



**Governing Council  
of the United Nations  
Environment Programme**

Distr.: General  
12 November 2004

Original: English



**Twenty-third session of the Governing Council/  
Global Ministerial Environment Forum**  
Nairobi, 21–25 February 2005  
Items 4 and 6 of the provisional agenda\*

**Assessment, monitoring and early warning: state of the environment**

**Follow-up to the World Summit on Sustainable Development:  
contribution of the United Nations Environment Programme to the  
forthcoming session of the Commission on Sustainable Development**

**State of the environment and contribution of the United Nations  
Environment Programme to addressing substantive environmental  
challenges**

**Report of the Executive Director**

**Addendum**

**Water policy and strategy of the United Nations Environment Programme and  
relevant water-related issues**

*Summary*

The present report has been prepared pursuant to decisions 22/2 and SS.VIII/4 of the Governing Council of the United Nations Environment Programme (UNEP). It includes five chapters that respond to the above decisions, namely: I, Suggested action by the Governing Council; II, Updated water policy and strategy of the United Nations Environment Programme; III, Progress on the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities; IV, Domestic, industrial and hazardous waste management: towards a life-cycle economy; and V, Coral reefs.

\* UNEP/GC.23/1.

## Contents

	Page
I. Suggested action by the Governing Council .....	3
II. Updated water policy and strategy of the United Nations Environment Programme .....	4
A. Mandate, objectives and role of UNEP .....	6
B. Updated UNEP water policy and strategy .....	8
C. Key components of the UNEP water policy and strategy .....	9
D. Environmental aspects of legal instruments and processes .....	23
E. Capacity-building .....	23
F. Regional implementation of the UNEP water policy and strategy .....	23
G. Public awareness .....	23
H. Public-private partnerships .....	24
I. Environmentally sustainable technologies for freshwater augmentation and sanitation .....	24
J. Best practices .....	24
K. Global water resources: coordination, partnerships and mobilizing actions .....	24
L. Expected outputs and outcomes .....	26
M. Monitoring and evaluating the UNEP water policy and strategy .....	27
Financing modalities and means of implementing the UNEP programme for the environmentally-sound management of freshwater .....	27
N. Financing modalities and means of implementing the UNEP programme for the environmentally-sound management of freshwater .....	27
III. Progress on the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities .....	27
A. Activities at the global level .....	28
B. Activities at the regional level .....	29
C. Activities at the national level .....	30
D. Preparations for the second meeting on the intergovernmental review of the status of the Global Programme of Action .....	32
IV. Domestic, industrial and hazardous waste management towards a life-cycle economy .....	32
A. Introduction .....	33
B. Key challenges and responses .....	35
C. Different challenges for different types of waste .....	35
D. Major actors in waste management .....	36
E. UNEP waste management activities .....	38
V. Coral reefs .....	39
A. Support to ICRI .....	39
B. Support to the International Coral Reef Action Network (ICRAN) .....	40
C. Realization of the Johannesburg Plan of Implementation with respect to coral reefs .....	42
D. Collaborative efforts in coral-related activities with multilateral environmental agreements .....	42
E. Collaboration with United Nations agencies to address the economic, social and environmental urgency of achieving sustainability in the management and use of coral reefs .....	43
F. Engagement of international financing institutions .....	43

## I. Suggested action by the Governing Council

1. The Governing Council may wish to consider the adoption of a decision along the lines suggested below.

### I. Updated water policy and strategy of the United Nations Environment Programme

*The Governing Council,*

*Recalling* its decisions 19/14 D of 7 February 1997, SS.V/4 of 22 May 1998, 20/25 of 5 February, SS.VI/2 of 31 May 2000, 21/11 of 9 February 2001 and 22/2 of 7 February 2003,

*Taking note* of the report of the Executive Director on the United Nations Environment Programme water policy and strategy<sup>1</sup> as requested by the Governing Council/Global Ministerial Environment Forum at its twenty-second session,

*Expressing* its appreciation to the Executive Director for the measures taken to implement Governing Council decision 22/2,

1. *Adopts* the updated version of the water policy and strategy of the United Nations Environment Programme contained in the report by the Executive Director<sup>1</sup>, which reflects, among other things, the key relevant developments in the field of water since the adoption of the UNEP water policy and strategy at the twenty-first session of the Governing Council/Global Ministerial Environment Forum, inputs from Governments and the outcomes of global, regional and subregional processes relevant to the environmentally sustainable management of water resources;

2. *Requests* the Executive Director to intensify collaborative activities with Governments, upon request, as well as with other organizations and agencies in furtherance of the implementation of the water policy and strategy;

3. *Also requests* the Executive Director to take the necessary measures in furtherance of the continued implementation of the water policy and strategy, consistent with the mandate of the United Nations Environment Programme and the priorities outlined in Governing Council decisions at its respective sessions and in line with the outcome of the World Summit on Sustainable Development, the internationally agreed goals contained in the Millennium Declaration and the outcomes of the twelfth and forthcoming thirteenth sessions of the United Nations Commission on Sustainable Development;

4. *Further requests* the Executive Director to ensure that the United Nations Environment Programme, when undertaking its activities related to the environmental aspects of water, fully takes into account the work carried out by other United Nations agencies and international organizations as well as by national Governments, to avoid duplication.

### II. Global Programme of Action for the Protection of the Marine Environment from Land-based Activities

*The Governing Council,*

*Noting with appreciation* the continued strengthening of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, including through implementation of the regional seas programme and the Cairns Communiqué arising from the Global Hilltops-2-Oceans Partnership Conference convened by the Government of Australia and the United Nations Environment Programme in Cairns, Australia, in May 2004,

*Encourages* Governments and other stakeholders to accelerate their respective efforts to integrate water resource management from the hilltops to the oceans, consistent with the concepts and principles articulated in the Cairns Communiqué.

### III. Regional seas conventions and action plans

*The Governing Council,*

*Welcoming* the global regional seas strategic directions for 2004–2007 developed by the United Nations Environment Programme and the secretariats of the regional seas programmes,

<sup>1</sup> UNEP/GC.23/3/Add.5.

*Urges* the United Nations Environment Programme and individual regional seas programmes to incorporate the strategic directions into their programmes of work, while continuing to implement decisions taken by their governing bodies.

## **II. Updated water policy and strategy of the United Nations Environment Programme**

2. At the twenty-second session of the Governing Council/Global Ministerial Environment Forum, UNEP was requested, in decision 22/2 I (Water policy and strategy of the United Nations Environment Programme), among other things, to update the UNEP water policy and strategy. This chapter discusses the updated policy and strategy.

3. The updated UNEP water policy and strategy focuses on the environmental aspects of water, comprising freshwaters, including rain water, surface water and ground-water, and coastal and marine waters. The importance of environmental aspects stems from the major role of water in supporting ecosystem integrity and functioning, and from the fact that water is a renewable natural resource vital for human economic and social well-being. In addition, the vulnerability of ecosystems and communities to extreme events such as major floods and droughts, as well as the impact of water management measures such as water infrastructure and unsustainable use on the environment, are important aspects to be considered.

4. Notwithstanding the considerable efforts made by many Governments, international and national organizations and agencies to tackle priority water-related problems, the latest reports in the UNEP Global Environment Outlook series (GEO 2000 and GEO 2003), and the World Water Development Report, demonstrate that there are still major weaknesses and gaps to be filled in this undertaking.

5. As reported in GEO 2000, GEO 2003 and the World Water Development Report, leading scientists around the world have identified the major water-related problem areas as: freshwater stress and scarcity (including water conflicts); poor freshwater quality; coastal and marine pollution; habitat degradation; over-fishing; inadequate protection of aquatic biological diversity; and degradation of coastal areas.

6. These environmental aspects of water are interrelated and closely linked to the management of other natural resources, especially land, and are embedded in the technological, economic, social and institutional contexts of water resources management. Ecosystem functioning and productivity and human health and well-being benefit from environmentally sustainable water resources management, which contributes directly to poverty alleviation. Ecosystem approaches to freshwater management include the necessary links between river basin and coastal water resources management.

7. The diversion of larger proportions of the world's surface and groundwater resources for human use has reduced water availability for the flows required for adequate hydrological and ecosystem functioning, resulting in severe environmental problems. These include degraded aquatic ecosystems and increased desertification, land degradation, loss of soil fertility, and loss of productive wet lands, flood plains and other aquatic habitats. Upstream water uptake and deviations, combined with poor land use practices, result in enhanced sediment and nutrient run-off, causing degradation of land, freshwater and coastal aquatic habitats and ecosystems downstream.

8. Priority marine water-related issues and problems include, among others, unsustainable use of living marine resources by use of destructive fishing practices; loss and degradation of highly productive ecosystems in the transition zone between land and ocean due to increasing ribbon development along the coastlines; and the deteriorating quality of coastal water, caused by increased volumes of domestic, industrial and agricultural contaminants being discharged directly and indirectly via surface and groundwater. The resulting incidence of so-called "dead zones" is increasing, as is the extent of the surface areas they are covering.

9. The marine environment is also threatened by physical alterations of coastal zones, including the destruction of habitats of vital importance for maintaining marine ecosystems, such as coral reefs, mangroves and seabed grasses. Given all these factors, it is vital that the linkages between integrated approaches to the management of inland waters and coastal and marine environments be recognized and properly addressed, including through physical planning and sustainable development of coastal areas to prevent the environmental degradation of coastal ecosystems.

10. Freshwater problems centre on three key issues: quantity, quality and aquatic ecosystem functions. Issues of quantity involve both shortage (drought and overuse) and excess (floods), both of which affect and are affected by development and environmental management. The magnitude and severity of these problems varies from region to region and from year to year, and may also be affected by climate change. The global trend, however, is towards a decrease in per capita freshwater availability for human use and for the environment, caused by increasing demand — demand that reflects population growth, technological factors and increased economic activity. The situation is further exacerbated by increasing competition for available water within and between countries.

11. Food production places a high demand on freshwater. Between 70 and 80 per cent of current water withdrawals are for irrigation. However, a large percentage of water for agricultural irrigation is used highly inefficiently. It is estimated that hundreds of millions of people currently suffering from food shortages live in the water-scarce regions of the world. If current trends continue, food aid in terms of subsidized or free food might soon have to increase several times over the current levels. Regional water scarcity will thus have far-reaching consequences on a global scale.

