation”.

The United Nations Convention on the Law of the Sea (UNCLOS) and UNEP Regional Seas Programme are key actors for implementing SIDS activities related to the marine environment in the WSSD Plan of Implementation (WSSD, 2002: Chapter VII paragraph 52-55).

#### *UNEP Coastal and Marine Activities in SIDS*

UNEP's Regional Seas programme was established to manage marine and coastal resources, control marine pollution and develop action plans through regional components and provide regional

mechanisms for cooperation between governments and commitment to shared goals. Some priorities addressed by UNEP Regional Seas Programme include ecosystems and biodiversity, living resources, land-based sources of pollution and the vulnerability of small islands.

The Regional Seas Programme provides an important globally coordinated, region-wide mechanism to implement all relevant global environmental conventions and agreements, including UNCLOS, the International Convention for the prevention of pollution from ships (MARPOL Convention), the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, and other International Maritime Organisation (IMO) regulations, the GPA, biodiversity related Conventions and related multilateral environmental instruments. All SIDS are part of a Regional Seas Programme. The two regions dominated by SIDS and territories are the Wider Caribbean and the South Pacific.

The GPA Coordination Office harmonises the SIDS activities of UNEP. A major activity carried out by the GPA Coordination Office together with the Global Forum on Oceans, Coasts and Islands is the undertaking of several policy analyses, e.g., examination of how Type II initiatives adopted at the WSSD correspond with the SIDS targets and timetable agreed to in the Johannesburg Plan of Implementation (JPoI) to identify possible gaps, financial needs, priorities, actors involved, and the identification and review of worldwide initiatives and instruments that can assist SIDS in addressing their environmental concerns. In this context, international and regional multilateral environmental agreements are also under review.

The GPA Coordination Office also addresses land-based activities at the national level through National Programmes of Action and within the context of the Regional Seas Programmes. GPA organised and conducted three regional meetings in South Asia, East Africa and the Caribbean to develop Physical Alteration and Destruction of Habitats (PADH) checklists for sediment mobilisation, mining, tourism and aquaculture and to initiate concrete action in these sectors.

Following the regional meetings various studies were completed. These include:

- a comparative review of coastal legislation in South Asia;
- a review of national legislation related to coastal and marine resources management in various Caribbean countries and;
- a review of national legislation in Eastern Africa.

*Future Directions in Coastal and Marine Resources*

Major challenges in reducing marine pollution in SIDS regions revolve around promoting the adoption of measures to reduce the destruction of coastal habitats and the discharge of waste water and developing national programmes of action. The WSSD called for action to protect the marine environment from land-based activities and to reduce marine pollution and its health-related effects on SIDS.

UNEP will coordinate activities among partners to:

- increase recognition of the link between freshwater and marine environments;
- assist SIDS in finding funds to finance projects that address such problems as river, coastal and marine pollution;
- assist SIDS to develop partnerships that include the private sector and civil society to further implement the plan of action.

The Regional Seas Programme must be strategically adaptive and proactive in order to effectively address evolving challenges and to contribute in reaching the relevant targets of Agenda 21, the SIDS-PoA, the JPoI and the Millennium Development Goals (MDGs). The strategic guidelines for the Regional Seas Programme which integrates actions within SIDS are:

- Increase Regional Seas contribution to sustainable development, through national and regional partnerships with relevant social, economic and environmental actors.
- Enhance the sustainability of Regional Seas through increasing country ownership, translating Regional Seas Conventions into national legislation and regulations, involving civil society and the private sector, and ensuring financial sustainability.
- Increase Regional Seas visibility and impact in global and regional policy setting, reflecting and sharing a common vision.
- Enhance the use of Regional Seas as a platform for the coordinated implementation of global conventions, initiatives and programmes.
- Promote appropriate monitoring and assessment systems on the national and regional levels.
- Promote the ecosystem-based management of the marine and coastal environment.

## **5. Coral Reef Protection and Management**

The SIDS-PoA states that “action is needed to sustain healthy reefs and such action would benefit by building on the International Coral

Reef Initiative (ICRI) and global reef assessments to ensure food security and fish stock replenishment, and provide focus for implementation of the Jakarta Mandate on the Conservation and Sustainable use of Marine and Coastal resources". UNEP activities on coral reefs related to SIDS support the various actions and activities agreed to in international frameworks, such as ICRI, the measures adopted under multilateral environmental agreements and conventions; the UNEP Governing Council decisions; and the JPoI.

### *Coral Reef Issues in SIDS*

Coral reefs are one of the most important and extensive ecosystems in SIDS. When considered in conjunction with associated mangrove, sea grass and beach systems, their importance to the well-being of SIDS and their unique island environments cannot be overstated. Without reefs, many atoll countries and most beaches in the tropics would not exist. Coral reefs constitute the primary coastal protection mechanism for tropical islands and are the source of sand for atoll islets and beaches. This is in addition to their important functions as subsistence food resources, reservoirs of high biodiversity, and indicators of environmental health. The social, cultural and economic prosperity of many tropical SIDS has been, and will continue to be, directly and indirectly dependent upon the health of coral reefs and associated ecosystems. In many instances coral reefs are the life support system for the existence of SIDS and their coastal dwelling communities.

### *UNEP Coral Reef Activities in SIDS*

In addition to the national level activities, UNEP also undertakes global and regional activities on coral reefs that benefit SIDS. For example, the *World Atlas on Coral Reefs* produced by UNEP/WCMC includes maps of all SIDS reef areas. The Global Coral Reef Monitoring Network (GCRMN), of which UNEP is a co-sponsor and management board member, promotes monitoring and assessments of coral reefs and reports on the status of coral reef ecosystems on a national level. The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities related directly to the reduction of a major source of threat to reefs. UNEP also promotes sustainable tourism, relevant to SIDS. The UNEP communication tool kit on coral reef conservation for the tourism industry *It's my choice* is a set of five communication tools to be used by the tourism industry as part of their communication strategy.

UNEP/WCMC is currently hosting a number of international offices such as the Co-coordinating Unit of ICRAN, which deal, *inter alia*, with environmental matters related to SIDS. Hosting the UNEP Coral Reef Unit further strengthens this role.

#### *Future Directions with Regard to Coral Reefs*

UNEP will continue to engage with national, regional and global partners on all matters concerning coastal and marine interests of SIDS. In particular, UNEP intends to take a leading role in addressing the JPoI adopted at WSSD. However, more attention to the special funding needs of SIDS may be instrumental in strengthening UNEP's contribution. Increased financial resources would further strengthen UNEP's ability to provide leadership and guarantee long-term sustainable development in SIDS.

### **6. Natural and Environmental Disasters Management**

In developing its disaster management policy and strategy, UNEP takes its cue from the priorities established by the SIDS-PoA which elaborates on specific actions and policies related to natural and environmental disasters that need to be undertaken at national, regional and international levels, with cooperation by the international community.

#### *Disaster Management Issues in SIDS*

There is clear evidence of an increase in the frequency and intensity of natural disasters throughout the world, particularly in SIDS. Although the population in SIDS is low, its density in many SIDS is extremely high resulting in a much lower quantity and quality of natural resources per capita in comparison to countries with larger landmasses. Scarcity of natural resources forces development activities (e.g., tourism, agriculture, human settlements) to spill over into marginal or sensitive environments. This results in exposure of populations to increased risks associated with flooding, hurricanes, river siltation, deforestation, and soil erosion.

*UNEP disaster management activities in SIDS.* The strategic framework for emergency prevention, preparedness, assessment, mitigation and response underpins UNEP's general policy for SIDS in disaster management. The objective is to facilitate SIDS to proactively manage threats from environmental emergencies or disasters through the development of measures for the assessment,

forecasting, prevention, and mitigation of disasters through programmes of technical assistance, technology transfer, demonstration projects, and education and training tailored to specific disasters, locations and regions. The ultimate goal of this policy is to protect human population and preserve the biophysical, high diversity and invaluable ecological and socio-economic resources through an integrated approach to prepare for and respond to environmental emergencies and strengthen the island states with the appropriate human resources capabilities, tools and products to manage such events.

Two projects have been developed for potential donor funding, with the emphasis on strengthening capacities at the national and local levels to undertake preparations for and respond to natural disasters that adversely impact the environment. The projects focused on: (a) a management programme of preparedness and response to environmental emergencies caused by the rapid onset of natural events in the South Pacific SIDS region and (b) implementation of Awareness and Preparedness for Emergencies at the Local Level (APELL) programmes in the Galapagos Island.

It is estimated that 12 percent of the major petroleum spills in the marine environment occur from tanker accidents (US Academy of Science). In most areas covered by the Regional Seas Programme of UNEP, a technical protocol has been adopted, which provides the legal basis for mutual assistance among neighbouring countries to combat pollution from maritime related spills. By pooling resources and expertise, these types of agreements provide a cost-effective mechanism for immediate response to emergencies that cannot be dealt with efficiently by the independent actions of one country. Furthermore, these protocols provide a legal framework that facilitates early notification of a pollution emergency; continuous exchange of information at the preparedness and response phases; and mutual assistance between neighbouring countries.

#### *Future Directions with Regard to Natural Disasters*

The main challenges facing SIDS with regard to natural and environmental disasters relate to the need to:

- develop comprehensive and integrated land use and water management strategies capable of alleviating the impact of natural hazards;
- bring the ecological dimensions and best management practices for natural resources (land, coastal, water) more concretely into the disaster management framework;

- establish reliable forecasting, early warning and notification systems linking island states within the same region;
- introduce effective national mechanisms to receive, analyse and react to early warning notifications of environmental emergencies;
- develop and implement national contingency plans and environmental emergency mitigation measures;
- build capacity of national and local authorities for cross-sector planning to prepare and respond to environmental emergencies;
- increase understanding through education and raising awareness among communities on disaster prevention and preparedness strategies; and
- incorporate indigenous knowledge and traditional coping strategies in prevention, preparedness and response to enhance community self-reliance in dealing with disasters.

## 7. Management of Wastes

Compared to other developing countries, waste management presents special difficulties for SIDS. These are derived in part from their small land area, high dependence on imports and high population densities. Waste management in SIDS is not limited to the disposal of litter. Sewage, hazardous and toxic wastes also form part of the waste problem. The large amounts of wastes produced by tourists, for example, is a difficult problem for SIDS particularly since it is typically generated over a short period, thereby often overloading existing disposal and treatment facilities. These characteristics make it essential that special attention be given to SIDS in waste management.

The high population growth in most urban areas, which can be as high as seven percent per annum, results in the generation of large volumes of both liquid and solid wastes. The solid waste management problem has been compounded by the changing quality and composition over the past two decades. The quality has changed from the dense and almost completely organic wastes associated with agricultural economies to less biodegradable wastes produced in industrialised countries. In some countries the organic waste decreased by about 50 percent over 14 years while plastic wastes increased five-fold. There is, in addition, a growing percentage of toxic and hazardous wastes material in the waste stream.

Liquid wastes, sewage in particular, are a big environmental hazard. Similar to the solid wastes, the composition is changing from organic to inorganic, a result of industrialisation. These pollutants are major causes of the degradation of water quality in small island states.