12. Increased urbanization has placed unprecedented pressures on water use and water supply infrastructure, especially in the larger cities of the developing world. In meeting the water supply needs of their expanding populations, especially the urban poor, mega-cities have to cope with intense competition from agriculture and industry. Inefficient water use, in irrigation and water supply contribute to the shortages encountered. The shortage of clean water in large cities has further exacerbated conflict in the allocation of water between agriculture and domestic consumers, not just in terms of water itself but also in terms of the funds invested to supply water.

13. An increasing number of small island developing States are facing water scarcity. They are also the most adversely affected by cyclones, hurricanes, typhoons, drought, sea-level rise, volcanic eruptions and earthquakes, all of which have a profound impact on water availability in such States. In some instances, pollution and over extraction also contribute to this adverse situation. In addition, the economies of many such states are dominated by agriculture and tourism, both sectors needing and using inordinate quantities of freshwater.

14. Lack of environmentally sustainable management is fundamental to water scarcity problems, further exacerbated by poor public awareness campaigns and participatory schemes. Realizing the potential of both consumers and producers to address water problems will be a vital criterion for success in the years to come. Clear linkages need to be made to the ongoing debate on sustainable consumption and production policies in order to benefit from the progress achieved in this area in all regions.

15. Issues of water quality concern the pollution of water bodies, as such pollution has harmful effects on ecosystems and water use in general, with the result that the productivity and use of such bodies are diminished. Typical problems include sickness in human populations from water-borne and water-borne diseases and ecosystem damage. Such ecosystem damage often results in a combination of negative environmental, economic and social impacts. Poor water quality also effectively reduces the quantity of water available for human use, unless expensive treatment is undertaken.

16. Urban centres and mega-cities also have to tackle the problems of increasing pollution of their freshwater sources by ever-growing volumes of urban waste and wastewater, and the increasing environmental risks posed by the over-abstraction of groundwater resources, salination, inadequate drainage and floods.

17. Pollution loads and changes in runoff patterns due to river regulation affect the health of aquatic ecosystems and threaten these important sources of food for large populations. Also, valuable wetlands — often of global significance — are affected and degraded.

18. The environmental problems of the oceans and coastal areas stem from overfishing and, in large part, land-based activities and the long-distance transport of contaminants by atmospheric and biological processes, with the consequence that no part of the ocean is immune from human impacts. Some 80 per cent of pollution loads in the ocean originate from land-based activities. These include municipal, industrial and agricultural waste and run-off and atmospheric deposition. These contaminants affect the most productive areas of the marine environment — estuaries and near-shore coastal waters.

19. Agriculture and tourism have a large impact on water quality problems of Small Island Developing States. The former causes degradation of water resources by agrochemicals. The land-based sources of pollution and waste-water discharges from hotels and cruise ships are despoiling the reefs and oceans on which the islands' economies significantly depend.

20. Increasingly, water quality-related environmental problems are becoming international in scope as local pollution problems spread across borders. In addition, long-range transport mechanisms contaminate water bodies at a distance from the source, while subsidized and over-capitalized fishing fleets chase declining stocks of transboundary and migratory fish stocks.

21. Increased climatic variability, in the context of global climate change, is dramatically reflected by extreme weather events that have substantial impacts on the economy and social well-being of many nations and regions of the world, particularly in developing countries, as well as countries with economies in transition. The strong linkages between poverty and vulnerability to climatic and other hazards are frequently underpinned by the lack of appropriate preventive and disaster management measures in place.

22. Water has a key role to play in the achievement of most goals contained in the Millennium Declaration. In the context of an integrated planning and management approach, tackling water-related needs calls for development as well as management measures, particularly in the poorest countries where deficiencies in infrastructure endowments are greatest. The challenge lies in mitigating threats to the long-term sustainability of environmental systems and the livelihoods that depend on them. Assessments of the performance of large water-related infrastructure, i.e., large dams<sup>2</sup>, in the last decade indicates that, in many cases, economic benefits have failed to meet expectations while environmental and social costs have been significant and avoidable to a large extent. It is recognized that regulatory and decision making frameworks dealing with the planning and management of these infrastructures fail to incorporate properly social and environmental considerations early in the planning cycle. This leads to low public acceptance and increased financial risks. In this regard, the lack of appropriate public participation and stakeholders' involvement in the decision making process is identified as a significant weakness that needs to be tackled.

23. The consequences of unsustainable water use are felt in many different sectors. These multi-sectoral effects are evidence, in turn, of the inter-linkages and dependencies between different activities and sectors. For example, unsustainable water use has negative implications for food production, human health and biological diversity. While some commentators perceive a conflict between environmental protection and human use, without environmentally sustainable water use the quantity and quality of the resource itself is degraded and the economic and social benefits of water are reduced or lost.

24. Capacity-building and creating social instruments through awareness-building and information campaigns and education, possibly through local authorities and non-governmental organizations, should stimulate consumers to use water more efficiently and to implement measures preventing the precious resource from further degradation.

25. Sustainable use of water resources will depend on the improved involvement of both men and women. Water policies must be gender-sensitive and linked to the broader goals of poverty alleviation, equity and sustainable development. In addition, improved institutional structures and regulations in developing countries and countries with economies in transition should focus on better access to water resources and associated uses for poor people.

26. Freshwater, coastal and marine environment problems can only be addressed through substantial coordination and collaboration among all relevant stakeholders, each capitalizing on its comparative advantage. These relevant stakeholders include all United Nations organizations, Governments, water management institutions, regional and subregional intergovernmental bodies, international organizations, multilateral and bilateral donors, non-governmental organizations and grassroots organizations.

## **A. Mandate, objectives and role of UNEP**

27. The role and mandate of UNEP are stated in various resolutions of the United Nations General Assembly and the UNEP Governing Council, which provide the legislative authority for the development of the UNEP water policy and strategy. The Nairobi Declaration on the Role and Mandate of UNEP, adopted in February 1997, has refocused this mandate.

28. In the decisions it adopted at its nineteenth and twentieth sessions, the UNEP Governing Council accorded particular attention to a review of the role of UNEP in freshwater, coastal and marine

---

<sup>2</sup> Final Report of the World Commission on Dams, "Dams and development: A new framework for decision making" (November 2000).

issues. The decisions and recommendations of the 1972 Stockholm Conference on the Human Environment and the 1992 United Nations Conference on Environment and Development — the Earth Summit — together with the Millennium Declaration (2000) as well as the Johannesburg Plan of Implementation, have provided important inspiration for developing the UNEP water policy and strategy.

29. Most UNEP activities relevant to the environmental management of freshwater, marine and coastal resources that predate the adoption of Agenda 21 were recognized and endorsed by the Earth Summit as contributing to the implementation of Agenda 21. In chapters 17 and 18 of Agenda 21, specific priorities for action were outlined for managing freshwater, marine and coastal resources.

30. As emphasized in chapter 38 of Agenda 21, a key objective to be pursued by UNEP is the provision of policy guidance and coordination in the field of environment. This entails the major responsibility of facilitating the integration of the environmental aspects of social and economic development into policy discussions involving freshwater issues. In pursuit of this goal, UNEP accords high priority in its activities to the protection, conservation and more efficient use of freshwater resources, both for human survival and for the maintenance and protection of ecosystems of value to humans. Priority areas for UNEP include the provision of technical, legal and institutional advice as well as policy guidance to Governments, upon request, in establishing and enhancing their national legal and institutional frameworks concerning the assessment, planning and integrated management of water resources. These priorities have guided and will continue to guide the development and implementation of the UNEP water policy and strategy.

31. Adequate capacity for the sustainable management of water resources remains one of the major constricting factors in the sustainable use of water. At its session in Cartagena in February 2002, the Governing Council/Global Ministerial Environment Forum called for a strengthened programme of capacity-building to be clearly incorporated into the work of UNEP.

32. Following the decision by the Governing Council/Global Ministerial Environment Forum at its twenty-second session that its eighth special session should focus on the environmental aspects of water, sanitation and human settlements, the latter session, held in Jeju, Republic of Korea, from 29 to 31 March 2004, resulted in, among other things, a number of actions recommended for addressing problems in the fields of water, sanitation and human settlements, the themes of the twelfth session of the Commission on Sustainable Development. At that session, the Commission on Sustainable Development reviewed the implementation of the Agenda 21 and Johannesburg Summit targets in the fields of water, sanitation and human settlements and concluded that, although many countries were not then on track, the targets for water, sanitation and human settlements were achievable in the time frame agreed. Achieving them, however, will require a high level of political commitment and strengthened governance at all levels, as well as substantial efforts at mobilizing and effectively using water resources.

33. In addition, at its twelfth session the Commission on Sustainable Development made explicit the links between achieving the Johannesburg Summit targets and the goals contained in the Millennium Declaration in relation to water and poverty reduction. The thirteenth session of the Commission on Sustainable Development should result in, among other things, specific recommendations for actions to address the freshwater problems affecting many developing countries and countries with economies in transition, including recommended actions by United Nations system agencies.

34. Within the parameters of UNEP legislative authority, the UNEP strategic approach to the issue of water, focusing on the achievement of environmentally sustainable water management, comprises policy development, integrated implementation and support programmes in the fields of monitoring and assessment of global water resources, and the integrated management of coastal and marine and freshwater water resources. It includes objectives targeted at, among other things, the implementation of relevant elements of the Millennium Declaration, the Johannesburg Plan of Implementation and the twelfth and thirteenth sessions of the Commission on Sustainable Development.

## B. Updated UNEP water policy and strategy<sup>3</sup>

35. In response to the growing recognition of the potential severity of water-related environmental problems worldwide, the UNEP water policy and strategy will place substantial emphasis on addressing these problems in a holistic, integrated and coordinated manner.

36. At the same time, UNEP recognizes that it cannot by itself address all water issues worldwide effectively and fully. It must focus and concentrate on selected targets and coordinate its work with other international organizations, Governments, civil society and the private sector to ensure a properly holistic approach as well as effective and sustainable outcomes. It must work with these partners, where appropriate, to encourage improved coordination of all efforts to address water problems. In this regard the UNEP water policy and strategy is meant to provide an overall framework within which such coordination can be achieved.