### *UNEP Waste Management Activities in SIDS*

*The IWM concept:* UNEP embarked on an initiative to assist SIDS manage waste using the integrated waste management (IWM) concept, which provides a perspective and a framework for the development of sustainable waste management systems. IWM in SIDS is founded on the principle that small islands are made up of integrated ecological, social and economic systems. Thus, waste management systems must deal with the interaction between the waste system and other relevant systems such as drainage, sanitation, industry, agriculture, water supply, private and public sector agencies and civil society. Furthermore, the scope is enlarged from the traditional collection to include waste prevention and resource recovery. Fundamental to IWM, is the “zero” concept where the various phases of the waste cycle are managed such that the residual waste requiring disposal is progressively reduced to “zero”.

In 1999, UNEP undertook a project to promote waste management in SIDS. It drafted two documents and published them in English and French, namely (1) *Directory of Environmentally Sound Technologies for the Integrated Management of Solid, Liquid, and Hazardous Waste for Small Island Developing States (SIDS)* and (2) *Strategic Guidelines for Integrated Waste Management in Small Island Developing States* (see also UNEP/University of Malta/ Commonwealth Secretariat, 1999).

Working with UNEP and the project implementing agency, the Indian Ocean Commission, were a number of other regional organisations including the Caribbean Environmental Health Institute, the Commonwealth Secretariat, the Organisation of the Eastern Caribbean States the Islands and Small States Institute of the University of Malta, the South Pacific Applied Geoscience Commission, and the South Pacific Region Environment Programme.

Experts from these regional SIDS institutions who reviewed the documents identified technologies appropriate for SIDS. They recommended that each region adapts the technologies that suited it. The Indian Ocean, Mediterranean and Atlantic Ocean region has also developed a waste-management strategy that emphasises minimising wastes and recovering resources.

In this connection, UNEP joined forces with the Commonwealth Secretariat, the Island and Small States Institute of the University of Malta and regional SIDS institutions (the Indian Ocean Commission, SPREP, OECS, and SOPAC). The outputs of this

collaboration include guidelines, waste management strategies, technology transfer, human resource development and implementation of conventions.

As part of the GPA Clearing-House Mechanism, regional nodes have been developed both in the Caribbean and in the South Pacific regions.<sup>3</sup> Activities undertaken to implement the GPA Strategic Action Plan on Sewage (UNEP Governing Council Decision 20/19B.1d) in cooperation with the WHO, UNHABITAT and the Water Supply and Sanitation Collaborative Council, include: (a) 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 South-East Pacific; (b) secured funding to conduct regional partnership meetings in the wider Caribbean, Eastern Africa and wider East Asia and (c) multi-stakeholder regional meetings organised jointly by the Regional Seas Secretariats and UNEP regional offices, to further implement the Strategic Action Plan on Municipal Wastewater.

UNEP has been instrumental in the production of the document "Strategic Guidelines for Integrated Waste Management in SIDS". Experts from the Caribbean, Indian Ocean, Mediterranean, and Pacific SIDS, the Commonwealth Secretariat, other UN Agencies, and the private sector, reviewed the original document. UNEP also supported SPREP to develop the "Guidelines for Municipal Solid Waste Management Planning in Small Island Developing States in the Pacific Region".

UNEP, assisted the IMA-SIDS to develop the "Waste Management Strategy with Special Emphasis on Minimization and Resource Recovery" as a follow-up to the Valletta Declaration (1998)<sup>4</sup>, and the UNEP Meeting on Integrated Waste Management for the Indian and Atlantic Ocean SIDS organised by the Indian Ocean Commission (IOC) in December 1997. The waste management strategy adopted at the UNEP/IOC meeting identified the need to adopt a regional approach to waste minimisation as one of the priority issues. The components of the strategy were identified during the "IMA-SIDS Meeting of Technical Experts on IWM and Waste minimisation in SIDS" held in Mauritius from 22-25 November 1999.

---

<sup>3</sup> The central node of the clearing-house mechanism was launched at the special Session of the UN General Assembly for the review of the SIDS/PoA in 1999.

<sup>4</sup> The Valletta Declaration was issued at the end of the Ministerial Meeting on the Sustainable Development of Small Island Developing States in the Indian Ocean, Mediterranean and Atlantic Region held in Malta on 24-27 November 1998, organised in collaboration with UNEP (available at <http://www.sidsnet.org/ima/valletta.html>).

*Technology transfer.* UNEP, in partnership with the IOC, Commonwealth Secretariat, SOPAC, SPREP, OECS, Islands and Small States Institute of the University of Malta, and Opus International Consultants embarked on a programme to improve the access of SIDS to appropriate technology. A draft directory containing technologies considered to be appropriate for SIDS from practical experience as well as literature review was compiled. Experts representing regional SIDS institutions from the Pacific, Caribbean, Indian, Mediterranean and Atlantic Ocean (IMA), and the Commonwealth Secretariat subjected this draft to peer review.

The review was made at the UNEP Meeting of Experts on Waste Management in Small Island Developing States, held in London from 2-5 November 1999. The experts concluded that, in general, the technologies appear to be appropriate for SIDS, but recommended that each SIDS region further review and adapt the technologies according to their specific conditions.

Experts from the IMA-SIDS reviewed and adapted the technologies to suit their conditions in December 1999 in Mauritius. This review culminated in the publication of the document "A 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".

Experts from the Pacific Region reviewed and adapted the technologies to suit their conditions in Majuro, Marshall Islands in October 2001. This led to the production of the document: "A 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". A similar directory for Caribbean SIDS has been published after a workshop was held to review the draft technologies in St Lucia December 2003 organised by the Caribbean Environmental Health Institute (CEHI)

UNEP in collaboration with SPREP and Environment Australia convened a Workshop on "Waste Management in Small Island Developing States" for South Pacific SIDS in May 1997. Participants include Samoa, Vanuatu, Solomon Islands, Papua New Guinea, Niue, Nauru, Kiribati, Fiji, Federated States of Micronesia and Cook Island. A similar workshop was held for the Indian and Atlantic Ocean SIDS in Mauritius December 1997. Participating countries included Cape

Verde, São Tomé and Príncipe, Seychelles, Mauritius, Maldives, Madagascar and Comoros.

*Implementing waste related conventions.* UNEP serves as the Secretariat for the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal Adopted by the Conference of the Plenipotentiaries (Basel Convention), entry into force in May 1992, to which most SIDS are party. The Secretariat has assisted SIDS in various aspects of implementing the treaty, through its Regional Centres.

In the South Pacific region, the Secretariat of the Basel Convention (UNEP) is working with the SPREP and the Secretariat of the Waigani Convention to increase the ratification of both Conventions and to establish Joint Pacific Regional Centres for their joint implementation as requested by the countries. The Basel Convention and Waigani Convention also undertake joint training courses.

In the Caribbean, the regional centres for the Basel Convention are located in Trinidad and Tobago and El Salvador. These centres support the efforts of SIDS to implement the Basel Convention. Prominent among the activities undertaken in the Caribbean is the development of appropriate legal frameworks to support transboundary movement and ensure environmentally sound recycling of wastes. Another prominent activity is the recognition and promotion of best practices for packaging, transporting, recycling, manufacturing and distribution of new and used lead-acid batteries. African SIDS are served by the Basel Convention Regional Centre in South Africa and the Basel Convention Regional Centre in Senegal.

#### *Future Directions in Waste Management*

All SIDS, through their regional organisations, have adopted some policies and strategies for addressing the waste management problem. However, these have not been fully implemented. UNEP can facilitate implementation in the following areas:

- evaluate the extent to which existing guidelines and technologies are used;
- conduct pilot projects in partnership with SIDS institutions and other agencies to test and demonstrate the applicability of the guidelines. In particular, the guidelines relating to management of plastic and other non-biodegradable wastes needs to be adapted to the conditions of SIDS;
- assess best practices for transboundary waste management practices in the Caribbean and promote its use in other SIDS regions.

## 8. Freshwater Resources Management

Freshwater resources rank very high on the priority list of SIDS. This is understandable, given the special circumstances of these islands. First, the impacts of the surrounding sea on their freshwater resources are typically more pronounced than for large islands and mainlands. Second, SIDS are extremely sensitive to natural disasters (such as typhoons, hurricanes, cyclones, and sea level rise) which contribute to the vulnerability of their freshwater resources. Third, despite the relatively heavy rainfall received by many SIDS, a considerable number experience water shortages as they have limited capacity to store water for use during dry seasons. SIDS are therefore heavily dependent on ground water resources which often exist as freshwater “aquifers” and any withdrawal rate exceeding the sustainable water yield can result in temporary or permanent damage. Fourth, for these and other reasons, the issue of freshwater resources for SIDS must be addressed in a comprehensive multi-sectoral and integrated manner, in order to adequately the sustainable management and use of freshwater resources over the long term.

### *UNEP Freshwater Activities in SIDS*

*Technology Transfer.* UNEP recognises that SIDS have special development needs and so it is not always feasible or advisable to transfer technology developed for countries with larger landmasses. Accordingly, in 1998 UNEP compiled a sourcebook on alternative technologies for augmenting freshwater resources in SIDS (UNEP, 1998a).<sup>5</sup> This was accomplished in partnership with SOPAC and input from the various SIDS regions.

In 1997 UNEP, in partnership with the Gozo Centre of the University of Malta and the Islands and Small States Institute of the same University, conducted a workshop on “Integrated Management of Freshwater, Coastal Areas and Marine Resources in SIDS”. This workshop was attended by participants from Antigua and Barbuda; Bahamas; Cape Verde; Cuba; Maldives; Malta; São Tomé and Príncipe; Seychelles; Vanuatu and representatives of three regional SIDS organisations namely SACEP, SOPAC and OECS.

UNEP, in partnership with SOPAC and the Tonga Community Development Trust (TCDT), is implementing a Swedish funded “Pilot

<sup>5</sup> The document can be downloaded from the maestro directory of Environmentally Sound Technologies (EST) at <http://www.unep.or.jp/maestro2> developed and managed by the UNEP International Environment Exchange Centre (IETC).

Project to Empower Women in Rainwater Harvesting in Tonga". Other UNEP activities in freshwater are reflected in the GEF section below.

### *Future Directions in Freshwater Management*

UNEP's activities in freshwater have focused on policy implementation, in particular technology transfer and stakeholder participation. However, providing technology alone is inadequate. The next step is to promote the use of the technologies within the different regions and disseminate the results widely. Continued improvement in water resources management is fundamental and requires a coordinated effort across many sectors such as watershed management; strategies aimed at reducing deforestation rates; exploiting the use of all water resources in particular rainwater, raising public awareness of wise water use and management and improvements in waste disposal, especially sewage.

Several guidelines have been developed by UNEP and other agencies pertaining to managing freshwater resources in SIDS. UNEP can assist SIDS in managing freshwater resources by promoting integrated water resources management (IWRM). This can be accomplished in the four main areas:

- assessment through GEO and GEMS/Water capacity building programme;
- support for countries to develop water policy and strategies which address their specific needs;
- policy implementation through pilot projects to promote technology transfer and development of practical guidelines; and
- promoting the adoption and use of rainwater harvesting.