### 1. Goals

37. The overall goals of the UNEP water policy and strategy are improved assessment and awareness of environmental water issues, improved environmental management of basins, coastal and marine waters and improved cooperation and coordination between UNEP and others in the international water sector.

38. The following may be identified as the primary goals of the UNEP water policy and strategy:

- (a) Achieving greater global understanding of freshwater, coastal and marine systems in priority areas by conducting environmental assessments;
- (b) Raising awareness of the importance and consequences of unsustainable water use and the environmental aspects of water resources development and use, while providing guidance on how to prevent the problems and how to solve or ameliorate problems;
- (c) Supporting the efforts of Governments in the preparation and implementation of their plans for integrated water resources management of freshwater ecosystems and their related coastal and marine environments;
- (d) Providing support, based on the assessment results, for the preparation of integrated management plans and programmes for aquatic environmental hot spots;
- (e) Promoting the application by stakeholders of precautionary, preventive and anticipatory approaches;
- (f) Achieving enhanced technical, institutional and human capacity at the local, national and regional levels to deal with the environmental aspects of water resources management, including assessment, planning, implementation and control, and technological applications.

### 2. Focal areas

39. In pursuit of these goals, the UNEP water policy and strategy concentrates on the following focal areas:

- (a) Freshwater scarcity, water quality degradation, and conflict between human activities and aquatic ecosystems;
- (b) Land-based sources of pollution, land use change and alteration of terrestrial habitats and their impacts on aquatic ecosystems;
- (c) Aquatic biological diversity; its functions and the benefits to be derived from a properly operating aquatic ecosystem, and the relationship of that ecosystem with fisheries and aquaculture;
- (d) Impacts of climate change on water as a critical resource, on projections of its availability, and on the health and productivity of aquatic ecosystems;
- (e) Environmental aspects of risk management relating to droughts and floods;
- (f) Efficient use, planning and integrated management of existing water resources, based on ecosystem approaches;

---

<sup>3</sup> Key policy issues for environmental aspects of water which have been taken into account in the updated water policy and strategy are found in document UNEP/GC.23/INF/25.

- (g) Integrated coastal area and river basin management, linking freshwater and coastal and marine systems;
- (h) Knowledge and environmentally sound technology transfers relating to integrated water resources management, including freshwater augmentation (rainwater, surface and groundwater) and the collection, treatment, reuse and safe disposal of domestic, industrial and agricultural wastewater, in response to economic and social needs;
- (i) Environmental dimensions of the legal and institutional frameworks concerning water resources management;
- (j) Mainstreaming of gender considerations in water management, in particular in rainwater harvesting;
- (k) Adequate structures and mechanisms for decision-making and planning for sustainable management of water infrastructure.

## C. Key components of the UNEP water policy and strategy

40. The key components of the UNEP water policy and strategy— assessment, management and coordination — are outlined in more detail in the following sections.

### 1. Assessing global water resources

#### (a) Assessment activities

41. One of the main frameworks for UNEP assessment activities in the area of water is the Global Environment Facility (GEF) Global International Waters Assessment (GIWA) project, which provides background and analytical information to help in the identification of priorities and formulation of appropriate policy responses to address the issues identified.

42. The lack of a comprehensive assessment of transboundary and other water bodies, both marine and freshwater, has been a serious impediment to the implementation of agreed actions. This was one of the main reasons for the GIWA project, which is supposed to identify areas of global priority for intervention, assess major environmental problems related to international waters, and identify their geographical boundaries and their root causes.

43. The GIWA project has been strengthened in its scientific capability over time and is now producing and publishing regional assessments. By the end of 2004, 22 out of 66 regional assessment reports would have been published and 20 more would be ready for publishing. This will cover 98 per cent of all GEF-eligible regions.

44. UNEP contributes to the Millennium Ecosystem Assessment, which was designed to meet the needs of decision-makers and the larger public for accurate and comprehensive scientific information concerning the capacity of ecosystems to provide and maintain their natural systems and services. It also deals with the consequences of ecosystem changes for human well-being, and provides options for responding to those changes in an environmentally appropriate manner. The Millennium Ecosystem Assessment project helps to identify priorities for action and provides tools for planning and management of water resources. It also builds individual and institutional capacity in participating countries to undertake integrated ecosystem assessments and to act on them. Water-related chapters are being considered in the integrated water assessment activities.

45. Various information-gathering activities have obtained data on freshwater quality and quantity for the GEO series. It provides a synthesis of global and regional assessments of current and future environmental outlooks, as well as the impact of regional and national environmental policies. The GEO data portal provides vital inputs for the World Water Development Report and the Commission on Sustainable Development reports.

46. At present, UNEP and, more specifically, the Division of Early Warning and Assessment within its Science Initiative activities are developing assessment modules, including freshwater and coastal marine modules, with the objectives of:

- (a) Providing the scientific knowledge base for international environmental governance and mainstreaming of environmental concerns into social and economic sectors in support of the internationally agreed development goals, including those contained in the United Nations Millennium Declaration;

(b) Facilitating interaction between science and observations on the one hand and policy and decision-making on the other hand by conducting processes and generating products of high legitimacy, credibility and utility;

(c) Building partnerships and capacity for multi-scaled and multidimensional integrated environmental assessment processes based on geographic and gender-balanced collaborative partnership of institutions and experts, which includes extensive critical peer review.

47. The establishment of a Global Marine Assessment is under preparation, aiming at coherent reporting on the status of marine ecosystems and trends relating to those ecosystems and their uses.

48. The UNEP Global Water Quality Monitoring Programme (GEMS/Water) has been revitalized. GEMS/Water is a global freshwater quality monitoring programme, which collects and assesses water quality data from 104 developing countries. The programme provides information on the state and trends of global inland water quality, which serves as a basis for decision-making processes related to integrated water resources management for the development and sustainable use of freshwater resources. Indicators have become an integral part of regional and global environmental assessments and reports.

49. The Global Assessment of Vulnerability of Water Resources to Environmental Change is a framework used to assess the vulnerability of surface and groundwater to human land uses, utilizing an - based on integrated water resources management (IWRM) applied on a river-basin basis. It comprises assessments of aquifers, freshwater shortages, rain-fed aquifers as well as assessments of the distribution of freshwater, considering all components of the hydrological cycle. It incorporates IWRM principles, such as equity of access, efficiency of water use in economic sectors, and sustainability in environmental terms. The framework maintains a balance between competing pressures to ensure resource integrity in the long-term, social uplifting and advancement, economic growth and sustainable use of environmental resources.

50. Groundwater assessment, e.g., in urban areas in Africa, aims at filling fundamental information gaps relating to the quantity and quality of urban groundwater aquifers. Preliminary findings indicate that urban groundwater in Africa is increasingly contaminated by faecal coliforms while salt intrusion is rising with increased freshwater abstraction in coastal areas.

51. Appropriately managed and complemented, this wealth of information will provide the grounds for assessing the environmental performance of water resources development measures, particularly the interventions at river basin level, with focus on transboundary water systems, like reservoirs and large dams for various water uses, as well as inter-basin transfers that have a significant and long-term impact on freshwater inland systems as well as on associated coastal areas.

**(i) Mandate, objectives and role of UNEP in assessing global water resources**

52. UNEP executes a number of global water resources assessment activities, with support from the implementing agencies of GEF and other partners and stakeholders. Duplication is avoided by making full use of existing assessments and other available information.

53. The ultimate goal of UNEP in the area of water and environment is to provide Governments, decision makers and funding agencies with accurate quantitative and qualitative information on water issues around the world, at global, regional and national levels. This information is intended to facilitate the identification of priorities by Governments, by the regional seas programme, within the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, in the freshwater programme, and by GEF and its partners in setting priorities for preventive, remedial and mitigatory actions, thus enabling countries to manage their water resources in an integrated and sustainable manner.

54. UNEP also aims to contribute substantially to progress reporting on the environmental aspects related to the Millennium Declaration and Johannesburg Plan of Implementation targets. Examples of such progress reports are the World Water Development Reports and the Joint Monitoring Programme on Water Supply and Sanitation. Contributing to progress reporting with respect to the Johannesburg Plan of Implementation target of "Integrated water resources management and efficiency plans by 2005, with support to developing countries" is also mandatory.

**(ii) Work plan and strategy of UNEP in assessing global water resources**

55. The UNEP work plan aims at consolidating, strengthening and focusing its assessment activities to address the water component, intending

- (a) To capitalize on the worldwide expert network established through the GIWA project, and support possible continuation of that project;
- (b) To contribute to the Johannesburg Plan of Implementation and to other internationally agreed development goals, in particular those contained in the Millennium Declaration;
- (c) To contribute to the water sections of the Millennium Ecosystem Assessment reporting;
- (d) To develop new GEO freshwater and coastal and marine assessment modules, and contribute to the GEO series;
- (e) To contribute to the envisaged global marine assessment;
- (f) To continue the GEMS/Water freshwater assessment programme;
- (g) To contribute to the Global Assessment of Vulnerability of Water Resources to Environmental Change;
- (h) To contribute to regional groundwater assessments;
- (i) To contribute to progress reporting with respect to the goals of the Millennium Declaration and related targets on IWRM and sanitation;
- (j) To strengthen the water-related paragraphs in post-conflict assessment project reports.

**(iii) Expected outputs of UNEP work in assessing global water resources**

56. The main outputs of UNEP assessment activities will feed into major progress reporting in response to the Johannesburg Plan of Implementation, such as the World Water Development Report, the Joint Monitoring Programme on Water Supply and Sanitation, and the possible new mechanisms following the recommendations of the United Nations Millennium Project on how to achieve the internationally agreed development goals, in particular those of the Millennium Declaration, the Johannesburg Plan of Implementation and Johannesburg Summit agreed targets. They include:

- (a) GIWA assessment reports and follow-up;
- (b) Water paragraphs in Millennium Ecosystem Assessment reporting;
- (c) New assessment modules and water paragraphs in the GEO series;
- (d) Substantive contributions to the envisaged Global Marine Assessment;
- (e) GEMS/Water freshwater assessment reports;
- (f) Reports contributing to the Global Assessment of Vulnerability of Water Resources to Environmental Change;
- (g) Contributions to regional groundwater assessments;
- (h) Substantive contributions to progress reporting on IWRM, sanitation and other water related agreed targets of the Millennium Declaration and the Johannesburg Summit;
- (i) Contributions to the dialogue on water and climate, the dialogue on water, food and environment and related inter-sectoral initiatives.
- (j) Strengthened water-related paragraphs in post-conflict assessment reports.