## **9. Tourism Resources**

Sustainable tourism is especially important in SIDS in view of the fact that this activity depends heavily on the environment. This is recognised in the SIDS-PoA. SIDS face pressing environmental constraints, including limited land resources. Uncontrolled tourism development damages their rich coastal resources, increases demand for their limited freshwater and scarce energy resources, and generates increased solid and liquid wastes. If these threats are not dealt with, they could seriously damage the tourist industry itself and other economic sectors, such as fisheries. Many SIDS have established initiatives for sustainable tourism, and are strengthening their policy frameworks for sustainable development with assistance from the international community.

### *UNEP Sustainable Tourism Activities in SIDS*

UNEP and the World Tourism Organisation (WTO) sponsored a conference on Sustainable Tourism in Small Island Developing States and other Islands in 1998, with the cooperation of AOSIS. This conference, held at Lanzarote, in the Canary Islands, outlined how careful planning and control over tourism, particularly at the destination level, is critical for SIDS to derive real benefits—and minimise their negative effects—for their socio-economic development, livelihood improvement, and environmental protection.

Managing coastal zones and protecting sensitive ecosystems are important, as are comprehensive environmental impact assessments, for all tourism development projects. The conference highlighted the importance of creating opportunities for communities to participate in tourism in SIDS. In some cases legal changes have been introduced to give local communities greater control over tourism development in their localities. This approach is already paying dividend, helping local communities to create jobs, and protecting their cultures and environments.

A preparatory conference for the International Year of Ecotourism was held in December 2001 in the Seychelles. Co-sponsored by UNEP, it targeted sustainable development and management of ecotourism in SIDS.

For the International Year of Ecotourism (2002), WTO organised a conference in Fiji concerning the sustainable development of ecotourism in the South Pacific Islands. Other UNEP activities to promote sustainable tourism have focused on the private sector and public authorities at the national and local levels.

### *Future Directions with Regard to Tourism*

Tourism is one of the world's leading industries and its impacts on resource consumption, waste, and social systems are of special concern in SIDS.

A more concrete commitment by governments, donors and other stakeholders is needed to implement the goals of sustainable tourism development. 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. UNEP is also examining how to support local

authorities and destination managers to incorporate sustainable guidelines into tourism development and management plans at the local level.

Other strategies aiming to overcome the implementation gap include:

- strengthening Pacific countries' responses to international commitments which have a bearing on tourism, including WTO, through improved information flows and training;
- establishing or strengthening national and regional mechanisms for information exchange and promotion on development of a safe and sustainable tourism sector;
- promoting recognition of the value of tourism in SIDS, as well as the fragility of resources upon which it depends, including the need for international commitment to accomplish this;
- increasing the benefits that accrue from the cruise ships industry within the Caribbean region, particularly through continued, enhanced cooperation among Caribbean cruise ship destinations; and
- developing a monitoring system with achievable, measurable and timely indicators.

## **10. Cross-Cutting Activities in Environmental Management**

### *Multilateral Environmental Agreements and Environmental Law*

SIDS, like other developing countries, encounter difficulties when implementing MEAs. This is caused by (a) a lack of awareness by countries that have signed MEAs regarding obligations undertaken and implementation steps needed and (b) an insufficient institutional capacity to advise governments on MEA ratification and compliance requirements. A way must be found for SIDS, to participate effectively in the work of MEAs. Adoption does not necessarily mean the implementation of agreement.

The special needs of SIDS, in particular the least developed among them, should be taken into account for example through an allowance of phased introduction or measures and extended time frames for compliance. In this regard, key needs of SIDS include:

- sufficient resources to enable them to manage and meet their responsibilities under the conventions and protocols to which they are signatories;
- effective regional support mechanisms which reflect the regional interest in promoting in-country capacity development and at the same time is representing regional interests in the global context.

*UNEP Assistance to SIDS in MEAs*

UNEP is supporting SIDS with regard to MEAs by:

- Complementing their efforts to coordinate, develop synergies, and harmonising approaches between MEAs as mandated in various articles of various agreements and supported by the decisions of their Conference of Parties (COP).
- Strengthening national capacity to implement agreements, recognising the need for international co-operation and coordination to establish a level playing field. Experts from developing and developed countries formulate Guidelines on compliance with and enforcement of MEAs.
- Assisting to harmonise reporting to different but related agreements in order to reduce the burden of reporting to the agreements separately.

*International environmental law.* UNEP has been the leading agency for the development of most of the MEAs and is constantly engaged in providing support for updating them and for developing associated protocols. UNEP also hosts the secretariats of several global and regional conventions. UNEP is very active in providing technical assistance to SIDS for developing regional legal instruments. An important example is the conventions and other legal instruments developed in the context of the Regional Seas programme for the protection of the marine and coastal environment.

*National environmental law:* UNEP provides technical assistance to SIDS to strengthen their regulatory and institutional capacity, develop and implement environmental laws, harmonise existing environmental laws, and implement existing MEAs. Technical assistance is provided upon request, both to single countries and to groups of countries, and in some cases at the sub-regional level. Several SIDS have benefited from UNEP's technical assistance in this field, including Papua New Guinea, Vanuatu, Kiribati, São Tomé and Príncipe, Trinidad and Tobago, Cuba and the Seychelles. UNEP also assisted several groups of countries with development of constitutional and institutional regimes and other matters. These include for example the African Ministerial Conference on Environment, the Central American Commission on Environment and Development and many others.