- (b) **Managing water resources**
- (i) **Regional seas programme<sup>4</sup>**

57. The UNEP regional seas programme was created in 1974 as a global programme implemented through regional components. It covers 17 regions around the world, and more than 140 coastal States and territories participate in the programme. The regional seas conventions and action plans fall under the legislative authority of their contracting Parties or governing bodies and are implemented through periodically revised action plans adopted by high-level intergovernmental meetings.

58. These regional agreements and conventions and their related protocols and action plans have been effective in engaging Governments in efforts to protect the coastal and marine environment. They provide comprehensive coverage of issues ranging from chemical wastes and integrated approaches to the management of coastal areas and the conservation and management of marine resources and ecosystems.

59. Overall objectives of the regional seas conventions and action plans include:

- (a) Promoting the integrated and sustainable development of marine and coastal areas and associated river basins and their living aquatic resources;
- (b) Promoting the implementation of appropriate technical, institutional, administrative and legal measures for the improved protection and sustainable management of the coastal and marine environments;
- (c) Facilitating assessments of the coastal and marine environments, including their conditions and trends, thus providing science-based information for informed policy and decision-making;
- (d) Promoting integrated and ecosystem-based management, protection and sustainable development of marine and coastal areas and associated river basins and their living aquatic resources.

60. The regional seas conventions and action plans are action-oriented programmes that focus not only on mitigating or eliminating the consequences of environmental degradation but also on its causes. A comprehensive, integrated, results-oriented approach is adopted to combat environmental problems through sustainable management of marine and coastal areas.

**a. Mandate, objectives and role of the regional seas programme**

61. The mandate granted to UNEP to deal with oceans and coastal areas appears in the relevant decisions of the 1972 Stockholm Conference on the Human Environment and the 1992 United Nations Conference on Environment and Development. The policy framework for its work in this field is further detailed in Governing Council decision 20/19 A of 5 February 1999 on oceans and seas. Of importance in that decision was the call for UNEP to strengthen the regional seas conventions and action plans as the central mechanism for the implementation of activities relevant to chapter 17 of Agenda 21.

62. In pursuit of this goal, UNEP has undertaken a series of measures on the regional seas programme along the lines set out in the following Governing Council decisions: decision 20/18 B of 4 February 1999, decision 21/28 of 9 February 2001 and decision 22/2 III of 9 February 2003 on strengthening the role of UNEP in promoting collaboration among multilateral environmental conventions and in providing programmatic support to multilateral environmental conventions. UNEP is also promoting and facilitating collaboration between the regional seas conventions and action plans on the one hand and relevant global environmental conventions and agreements in areas of common concern on the other. In its decision 22/2 III A, the Governing Council requested the development and strengthening of regional seas conventions and action plans in promoting the conservation and sustainable use of the marine and coastal environments and requested UNEP to encourage and support those conventions and action plans to incorporate new strategic elements in their programmes of work, bringing those elements to the attention of their respective member States through the governing bodies and other relevant forums.

---

<sup>4</sup> Progress report on the Regional Seas Programme may be found in document UNEP/GC.23/INF/26.

63. The Fifth Global Meeting of the Regional Seas Conventions and Action Plans (Nairobi, 26–28 November 2003) agreed upon a new set of strategic directions aimed at strengthening the regional seas programme at the global level through a global alliance of the Regional Seas Conventions and Action Plans. The Sixth Global Meeting of the Regional Seas (Istanbul, 30 November–2 December 2004) further developed the principle elements of the new strategy into a pragmatic and operational programme of work, which will be implemented on the global level by UNEP and on the regional level by the individual regional seas conventions and action plans. The specific objective of the strategy is to enable the regional seas programme to be strategically adaptive and proactive in addressing the challenges of the Johannesburg Plan of Implementation and the goals contained in the Millennium Declaration.

**b. Work plan and strategy of the regional seas programme**

64. The twenty-second session of the Governing Council called for the development and strengthening of the regional seas conventions and action plans at both the global and regional levels to promote the conservation and sustainable use of the marine and coastal environments. The UNEP water policy and strategy provide a framework for achieving those objectives.

65. The UNEP Regional Seas Coordination Office continues to support the individual regional seas programmes, acting as a liaison and information centre for the regional seas programmes, UNEP, and other actors at the international level. UNEP provides strategic programmatic support to various regional seas conventions and action plans. The global network of regional seas programmes plays a key role in the implementation of GIWA, the Global Assessment of the State of the Marine Environment, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, the Programme of Action for the Sustainable Development of Small Island Developing States, and the International Coral Reef Initiative. Special attention is being given to strengthening the regional seas conventions in the African region, specifically the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) and the Convention for the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention).

66. The new global strategic directions identify actions to be implemented during 2004–2007 to strengthen the regional seas programme at the global level, while continuing to implement the action programmes of the individual regional seas programmes as agreed upon by their governing bodies. They provide an opportunity to improve efficiency, individually and collectively, in the regional seas conventions and action plans, increase cooperation and incorporate new elements in future programmes of work. The following directions were agreed upon:

(a) Increase the regional seas programme's contribution to sustainable development through the enhancement of local, national, regional and global partnerships with relevant social, economic and environmental stakeholders, building upon the Johannesburg Plan of Implementation and the goals contained in the Millennium Declaration within the context of the regional seas mandate;

(b) Enhance sustainability and effectiveness of the regional seas programmes by increasing country ownership, translating regional seas conventions and protocols into national legislation, promoting compliance and enforcement mechanisms, involving civil society and the private sector, building capacities, ensuring viable financial arrangements as well as developing assessment or evaluation procedures where appropriate;

(c) Enhance the regional seas programme's visibility and political impact in the global and regional policy settings, through the establishment of a strengthened regional seas alliance, addressing emerging and priority issues, publishing regular statements on these, promoting a joint information policy and ensuring participation and promotion of regional seas in relevant regional and global forums;

(d) Support knowledge-based policy-making, development and implementation of relevant environmental legislation, improve knowledge on the state of the marine environment and enhance public awareness by contributing to the establishment or strengthening of appropriate national and regional monitoring and periodic assessment of the marine and coastal environment;

(e) Increase the use of the regional seas programme as a platform for developing common regional objectives, promoting synergies and coordinated regional implementation of relevant

multilateral environmental agreements, global and regional initiatives and responsibilities of United Nations Agencies, such as the International Maritime Organization (IMO), the International Atomic Energy Agency (IAEA), the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC of UNESCO) and the Food and Agriculture Organization of the United Nations (FAO), and other international actors as a contribution to the sustainable management of the coastal and marine environment ;

(f) Promote the development of a common vision and integrated management, based on ecosystem approaches, of priorities and concerns related to the coastal and marine environment in regional seas conventions and action plans, introducing, amongst others, proactive, creative and innovative partnerships and networks.

**c. Expected outputs and outcomes of the regional seas programme**

67. The main outputs and outcomes expected from the programme are further strengthening of the individual regional seas programmes and the implementation of the global strategic directions leading to a more efficient regional seas programme and a global alliance of regional seas programmes aiming at the protection and sustainable management of the marine and coastal environments.

68. Other anticipated outputs and outcomes include:

(a) An overview of the individual regional seas programmes achievements and shortcomings, with distilled lessons on how different programmes have addressed the common challenges to their coastal and marine resources in a region-specific manner and on how to learn from those lessons to further promote the regional seas programmes ;

(b) A global database established on major actors in the field of conservation, management and sustainable development of the marine and coastal environments in the different regional seas areas that will facilitate cooperation and result in increased partnerships and shared best practices ;

(c) Model guidelines on how to further translate regional seas conventions and action plans into national legislation and regulation, and ensure compliance and assessment, including national case studies ;

(d) A coordinated approach and timely reporting to major (bilateral) donors, strengthened links with GEF, following a large marine ecosystem approach to ensure financial sustainability and strengthened links with civil society and the private sector ;

(e) An annual statement on a current emerging issue that requires policy attention and greater visibility of the regional seas programme at the global level ;

(f) An updated web-based information centre, giving a global overview of the individual regional seas programme profiles as well as highlighting major actors and stakeholders in those programmes ;

(g) Improved and strengthened national and regional monitoring and assessment of the marine environment for improved contributions to the development and implementation of relevant environmental legislation, public awareness and to global assessments (Global Marine Assessment, GIWA, GEO, Millennium Ecosystem Assessment) ;

(h) Improved synergies and strengthened links with other multilateral environmental agreements, global programmes, United Nations and non-United Nations bodies through joint cooperation in relevant activities in programmes of work ;

(i) Improved use and promotion of ecosystem approaches for integrated management in the individual regional seas programmes, including within the framework of GEF.

**(ii) Global Programme of Action for the Protection of the Marine Environment from Land-based Activities**

69. The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities is the primary mechanism for strengthening global, regional and national efforts to address the interface between the freshwater and marine environments, with a special focus on land-based sources of pollution and the physical alteration and destruction of coastal habitats.

70. Approximately 80 per cent of all marine pollution originates from land-based activities.<sup>5</sup> The UNEP report GEO-2000 indicates that more than a third of the world's population lives within 100 kilometres of the seashore.<sup>6</sup> It is estimated that 60 per cent of all cities with populations of two million or above are coastal cities. The health and well-being of coastal populations depend on the health and well-being of coastal systems, which include near-shore waters, estuaries and wetlands, and their associated drainage basins. Human pressure is affecting these habitats negatively through pollution and physical alteration.

71. The Global Programme of Action (<http://www.gpa.unep.org>) sets the goals and priorities for UNEP activities with regard to the management of the coastal and marine environments. The continuing strengthening of the regional seas conventions and action plans will render the Global Programme of Action more effective as the conventions and action plans provide an overarching context for the implementation of the guidelines and other activities emanating from the Global Programme of Action.