*Environmental law for the judiciary and other legal stakeholders.* UNEP recognises the central role of the judiciary in the development, interpretation, implementation and enforcement of environmental law. UNEP started focusing on the judiciary in 1996, when the first

Regional Judges Symposium was organised in Kenya. This was followed by several other judicial symposia where SIDS were represented, including those held in Castries, St Lucia in April 2001, Brisbane, Australia in February 2002 and Kuwait, 26-28 October 2002. Based on the outcome of these Symposia, UNEP convened the Global Judges Symposium on Sustainable Development and the Role of Law in Johannesburg, South Africa, on 18-20 August 2002, as a parallel event to the WSSD. This event gathered more than 120 Chief Justices and Senior Judges from about 60 countries and several Judges from International Courts and Tribunals. Chief Justices and Senior Judges representing Cuba, Guyana, Marshall Islands, Mauritius, St Lucia, Samoa and Seychelles attended. The Global Judges Symposium was followed by a meeting of a smaller group of judges, which laid a strong foundation for a long-term, sustained programme of capacity building for the judiciary and other legal stakeholders in the field of environmental law to be implemented mainly at the national level.

*Training programme on environmental law.* The Global Training Programme in Environmental Law and Policy, is organised by UNEP every two years for government officials working in the field of environmental management and legislation. In the five editions held so far, more than 180 government officials, mainly from developing countries and countries with economies in transition, have been trained. SIDS benefiting from this capacity building exercise include: Belize, Mauritius, Seychelles, Fiji, Kiribati, Maldives, Papua New Guinea, Samoa, Singapore, Tonga, and Vanuatu, Bahrain, Antigua & Barbuda, Barbados, Cuba, Dominican Republic, Jamaica, St Lucia, St Kitts and Nevis, Trinidad and Tobago.

#### *Future Directions with Regard to MEAs and Environmental Law.*

UNEP is presently designing a project on environmental law specifically for SIDS. This project is expected to strengthen the capacity of SIDS to enforce national environmental laws and international environmental agreements using the Guidelines on compliance with and enforcement of MEAs , strengthen the capacity of SIDS to coordinate and harmonise the implementation and reporting of MEAs, and implement measures that build national capacity to comply or make it less costly to comply with the treaty's obligations.

#### *Environmental Vulnerability Index*

The environmental vulnerability index (EVI) is a research project of the South Pacific Applied Geoscience Commission (SOPAC) looking

specifically, and for the first time, at the risk of damage to the natural environment, which underpins all human activities.

The EVI needs to be a robust, flexible tool aimed at providing a simple, short cut index of the vulnerability of the environment of countries. The index should be intuitive and easily understood to facilitate wide usage in international processes in addition to being a useful device for identifying vulnerability issues. The main strength of an EVI should be that it can provide not only simplified summary information, but also detailed data required to highlight specific areas of concern for environmental managers and scientists. Robust testing of the EVI will ensure that it is, as much as possible, an impartial measure which will differentiate among countries and will allow comparisons and determination of which countries are more vulnerable than others on the world scale.

The EVI can also be used to monitor the vulnerability of the environment through time, as levels of risk and resilience related to human choices change. The EVI thus provides an opportunity for targeting of development and environmental management efforts.

The EVI is a composite index that measures the vulnerability of ecosystem integrity through a set of indicators that: (a) capture the various levels of risk to hazards that act upon the environment or risk exposure sub-index (REI), (b) the inherent resilience of the environment to risks or an intrinsic resilience sub-index (IRI) and (c) the actual level of degradation of the environment or environmental degradation sub-index (EDI). Each indicator is mapped on a vulnerability scale where a high vulnerability value of 7 indicates high risk or vulnerability to ecological damage, while a score of 1 indicates that the risk or vulnerability is low. Indicators are accumulated into sub-indices and into an overall EVI.

*UNEP support for continued development of the EVI.* SOPAC developed the EVI with the support of UNEP, New Zealand, Ireland, Norway, and Italy. The EVI originally in 1998, was extensively peer reviewed and critically discussed at an Expert Group Meeting held in Fiji in September 1999. The next step was to globalise the EVI since it was developed in the Pacific. In furtherance of this objective UNEP:

- Supported the participation of experts from outside the Pacific region to attend the Think Tank Meeting held in Fiji on 7-10 September 1999 (see SOPAC 1999).
- In partnership with SOPAC and the Islands and Small States Institute of the University of Malta, UNEP convened a meeting of

experts in Malta to review the EVI, at Valletta, Malta, 29 November - 3 December 1999 (see UNEP/SOPAC/University of Malta, 1999).

- UNEP and SOPAC convened a meeting in Geneva, Switzerland, to extend the EVI globally. The outcomes of this meeting were presented in “Globalising the Environmental Vulnerability Index (EVI)” Proceedings of the EVI Globalisation Meeting, on 27-29 August 2001 (see SOPAC, 2001).

*Capacity Building for Sustainable Development.*

The mandate for UNEP capacity building is elaborated in numerous policy documents. For example, Chapter 37 of Agenda 21, “National Mechanisms and Institutional Cooperation for Capacity Building”, which notes that: “The ability of a country to follow sustainable development path is determined 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, and institutional capabilities. The 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 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 ...”.

*UNEP capacity-building activities in SIDS.* The UNEP capacity building activities in SIDS broadly encompass:

- facilitating and supporting environmental institution-building and legislation at regional, sub-regional, national and local levels;
- developing and testing environmental management instruments in collaboration with selected partners, including other United Nations organisations, intergovernmental organisations, NGOs, local authorities and other major groups;
- promoting public participation in environmental management and access to information on environmental matters;
- assisting in the formulation, ratification and implementation of environmental conventions and agreements (e.g., UNFCCC, CBD);
- promoting synergies between environmental conventions and multilateral agreements;
- building capacity to assess environmental conditions and changes (e.g., the GEO process);

- building capacity to respond to and or mitigate environmental changes (e.g., natural disaster mitigation, biodiversity conservation);
- evaluating and facilitating the transfer of appropriate technology (e.g., energy, waste, clean production technology);
- compiling and disseminating best practices; and
- providing technical assistance upon request from member states.