**a. Mandate, objectives and role of the Global Programme of Action**

72. The Global Programme of Action and the Washington Declaration on Protection of the Marine Environment from Land-based Activities were adopted by 108 Governments and the European Community in 1995. Those Governments also designated UNEP as the secretariat for the Global Programme of Action. As such, the mandated role of UNEP includes the following:

(a) To promote and facilitate the implementation of the Global Programme of Action at the national, subregional and regional levels, in particular, through the revitalization of the regional seas conventions and action plans;

(b) To catalyse the implementation of the Global Programme of Action at the international level by United Nations organizations, development banks, GEF and other relevant entities;

(c) To review progress in the implementation of the Global Programme of Action;

(d) To promote the exchange of experience between regions, particularly through the establishment and operation of a clearing-house mechanism under the Global Programme of Action;

(e) To address the need for international rules and recommended practices and procedures to further the objectives of the Global Programme of Action.

73. A major policy objective related to the Global Programme of Action and stated in Agenda 21 is "to prevent, reduce and control degradation of the marine environment so as to maintain and improve its life support and productive capacities".

74. The Global Programme of Action translates this global policy objective into global, regional, subregional and national objectives and specifies what needs to be done to address the different pollutant source categories and the physical degradation of coastal and marine ecosystems, including:

(a) At the regional and subregional levels, to strengthen and, where necessary, create new regional and subregional cooperative arrangements and joint actions to support effective action, strategies and programmes at the national and local levels ;

(b) At the national level, to develop comprehensive, continuing and adaptive programmes of action within the framework of integrated coastal management, harmonized with river basin management and land use plans.

<sup>5</sup> Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (1999), page 1.

<sup>6</sup> United Nations Environment Programme, *Global Environment Outlook 2000*, page 44.

75. The need for the Global Programme of Action was reiterated at the World Summit on Sustainable Development held in Johannesburg in September 2002. In the Johannesburg Plan of Implementation, paragraphs 32 and 52, Governments were urged to<sup>7</sup> take specific actions to assist the implementation of the Global Programme of Action.

**b. Work plan and strategy of the Global Programme of Action**

76. The Global Programme of Action Coordination Office is currently focusing its efforts on implementing the programme of work for the period 2002–2006<sup>8</sup>, with strategic emphasis on: concentrating on action; facilitating the mobilization of financial resources; building partnerships with the private sector and civil society; linking the Global Programme of Action to the freshwater community; cooperating and coordinating with other international organizations; and replicating best and innovative practices at local, national, regional and global levels. A programme of work for the next period will be prepared for consideration by Governments during the second intergovernmental review meeting that is scheduled to be convened in 2006. A progress report on the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities is contained in document UNEP/GC.23/INF/26.

77. At the global level, the Coordination Office will continue to promote concerted action in the implementation of the Global Programme of Action. This will entail promoting cooperation with all concerned stakeholders, including other intergovernmental organizations, non-governmental organizations, international financial institutions and the private sector, and participating in relevant coordination mechanisms (such as UN-Oceans and UN-Water, the forums for coordination of water activities within the United Nations system) and intergovernmental processes and bodies (including the United Nations Commission on Sustainable Development and the World Water Council and its three-yearly forums). The Coordination Office will also continue to support and promote partnerships initiated by Governments and other partners, such as the “White Water to Blue Water” partnership for the wider Caribbean, the Global Hilltops-2-Oceans Partnership, and the European Union Water Initiative.

78. Implementation of the Global Programme of Action contributes to achieving the agreed targets of the Johannesburg Summit, in particular the 2005 target on integrated water resources management and the 2015 target on water and sanitation.

79. In the regional context, the Coordination Office will continue working closely with the regional seas programme to enhance regional implementation of the Global Programme of Action. The Coordination Office will continue to promote the development and adoption of protocols on land-based sources of pollution in conjunction with regional seas conventions and action plans, as well as the development of non-binding agreements involving Governments and the private and public sectors. Efforts will also include supporting capacity-building through such measures as twinning arrangements within the context of the regional seas conventions and the brokering of funding arrangements for specific action.

80. At the national level, the Coordination Office will assist Governments and other stakeholders in developing and implementing national programmes of action for the protection of the marine environment from land-based activities. This will include helping Governments to strengthen their capacity in environmental financing issues and to develop innovative financing initiatives, with emphasis on mobilizing domestic resources. The Coordination Office will also provide Governments with assistance in strengthening and adapting national legal frameworks to enable better integration of the Global Programme of Action.

81. Efforts will also be made to develop and further refine mechanisms to enhance implementation, replication and upscaling of pilot projects and best practices identified. This will include activities aimed at raising awareness of the need to establish management links between rivers and coasts and to identify ways of achieving real progress; promoting methods for protecting coastal and marine habitats against physical alteration and destruction (specifically in relation to tourism, ports and harbours, aquaculture and mining); promoting the effective and broad implementation of the UNEP, the World Health Organization (WHO), the United Nations Human Settlements Programme (UN-Habitat), the Water Supply and Sanitation Collaborative Council (WSSCC), the collaborative Strategic Action Plan on Municipal Wastewater and associated guidelines and the “10 keys for local and national action on

<sup>7</sup> Johannesburg Plan of Implementation, 2002.

<sup>8</sup> As endorsed by the Governing Council in its decision SS.VII/6 of 15 February 2002.

municipal wastewater”; linking wastewater collection, treatment, reuse and reallocation to the natural environment, with hygiene and household sanitation through the Wastewater Emission Targets, Water, Sanitation and Hygiene for All (WET -WASH) partnership with WSSCC. The Coordination Office will, in addition, undertake further joint training initiatives with partners, building on the success of the course entitled “ Improving Municipal Wastewater Management in Coastal Cities”, which was developed in conjunction with the Institute for Water Education (UNESCO-IHE) and the United Nations Division of Ocean Affairs and the Law of the Sea. The Coordination Office will endeavour to facilitate the development of GEF projects aimed at furthering implementation of the Global Programme of Action.

**c. Expected outputs and outcomes of the Global Programme of Action**

82. The outputs and performance indicators will include regular overviews of the implementation of the Global Programme of Action by different partners and preparing and holding of the second intergovernmental review meeting in 2006. Major areas of concentration include developing overviews on how different stakeholders implement the Global Programme of Action, and developing a proposed programme of work for the next period.

83. At the global level, contributions to global policy settings will be pursued. This includes inputs to achieving the Johannesburg Summit target on integrated water resources management by promoting the existing linkages between integrated coastal area and river-basin management, and to achieving the target on water and sanitation by promoting a holistic approach, which recognizes the need to address waste water collection, treatment, re-use and reallocation to the natural environment. Support to the wide use of the ten keys on municipal wastewater management is instrumental in this regard.

84. At the regional level, action plans within the context of the regional seas programme will be further developed and implemented. This comprises support to the development and implementation of protocols to existing conventions. Furthermore, close collaboration with other frameworks (e.g., GEF) will enhance implementation of Global Programme of Action components in the various regional seas regions.

85. As mentioned above, the Global Programme of Action is implemented primarily by national Governments. The Global Programme of Action Coordination Office envisages the active development and implementation of over 40 national programmes of action around the world by 2006. Addressing the various components of the programme including existing linkages between freshwater and coast, physical alteration and destruction of habitats through tourism, aquaculture, ports and harbour development, mining, municipal wastewater management, and legislative aspects and innovative financing mechanisms, will supply Governments with an array of options to move from planning to action. Capacity-building through training modules and sharing of best practices will complement support to Governments and many other stakeholders.

86. The second intergovernmental review meeting of the Global Programme of Action scheduled for 2006 will review the implementation of the programme, chart its future direction at local, national, regional and global directions, and further define the role and responsibilities of UNEP as the secretariat of the programme

**(iii) Programme for the environmentally sound management of freshwater**

87. The Governing Council, in decision 22/2, paragraph 4, requested UNEP to strengthen the freshwater-component of the UNEP water policy and strategy. In preparing proposals to fulfil this request, UNEP has clearly identified the need to establish an integrated freshwater action programme, consistent with the approach taken with the Global Programme of Action, the regional seas programme and the former freshwater programme of UNEP (EMINWA). The Programme for the Environmentally Sound Management of Freshwater (EMWA) will strengthen UNEP work on freshwater by improving the coherence of UNEP-wide freshwater activities, taking into account other international activities and processes on water; developing a more substantive and integrated freshwater work programme with an increased number of specific freshwater projects; providing an improved focus for additional fund raising; and catalysing increased efforts by partners through a higher UNEP profile in freshwater.

88. Strengthening of the freshwater component of the UNEP water policy and strategy is guided by previous freshwater-related Governing Council decisions<sup>9</sup>; the outcomes of the Johannesburg Summit; the outcomes of the twelfth session of the Commission on Sustainable Development; regional processes (such as the African Ministerial Conference on Water); and the outcomes of the eighth special session of the Governing Council/Global Ministerial Environment Forum. These outcomes provide a clear and strong mandate, not only for freshwater in general, but also indicating clear priorities. The Johannesburg Summit target IWRM and efficiency plans by 2005 is key to designing a strengthened UNEP freshwater programme. Environmental sustainability is a core component of IWRM, with ecosystem approaches integrated into the IWRM process. The Jeju Initiative also provides a valuable framework for UNEP freshwater priorities. Among other things, it highlights the importance of the Johannesburg Summit target of IWRM and efficiency plans by 2005, and the key role of IWRM in achieving environmentally sustainable water use.

89. The Commission on Sustainable Development, at its twelfth session, the most up-to-date source of recommendations with respect to freshwater, concluded that high-level political commitment, strengthened governance and increased resources are necessary to achieve the targets, and that many countries require assistance. It also highlighted the links between freshwater management and the broader global priority of poverty reduction, indicating that national sustainable development strategies and poverty reduction strategy papers need to include water.

90. The importance of the Johannesburg Summit target for the preparation of IWRM and efficiency plans by 2005 is highlighted by the fact that this target predates the 2015 water supply and sanitation targets. That is, appropriate water resources management and efficiency plans are seen as setting the essential foundations for successful water supply and sanitation outcomes.

91. UNEP has long experience with freshwater management, through its EMINWA (environmentally sound management of inland waters) programme, which included several major river basin activities, for example. The challenge now is that of revitalizing this formerly strong programme and orienting it to meet the latest priorities and assessments.<sup>10</sup> That is, UNEP is not creating a new programme. One more recent priority is to incorporate links between environmentally sustainable freshwater management and economic development, including poverty reduction – thus, increased emphasis on cross-sectoral linkages will be necessary.

92. Freshwater resources – and their associated ecosystems: rivers, aquifers, lakes and wetlands – are essential for satisfying basic human needs as well as for social and economic development in general, including protecting health, ensuring food and energy production, and maintaining ecosystems.

93. The environmentally sound management of freshwater quantity and quality, from both the demand and supply sides, remains a critical issue in the twenty-first century. The provision of an adequate supply of safe and clean water is regarded as the most important precondition for sustaining human life, for maintaining ecosystems that support all life, and for achieving sustainable development, including poverty reduction.

94. The growing competition for water within and among countries poses a threat to social, environmental and economic security. There are at least 263 international river basins that either cross or demarcate international political boundaries. UNEP has an important role to play, upon request, in

<sup>9</sup> See document UNEP/GC.23/INF/25, which contains a record of past decisions relevant to the UNEP role in freshwater and illustrates its mandate and legislative authority, especially decision 22/2 I, paragraph 4, which specifically requested the strengthening of the freshwater component of the water policy and strategy.

<sup>10</sup> EMINWA was first proposed in 1984 and was initially described to the Fifth World Congress on Water Resources (Brussels, 1985). Its implementation was approved by the UNEP Governing Council in May 1985. It focused on three types of inland water systems: rivers, lakes and groundwater aquifers. The historic agreement in May 1987, just two years after the inception of EMINWA, by the nations of the Zambezi river basin, assisted by UNEP, was the first among many achievements of the EMINWA program. The experience gained through the preparation, approval and implementation of the Zambezi Action Plan (ZACPLAN) yielded many important lessons concerning international negotiations – both problems and opportunities; the complexity of developing comprehensive and integrated plans for the development and management of shared transboundary water resources; developing and sustaining cooperation among Governments, regional organizations, development agencies and donors, and within the larger United Nations system; and facilitating and sustaining stakeholder participation at all levels. These and many other lessons learned also guided the work of EMINWA in other regions and locales worldwide. The renewed EMWA programme will build on these lessons and the experiences gained since the establishment of EMINWA in 1985 effectively to deliver the outputs and outcomes outlined here.

promoting cooperation among riparian States and concerned coastal states in the field of water-related environmental problems.

95. A key priority need is to increase the availability of clean water at affordable prices for poor people, both in urban and rural areas in developing countries and countries with economies in transition. Furthermore, investments in alternative ways of production through small-scale, traditional or new environmentally sustainable technologies are not sufficiently promoted. Enhancing the existing supply of water is often done by tapping new resources, rather than by using options such as rainwater harvesting or recycling. Such patterns of water management are not sustainable, in terms of quantity, quality or accessibility.

96. As demands on freshwater increase, it is becoming increasingly important to use finite water resources more efficiently for the benefit of all. In a worst-case scenario, violent conflict could result over competition for access to water resources.

97. With an increasing number of countries facing water scarcity or shortages and growing numbers of people without access to water and sanitation in developing countries and countries with economies in transition, it is important to use all water sources (groundwater, surface water and rainwater) with the full participation of all stakeholders, especially women. It is also important to promote investments in environmentally sound technologies, including small-scale, traditional and new technologies.

98. At the second meeting of the UNEP High-Level Committee of Ministers and Officials, Governments agreed that UNEP should play a vital role in providing substantive environmental inputs into freshwater issues. At its fifth special session, the Governing Council reiterated this view, directing UNEP to enhance its role in the environmental aspects of the sustainable management of freshwater. Paragraph 4 of decision 22/2 calls on UNEP further to strengthen its focus on freshwater issues.

99. In the field of water and sanitation, UNEP works together with UN-Habitat on various local, national and regional projects to strengthen the linkages between environment and human settlements. The joint UNEP/UN-Habitat facility, the Sustainable Cities Programme, and the Cities Alliance Partnership, of which both UNEP and UN-Habitat are members, are supporting local authorities worldwide in addressing and implementing actions and policies in the field of urban environment issues, including, in particular, water and sanitation.

100. Current collaboration between UNEP and UN-Habitat includes the following joint initiatives: Water for African Cities, Water for Asian Cities, Nairobi River Basin Project, and activities within the joint Sustainable Cities Programme. These initiatives aim to tackle the urban water crises through proper urban planning with an environmental dimension, including efficient and effective water demand management, capacity building to mitigate the environmental impacts of urbanization, and boosting awareness and information exchange on best urban practices.

**a. Mandate, objectives and role of the UNEP Programme for the Environmentally Sound Management of Freshwater**

101. In its decision 6/1 on strategic approaches to freshwater management, the Commission on Sustainable Development reinforced the environmental focus of UNEP, calling on it to collaborate with other members of the Administrative Committee on Coordination Subcommittee on Water Resources by providing "technical and scientific advice on environmental aspects of the sustainable development of freshwater resources". As emphasized in chapter 38 of Agenda 21, a key objective to be pursued by UNEP within the United Nations system is the provision of policy guidance and coordination in the field of the environment.

102. As the logical follow-up to its assessment efforts, UNEP activities in integrated water management will focus on assisting Governments, on request, to address the water-related problems identified in the GEO 2000 report, GIWA, the World Water Development Report and other relevant assessments. UNEP accords particular attention to identifying water-related environmental problems: where they occur, how serious they are and what their causes are, with a view to proposing preventive measures and early warning systems to address problems before they arise. UNEP can also assist Governments, particularly those of developing countries and countries with economies in transition, in tackling their freshwater issues by determining what can be done, who should do it and how it should be done in partnership with stakeholders.

103. In accordance with the Johannesburg Plan of Implementation, the internationally agreed goals contained in the Millennium Declaration, Governing Council decision 22/2, the decisions taken by the Commission on Sustainable Development at its twelfth session and the outcomes of the eighth special session of the Governing Council/Global Ministerial Environment Forum, UNEP is mandated to

support further the achievement of environmentally sound water resources management at the regional and country levels, including the achievement of the targets set out in the Johannesburg Plan of Implementation. Many targets pertain to or are dependent on the environmentally sustainable management of water resources. (For example, the World Water Development Report includes a table illustrating demonstrated the links between all the targets contained in the Millennium Declaration and water). The Johannesburg Plan of Implementation target of integrated water resources management and efficiency plans by 2005 as a first step in achieving the 2015 target on water, sanitation and electricity supply calls for UNEP involvement, in coordination with other agencies within the United Nations system.

104. At its twenty-first and twenty-second sessions, the UNEP Governing Council identified a range of issues for UNEP to consider within its environmental mandate. More specifically, at its twenty-second session it identified areas for strengthening the freshwater component of the UNEP water policy and strategy. These are:

- (a) Transfer of environmentally sound technologies for water management, with due attention to the use of local technologies and awareness-raising initiatives on technology development and transfer in the water sector;
- (b) Integrated river basin, watershed and groundwater management;
- (c) Regional and global assessments of water resources;
- (d) International and regional cooperation on the environmental aspects of water (freshwater, coastal and marine environment);
- (e) Integrated freshwater and coastal area management;
- (f) Groundwater vulnerability assessment and promotion of sustainable groundwater resource management;
- (g) Continuing collaboration between UNEP and UN-Habitat in the field of water, including projects on water for cities and industrial wastewater management;

105. In addition, the outcomes of the eighth special session of the Governing Council/Global Ministerial Environment Forum identified the following processes, approaches, actions and environmental dimensions as underpinning IWRM:

- (a) Cross-sectoral management of water resources : Cooperation is needed between all relevant sectors, especially between managers of water supply and managers of water quality. Demands for and use of water are at the centre of complex and often competing sectoral and social interests (between, for example, agriculture, industry, energy and domestic use, as well as between rural and urban areas);
- (b) National planning processes: IWRM is required to facilitate, among other things, effective resource allocation. National sustainable development strategies, poverty reduction strategies (incorporating environmental sustainability) and other plans should give due priority to water, sanitation and human settlements;
- (c) Transboundary approaches: Cooperation among riparian States in the management and sustainable use of shared rivers or groundwater aquifers can open the door to other forms of cross-border cooperation and regional stability. National actions can be strengthened and reinforced through regional cooperation among concerned countries, for example through shared river basin management and riparian agreements and, where relevant, international cooperation;
- (d) Ecosystem-based approaches: In taking forward an integrated approach to water resource management, countries should factor the full range of up and downstream environmental impacts into policy-making. This includes the protection of ecosystems such as soils, forests, wetlands, lowlands and coastal zones, as well as flood and drought management, the concept of environmental flows and the impacts of climate change, natural disasters and alien invasive species;
- (e) Linking the principles and practice of IWRM with integrated coastal zone management: The concept of integrated coastal zone and river basin management should be promoted. Under the ecosystem elements of IWRM, coastal zones need to be considered an integral part of freshwater management and scientific management and institutional links between freshwater and coastal-marine management should be facilitated, taking into consideration existing experience at the national and regional levels;

(f) Institutional structures and governance: This includes promotion of the development of national water laws, a river basin focus, decentralization to the most appropriate level and assistance in the setting of appropriate targets and guidelines;

(g) Economic instruments: These can serve to promote the efficient management of water as a vital resource with an economic value that needs to be used in an efficient manner. Greater use of economic instruments such as fair water service pricing policies and incentive measures that promote the equitable and efficient use of water can help manage demand and generate new revenue to expand water and sanitation services to the poor;

(h) Monitoring, assessment and reporting: Facilitating the establishment and operation of a transparent system for monitoring and reporting promotes effective IWRM, which depends on accurate and scientifically credible assessments of river basins, including ecosystems, and water resources, and a holistic view of pressures and impacts. Scenario analysis can be a useful tool in the planning process. Environmental impact assessment before, during and after development activities is crucial;

(i) Stakeholder involvement: Support for education and awareness-raising activities is necessary. Balancing demands requires active and transparent consultation and participation – including at the local level – of relevant stakeholders, particularly women and indigenous peoples as well as other civil society groups, business and local and regional authorities. Trade-offs are frequently necessary and systems should be put in place to resolve disputes;

(j) Capacity-building and training: It is necessary to strengthen the capacity for IWRM, including legal, financial, assessment and technical expertise in developing countries, least developed countries, countries with economies in transition and small island developing States;

(k) Environmentally sustainable technologies: Alternative and cost-effective technologies such as rainwater harvesting and sustainable desalination should be explored and promoted, and the transfer of appropriate technology increased.