*UNEP and the Global Environmental Facility in SIDS*

UNEP is one of the implementing agencies for GEF. GEF provides new and additional grant and concessional funding to developing countries (including SIDS) in six focal areas, namely biodiversity, climate change, international waters, ozone layer depletion, land degradation, and persistent organic pollutants.

*Capacity Development Initiative (CDI):* Since September 2001, UNEP-GEF actively participated in the CDI/National Capacity Needs Self-Assessment (NCSAs) to assist countries to make broad assessments of capacity building needs, particularly in the areas of biodiversity, climate change and land degradation. SIDS directly benefiting include Antigua and Barbuda, Bahamas, Vanuatu, and St Lucia, Mauritius, and Trinidad and Tobago.

*The International Waters Portfolio:* Integrated land and water management directly reflects issues concerning SIDS. UNEP-GEF is supporting environmental actions in SIDS through projects that address regional and global issues related to biodiversity, climate change and projects with multiple focal area objectives.

The Caribbean Environmental Programme (CEP) has a sub-programme on assessment and management of environmental pollution which is implementing the project “Integrating Management of Watersheds and of Coastal Areas in Small Island Developing States in the Caribbean”, funded by GEF, and executed in partnership with the Caribbean Environmental Health Institute (CEHI). This project is being implemented in thirteen Caribbean SIDS. UNEP in partnership with SOPAC and the UNDP is developing a project “Sustainable Integrated Water Resources management in the Pacific SIDS” for GEF funding. In the African SIDS, the project “Addressing Major Environmental Concerns of Inland Water Resources Management in East African SIDS” is under development.

UNEP, as GEF implementing agency, is carrying out a GEF-funded project “Global International Water Assessment” (GIWA) directed at developing a global assessment of water resources, focusing primarily

on freshwater systems and coastal areas, aimed at identifying priorities for supporting projects within the international waters portfolio of GEF. The overall objective of GIWA is to develop a comprehensive strategic assessment that may be used to identify priorities for remedial and mitigating actions in international waters, and to achieve significant environmental benefits at national, regional and global levels. The GIWA focus is on five critical water-related issues namely (a) freshwater scarcity; (b) pollution; (c) habitat modification and destruction; (d) over-exploitation of fisheries and other living aquatic resources; and (e) global changes.

The value of the assessment is to provide sound scientific advice to decision-makers and managers concerned with water resources and associated environmental problems or threats to transboundary water bodies. GIWA is being executed in 66 sub-regions in nine major regions, which cover most of SIDS.

*Future directions with regard to UNEP-GEF.* Future activities of UNEP-GEF in SIDS will address the outcomes of WSSD and JPoI. WSSD recognised the particular challenges and vulnerability that SIDS face within the context of sustainable development and called for support, including for capacity building and for the development and further implementation of freshwater programmes for SIDS through the GEF focal areas. Recently established GEF strategic priorities for GEF-III are in concert with the outcomes and requirements of WSSD. Its focus on SIDS coincides with a large number of requests from those nations in GEF focal areas, including a number of priority demonstration projects in the GEF pipeline. The UNEP-GEF planning process reflects these needs. The main form of support to SIDS will continue through enabling activities in biodiversity, climate change and persistent organic pollutants focal areas. SIDS will also be further supported by the implementation of global biosafety projects.

#### *Environment Outlook of Small Island Developing States*

In 1999, UNEP published *Environment Outlook* (EO) reports for SIDS in the Caribbean, Pacific Ocean and Western Indian Ocean (UNEP, 1999a, 1999b, 1999c), within the framework of its Global Environment Outlook project. These reports came at a critical time for SIDS when the international community was reviewing agreements reached at the 1994 Barbados Global Conference. More recently, in 2002, UNEP published the third *Global Environment Outlook* Report—GEO 3 (UNEP, 2002) as a contribution to the WSSD. GEO 3 also includes an analysis of environmental trends in these three SIDS regions.

*Environmental trends in SIDS.* The 1999 SIDS EO reports and GEO3 showed indisputable evidence of continuing and widespread environmental degradation in SIDS, relating to all the priority environmental issues identified in the BPoA. These changes have been brought about by several drivers, including high population densities and socio-economic factors. All three SIDS regions faced similar environmental challenges, though the magnitude and extent of the problems varied among them. As the last century drew to an end, SIDS continued to face challenges of environmental degradation, increasing frequency and intensity of natural disasters, habitat destruction, and natural resource depletion.

Nevertheless, significant achievements have been made in environment management in SIDS. For example, governments have strengthened environmental policies through institutional changes and legislation, the number of global and regional environmental agreements have increased, and there was increased public participation in environmental management and decision making. These initiatives, however, have not significantly slowed the pace of environmental degradation or improved the environment: their impacts were isolated and achievements slow in coming. Analysis of the implications of future scenarios revealed that “business as usual” will exert immense pressures on the environment and natural resources base of SIDS.

*SIDS EO booklets 2004.* In preparation for the 10-year review of the SIDS-PoA to be held in 2004 (Barbados +10), UNEP will publish EO reports for SIDS in the form of booklets. This is in accordance with a UNEP Governing Council Decision in 2003 to strengthen the institutional capacity of SIDS to effectively achieve sustainable development goals through provision of dedicated technical and financial support.

The SIDS EO booklets will provide an overview of the environmental state and trends relating to environmental issues of priority importance in SIDS, followed by an analysis of international, regional and national policy responses undertaken in each of the three SIDS regions. The booklets will also identify emerging environmental issues that require further research, and will propose some alternative policy responses for consideration.