**b. Work plan and strategy of the Programme for the Environmentally Sound Management of Freshwater**

106. The environmental aspects of freshwater resources touch on virtually all human and ecosystem needs. UNEP has an important role to play, upon request, in assessing freshwater resources and supporting the development of practical measures in cooperation with Governments to guarantee the health of the freshwater environment and the environmentally sound development, management and use of water resources to meet human development needs. Integrated approaches are an absolute requirement for success, with IWRM, which fully incorporates ecosystem approaches, the internationally recognized way forward.

107. Accordingly, UNEP freshwater-related priority activities include:

(a) Regional and global assessments of freshwater resources. Assessments are not to be stand-alone activities, but linked to the overall UNEP priorities and are part of the assessment-management continuum;

(b) Groundwater vulnerability assessment and promotion of sustainable groundwater resource management;

(c) IWRM, including management functions at all levels: regional, national, river basin, watershed and groundwater aquifers. Support for the environmentally sound management of water basins should include both assessment and management plans. Assessments of the state of the application of IWRM and projects to accelerate putting 2005 plans in place will be undertaken;

(d) Transboundary waters management, upon request, will also be a key activity;

(e) Promotion of integrated freshwater-coastal area management and technical cooperation, upon request, to address IWRM and integrated coastal zone management issues, with a focus on environmental aspects;

(f) Facilitation of international and regional cooperation on the environmental aspects of water (freshwater, coastal and marine environment). Cooperation and collaboration are vital for successful implementation of a comprehensive freshwater programme. Examples of enhanced cooperation are the 2005 Water Resources Alliance and regional and subregional programmes for the implementation of the Johannesburg Plan of Implementation target of IWRM and efficiency plans by 2005 at the country and basin levels. The alliance brings together UNEP, the United Nations

Development Programme (UNDP), the United Nations Department of Economic and Social Affairs, the World Bank and the Global Water Partnership in an open alliance to promote and coordinate activities in support of the Johannesburg Plan of Implementation 2005 integrated water resources management target. A core focus for UNEP will be increasing support for environmentally sound freshwater resources management on a regional basis;

(g) Analysis, transfer and dissemination of environmentally sound technologies for water management, with due attention to the use of local technologies and awareness-raising initiatives on technology development and transfer in the water sector. There should be an increased emphasis on identifying why proven technologies have not been adopted;

(h) Collaboration on specific water projects and activities with UN-Habitat, including water for cities and industrial and domestic wastewater management;

(i) Collaboration with other agencies and organizations on water-related impacts of climate variability and change;

(j) Capacity-building and training, upon request, to strengthen technical, institutional and human capacity at the national and regional levels to address the environmental aspects of IWRM, including legal and institutional frameworks, economic and financial instruments, assessment and technical expertise;

(k) Education and awareness-raising with a focus on promoting wide stakeholder involvement in freshwater resources management.

**c. Expected outputs and outcomes of the EMWA programme**

108. UNEP freshwater activities under EMWA will result in a wide range of outputs and outcomes, including the following:

(a) Assessments and inventories of environmental issues related to freshwater resources ;

(b) Contributions to regional reviews of the implementation of chapter 18 of Agenda 21, World Summit on Sustainable Development targets and the goals of the Millennium Declaration in relation to water, including the analysis and identification of best practices ;

(c) Facilitation of preparation and implementation of national IWRM and efficiency plans, with a focus on environmental aspects to assist Governments to achieve the Johannesburg Plan of Implementation target of integrated water resources management and efficiency plans by 2005;

(d) Establishment and facilitation of international, regional and national processes for implementation of the water policy and strategy on a regional and subregional basis;

(e) Projects for the environmentally sound management of specific river basins;

(f) Pilot projects approved by all affected countries that test the effectiveness of these policies;

(g) Various projects related to the GEF international waters portfolio;

(h) Assessment, development and recommendation of innovative policies and strategies for environmentally sustainable freshwater use;

(i) Guidelines on best practices and information on environmentally sustainable technologies for environmentally sustainable freshwater management;

(j) Guidelines on improved decision-making, planning and management of water infrastructure in order to ensure environmentally sustainable outcomes;

(k) Activities to raise awareness and improve education and the participation of the general public;

(l) Technical cooperation for environmentally sustainable water resources management, including environmental risk management, pollution abatement and control and regulatory and economic instruments, among others ;

(m) Capacity-building, including legal and institutional frameworks at the country and regional levels for the achievement of environmentally sustainable water resources management (note that capacity-building will be an integral part of most activities).

## **D. Environmental aspects of legal instruments and processes**

109. UNEP will continue to support international instruments, in particular internationally binding agreements, in accordance with its mandate in the field of water. UNEP should also work to integrate water issues into the development and implementation of relevant international agreements (such as those on climate change and biological diversity). It will also strengthen its role in this area by promoting and encouraging the conclusion of environmental agreements among riparian States that aim to safeguard and improve their ecological systems. Development of legal instruments to fill gaps in existing water and water-related laws and enhancing the capacity of countries in implementation of laws will be facilitated by UNEP at the request of Governments.

## **E. Capacity-building**

110. Capacity-building, dissemination or promotion of ecologically sound technologies and know-how are essential for the achievement of the Johannesburg Plan of Implementation and the water targets contained in the Millennium Declaration. UNEP experience, however, strongly indicates that capacity-building should be an integral part of a comprehensive package of assistance to Governments. Consequently, capacity-building will be an integral part of UNEP water activities. The Bali Strategic Plan for Technology Support and Capacity-building will play a vital role in capacity-building in the area of freshwater. For example, in assisting Governments to prepare and implement the Johannesburg Plan of Implementation target of IWRM and efficiency plans by 2005, UNEP will provide capacity-building assistance in the application of IWRM and, in particular, environmental sustainability aspects.

## **F. Regional implementation of the UNEP water policy and strategy**

111. Water is an area for which protection and sustainable management require national action and regional and subregional cooperation. The UNEP regional offices serve as the focal points in the implementation of the UNEP water policy and strategy through regional ministerial forums and liaison with major stakeholder groups. UNEP works together with sister United Nations agencies in the delivery of water programmes and capacity-building throughout the regions. In Europe, transboundary water-related problems, in particular pollution risks from mining and other industrial activities, have been identified as priority areas for attention in all geographical areas (Central Asia; Southern Caucasus; South-eastern Europe) of the UNEP/UNDP/Organization for Security and Cooperation in Europe Environment and Security Initiative. In West Asia, UNEP work has been carried out in close cooperation with the United Nations Economic and Social Commission for West Asia, FAO, UNESCO and WHO, with a task team developed to lead the process in the region.

112. With specific reference to Africa, and through the New Partnership for Africa's Development (NEPAD) process, UNEP has identified regional and subregional priorities for integrated water resources management to serve as pilot projects within the framework of the environment initiative of NEPAD. These priorities include assistance for subregional reviews of the implementation of the Johannesburg Plan of Implementation target of IWRM and efficiency plans, focusing on environmental aspects, and follow-up assistance to Governments for accelerating implementation. Support for intergovernmental processes, such as the African Ministerial Conference on Water, is another priority.

113. Regional implementation is well articulated throughout the subprogrammes of UNEP. The GEO reports include regional environment outlook information. GIWA covers 66 geographical areas where issues related to specific water bodies, contaminants and integrated land and water management are addressed. The *Atlas of International Freshwater Agreements* recently published by UNEP and its partners accords particular attention to regional water agreements. The new GEMS/Water Quality Assessment Programme promotes cooperation with national institutions. Furthermore, the Global Programme of Action land-based activities programme is being implemented in the regions, with particular emphasis on the development of national programmes of action and regional implementation processes, including regional protocols. The regional seas programme currently covers 15 regions.

## **G. Public awareness**

114. UNEP will undertake various public awareness, media and education activities to promote the sustainable management and use of the Earth's water resources. Policy-relevant documents on the environmental aspects of freshwater issues should be developed for use by Governments, to facilitate

the incorporation of environmental considerations in sustainable social and economic development programmes.

#### **H. Public-private partnerships**

115. The past decade saw a considerable increase across the world in the number and scope of public-private partnerships in the water and sanitation sector. These range from the contracting out of selected activities to the complete sale of assets to the private sector. Issues such as the merits and demerits of different models of public-private partnerships, how they serve the poor, their current global use and emerging trends remain to be explored. Better urban governance is crucial to water conservation and is increasingly becoming the subject of such partnerships.

#### **I. Environmentally sustainable technologies for freshwater augmentation and sanitation**

116. New, innovative adaptations to local circumstances of low-cost, environmentally sustainable technologies in fresh water augmentation, sanitation and wastewater management have increased their potential use around the world. Other, more modern techniques have come within reach with the increased use of efficient and cost-effective environmentally sustainable technologies. Such technologies include rainwater harvesting, ecological sanitation, constructed bioremediation techniques for domestic wastewater treatment and the handling of solid organic wastes plus reuse of wastewater.

#### **J. Best practices**

117. UNEP will promote the exchange and dissemination of information on sound policy responses and cost-effective environmentally sustainable technologies, as well as experience and lessons learned at the subregional, regional and global levels, in the environmentally sustainable management and use of freshwater resources. There is a need to develop environmental perspectives and to facilitate discussions on best-practice responses with regard to policy, institutional, legal and economic options for addressing the environmental aspects of critical freshwater issues. In this regard, UNEP will continue to promote and pursue multi-stakeholder approaches at the national, regional and global levels, building on the experiences of ongoing activities like the UNEP Dams and Development Project. This approach will encourage discussions on, and the development and application of, environmental standards, guidelines, and technologies based on best-practice policy responses.

118. Partnerships will be strengthened with major groups as a means of drawing on the range of available expertise in identifying best-practice responses to environment-related freshwater issues at all levels. Relevant groups include WSSCC, the World Water Council, the Global Water Partnership and regional institutions and networks.