In addition the booklets will provide information that can be used to assess the level of success of the BPoA, where it has been implemented. Analysis of policy responses would indicate achievements and failures, and constraints to successful implementation of international, regional, and national policies. Such

an analysis would point the way forward to improved environmental governance. Thus, the booklets will provide a forum for highlighting priority and emerging environmental issues in these countries. The analyses included in the booklets will also provide another opportunity for SIDS to revisit and refocus their national and regional priorities with regard to achieving sustainable development, which is closely intertwined with the environment in SIDS.

These booklets are being prepared in collaboration with the University of the West Indies Centre for Environment and Development, the South Pacific Regional Environmental Programme, and the Indian Ocean Commission. They will be based on material presented in GEO 3, National Assessment Reports, and other recent information.

UNEP is aiming to have the second drafts ready for distribution at the interregional preparatory meeting to be held in the Bahamas in January 2004. These booklets are scheduled to be launched immediately before, or at the Barbados+10 meeting in late 2004.

## **11. Conclusion**

This chapter dealt with UNEP's commitment to the sustainable development of SIDS. It highlighted UNEP efforts since 1994, with emphasis on the last five years of assisting SIDS in implementing the Programme of Action for the Sustainable Development of Small Island Developing States and outlines a renewed way forward.

A decade after the Global Conference on the Sustainable Development of Small Island Developing States, there is indisputable evidence of continuing and widespread environmental degradation in these states, relating to all the priority environmental issues identified in the 1994 SIDS-PoA, namely climate change and sea level rise, biodiversity, coastal and marine resources, coral reefs, natural and environmental disasters, wastes, freshwater resources, and tourism resources. Nevertheless, significant achievements have been made in environment management, notably through institutional changes and legislation at the national level, and through global and regional environmental agreements. In addition, public participation in environmental management and decision making has increased.

UNEP is confident that joint efforts with governments, regional organisations, institutions and civil society in SIDS and with the international community at large, in the years ahead, will yield the yearned fruits of well-being for present and future generations in SIDS.

## References

Briguglio, L. (1997). *Alternative Economic Vulnerability Indices for Developing Countries*. Report prepared for the Expert Group on the Vulnerability Index. UN DESA, 17-19 December.

Commonwealth Advisory Group (1997). *A Future for Small States: Overcoming Vulnerability*. London: Commonwealth Secretariat.

Commonwealth Secretariat (2000). *Small States: Meeting Challenges in the Global Economy*. Report of the Joint Commonwealth Secretariat/World Bank Task Force.

Commonwealth Secretariat (2001). *Small States: Economic Review and Basic Statistics*, 6th Edition. London: Commonwealth Secretariat.

IPCC (2001). "Small Island States." In *Climate Change 2001: Impacts, Adaptation and Vulnerability*: Chapter 17. Cambridge University Press.

Pantin, D. (1997). *Alternative Ecological Vulnerability Indicators for Developing Countries with Special Reference to SIDS*. Report prepared for the Expert Group on Vulnerability Index. UN-DESA, 17-19 December 1997.

SOPAC (1999). *Report on the Environmental Vulnerability Index (EVI) Think Tank*. SOPAC Technical Report 299. Fiji: SOPAC.

SOPAC (2001). *Globalising the Environmental Vulnerability Index (EVI)*. SOPAC Technical Report 345. Fiji: SOPAC.

SPREP/UNEP (1999). *Guidelines for Municipal Solid Waste Management Planning in Small Island Developing States in the Pacific Region*. Samoa: SPREP.

UNEP (1998a). *Source Book on Alternative Technologies for Augmenting Freshwater Resources in SIDS*.

UNEP (1998b). *Final Report on the International Conference on Sustainable Tourism in Small Islands Developing States and Other Islands*. Lanzarote 25-28 October 1998. <http://www.world-tourism.org/sustainable/doc/lanzarote.pdf>.

UNEP (1999a). *Pacific Islands Environment Outlook*.

UNEP (1999b). *Caribbean Environment Outlook*.

UNEP (1999c). *Western Indian Ocean Environment Outlook*.

UNEP (1999d). *GEO-2000 Global Environment Outlook*. Available at <http://www.unep.org/geo2000> .

UNEP (2000). *International Source Book on Environmentally Sound Technologies for Wastewater and Stormwater Management*. Available at [http://www.unep.or.jp/ietc/publications/techpublications/techpub-15/main\\_index.asp](http://www.unep.or.jp/ietc/publications/techpublications/techpub-15/main_index.asp) .

UNEP (2001). *Multilateral Environmental Agreements: A Summary*. Background Report to the Intergovernmental Group of Ministers or their Representatives on International Environmental Governance, New York, 18 April 2001, UNEP/IGM/1/INF/1.

## **UNEP and Small Island Developing States**

UNEP (2002). *It's My Choice*. Available at <http://www.uneptie.org/pc/tourism/sensitive/communicationtool-kit.htm> .

UNEP/University of Malta/Commonwealth Secretariat (1999). *Waste Management in Small Island Developing States*. Malta: Islands and Small States Institute.

UNEP/SOPAC/University of Malta (1999). *Report of the Meeting of Experts on the Environmental Vulnerability Index*. Malta: Islands and Small States Institute.

United Nations (1994). *Global Conference on the Sustainable Development of Small Island Developing States A/CONF.167/9* Available at <http://www.sidsnet.org/docshare/other/BPOA.doc> .

World Summit on Sustainable Development (2002). *Plan of Implementation*. [http://www.johannesburgsummit.org/html/documents/summit\\_docs/2309\\_planfinal.htm](http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.htm) .

UWICED (2002). *The Growing Vulnerability of Small Island Developing States*. Report prepared for the United Nations Development Programme, Capacity 21 Project.