#### **K. Global water resources: coordination, partnerships and mobilizing actions**

119. Coordination, cooperation and partnerships are key to addressing complex and inter-linked water problems. Relevant actors and stakeholders exist at several levels:

- (a) United Nations system:
  - (i) Environmental Management Group;
  - (ii) UN-Water;
  - (iii) UN-Oceans;
  - (iv) United Nations system task forces (for example, the Millennium Development Goals task force on water and sanitation);
- (b) Regional and subregional:
  - (i) Economic commissions;
  - (ii) Regional and subregional intergovernmental and ministerial bodies;
  - (iii) River basin organizations;
  - (iv) Regional development banks;

- (c) Collaborating centres :
  - (i) UNEP Collaborating Centre on Water and Environment ;
  - (ii) World Conservation Monitoring Centre;
  - (iii) GEMS/Water ;
- (d) Other partnerships:
  - (i) Global Water Partnership ;
  - (ii) World Water Council;
  - (iii) International Union for Conservation of Nature;
  - (iv) IOC.

120. UNEP will provide strategic facilitation and coordination for the activities of the UNEP water policy and strategy and help mobilize actions and partnerships at various levels. These efforts will involve work with Governments and partners to organize regional and subregional forums on a regular basis. The objective of these meetings will be the development of a common vision and perspectives on the priority water issues within the mandate of UNEP. This will also enable Government representatives and experts to provide policy inputs and advice on the full range of environmental, social and economic issues related to the sustainable use and management of freshwater, coastal and marine resources.

121. Such efforts for regional implementation will be strongly promoted through UNEP regional offices and through its existing programmes and frameworks for regional cooperation. These include such UNEP-supported regional arrangements as the ministerial conferences on the environment, the Regional Seas Programme and intergovernmental agreements on internationally shared waters. The regional seas conventions and action plans cover 14 regions,<sup>11</sup> and their intergovernmental bodies cooperate directly with UNEP in the development of programmes. A number of river- and lake-basin organizations also participate in integrated river basin management programmes and the GEF International Waters Projects Portfolio.

122. Through the GEF International Waters Projects Portfolio, UNEP plays a role in implementing projects within the UNEP water policy and strategy framework. This substantially contributes to the ability of countries to make informed strategic and operational decisions on scientific and technical issues. It also promotes regional and multi-country cooperation aimed at achieving global environmental benefits, as well as the demonstration of specific environmentally sustainable technologies, water resource management approaches and policy tools that could be replicated on a larger scale by other partners.

123. As the key agency within the United Nations system responsible for policy guidance and coordination in the field of the environment, UNEP will continue to work closely with UN Water – its partner United Nations agency – to ensure that the relevant environmental perspectives inherent in these measures are fully considered in intergovernmental policy discussions on freshwater resources. UN-Water was designated as the task manager responsible for reporting on the implementation of chapter 18 of Agenda 21. In addition, UNEP supports the work of UN-Oceans, which also performs an advisory function with regard to the Global Programme of Action.

124. Where cooperation with relevant United Nations agencies is concerned, UNEP will strengthen relationships with key organizations, such as the United Nations Human Settlements Programme (UN-HABITAT). The alliance between UNEP and UN-HABITAT will be reinforced, in particular in the areas of water and sanitation and land-based sources of pollution, such as sewage. A joint water project is currently being implemented to assist African countries to establish early warning mechanisms detecting hot spots where sustainability is threatened and to help them deal with the growing ecological impacts of large cities on the continent's resources. Within the framework of the joint Sustainable Cities Programme, cities around the world are currently participating in the development of such measures as freshwater management strategies. Also industrial wastewater management is part of the ongoing collaborations.

125. UNEP will also cooperate with IMO, FAO and the World Conservation Union (IUCN), in particular with regard to implementing the various protocols for the regional seas conventions and

---

<sup>11</sup> UNEP progress report on the implementation of the regional seas component of the UNEP water policy and strategy, submitted to the Committee of Permanent Representatives, August 2000.

action plans. UNEP will also work closely with the United Nations Development Programme (UNDP) and the World Bank within the framework of GEF, with IOC of UNESCO, the World Meteorological Organization (WMO) and the International Council of Scientific Unions (ICSU) in global observing systems, and with WHO, WMO and UNESCO within the framework of GEMS/Water.

126. In addition, UNEP will continue its efforts to forge partnerships at the global level. This will include collaborating with existing international partnerships and mechanisms such as the World Water Council and the Global Water Partnership. UNEP will also work with relevant international financial institutions. This approach will enhance the leadership role of UNEP within the international community in efforts to address environmental aspects of water-related issues.

127. UNEP recognizes the importance of forging partnerships with non-governmental organizations, the scientific community and the private sector through a participatory approach. In its work in this area, UNEP will continue to take into consideration a range of different perspectives, with a view to harnessing long-term, broad-based support on water-related issues.

128. These mechanisms and arrangements will facilitate the implementation and periodic refinement of the UNEP water policy and strategy and also the monitoring of water-related issues. Emphasis will also be placed on the coordination of UNEP water-related activities at the regional level by making maximum use of UNEP regional offices and mechanisms already in place. The role of UNEP in this regard includes fostering and brokering partnerships between Governments and major stakeholders.

129. Within UNEP, the Division of Policy Development and Law will coordinate in-house meetings on water-related policy issues. To help UNEP identify emerging environmental water issues and to provide independent policy advice on a continuous basis, the Executive Director will in due course establish a high-level advisory board for water-related issues.

## **L. Expected outputs and outcomes**

130. Implementation of the UNEP water policy and strategy is designed to yield the following results:

- (a) Global and regional assessments of the state of major priority aquatic ecosystems (river and lake basins, important wetlands, large marine ecosystems, aquifers), with a view to developing appropriate policy responses;
- (b) Provision to Governments, decision makers and funding agencies of environmental data for global assessment in cooperation with other organizations;
- (c) Diagnosis of priority freshwater environmental problems and their underlying causes;
- (d) Forecasting of the environmental consequences of freshwater scarcities and water quality degradation;
- (e) Greater awareness of the importance and consequences of unsustainable water use, among others through support to UNEP sustainable consumption and cleaner production programmes;
- (f) Strategies and tools for addressing environmental aspects of IWRM;
- (g) Environmental management strategies and tools for land-based activities that affect the coastal and marine environments;
- (h) Advisory services on the environmental aspects of drought and floods;
- (i) Agreed programmatic approaches to existing regional mechanisms for the environmental assessment and management of freshwater, coastal and marine resources by relevant intergovernmental regional bodies, including regional seas and river basin organizations;
- (j) Strengthened integrated management of internationally shared basins, marine and coastal areas, using multi-sectoral approaches;
- (k) Evaluation, promotion and transfer of environmentally sound technologies and practices, including enhanced freshwater augmentation such as rainwater harvesting, cost-effective desalination, and improved waste and wastewater collection, treatment, reuse and safe disposal;
- (l) Assessment and development of policies, guidelines and management tools for environmentally sustainable integrated water management, plus the implementation of pilot projects to demonstrate their use;

- (m) Recommendation of guidelines and tools for environmentally sustainable water management for consideration by Governments and appropriate authorities and the possible implementation of pilot projects;
- (n) Fostering and developing new and innovative approaches and mechanisms for assessing and managing the aquatic environment and its associated resources;
- (o) Improved technical, institutional and human capacity to deal with the environmental aspects of water resources management including assessment, implementation and control at the national and regional or basin levels;
- (p) Improved incorporation of environmental concerns in the institutional and legal frameworks dealing with water resources management;
- (q) Mainstreaming of gender principles and rainwater in sustainable water management;
- (r) Enhanced public participation approaches in integrated water resources management;
- (s) Increased financial support towards integrated water resource management.

#### **M. Monitoring and evaluating the UNEP water policy and strategy**

131. Regular reviews will be carried by the Governing Council out to gauge progress made or needed in the stated objectives under the three main components of assessment, promotion of environmentally sound management and coordination, with a view to achieving the relevant internationally agreed goals of the Millennium Declaration and the relevant targets of the Johannesburg Plan of Implementation. Regional, intergovernmental and other forums will facilitate the conduct of continuous and systematic reviews.

132. Other more specific reviews will also be undertaken. The GIWA Steering Group will regularly review progress made or needed. The regional seas convention secretariats, at a coordination meeting in the Hague in July 1999, agreed to keep under review efforts being made to strengthen the linkages between the freshwater, coastal and marine components of their activities. The evaluation and further development of the Global Programme of Action has begun and is expected to result in substantial positive outputs.

133. The status of implementation of the goals and objectives of chapter 18 of Agenda 21 will be kept under review by fostering intergovernmental dialogue. The purpose of this endeavour is to ensure that Governments and other relevant bodies and organizations inspire sound policy discussions and decisions on freshwater issues.

#### **N. Financing modalities and means of implementing the UNEP programme for the environmentally-sound management of freshwater**

134. The Secretariat will make additional resources available from the Environment Fund for EMWA, with a view to achieving the relevant internationally agreed goals of the Millennium Declaration and the relevant targets of the Johannesburg Plan of Implementation. In addition, significant synergies can be realised within UNEP subprogrammes to ensure that programme activities contribute significantly to the renewed freshwater programme. For example, the environmental law programme played a key role in the previous freshwater programme, EMINWA, by assisting Governments in the field of water law and in developing shared waters agreements. In an era of increasing competition over freshwater resources, policy and law for the maximization and sharing of water-related benefits to the greatest extent, with an emphasis on poverty reduction, will become an increasing priority and focus of the policy and law subprogramme. Additional funds will also be required.

### **III. Progress on the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities**

135. UNEP, through the Coordination Office of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, has continued to implement its programme of

work for the period 2002–2006<sup>12</sup>, with strategic emphasis on six practical principles: focusing on action; facilitating the mobilization of financial resources; building partnerships with the private sector and civil society; linking the Global Programme of Action to the freshwater community; cooperating and coordinating with other international organizations; and replicating best and innovative practices at the local, national, regional and global levels. As requested by the Governing Council in its decision 22/2 II of 7 February 2003, UNEP has also strived to ensure that the Montreal Declaration on the Protection of the Marine Environment from Land-based Activities, the Monterrey Consensus on financing development, and the outcomes of the World Summit on Sustainable Development are addressed in all efforts to implement the Global Programme of Action

136. UNEP acknowledges with gratitude the continued support provided by the Government of the Netherlands in hosting the Global Programme of Action Coordination Office. UNEP also wishes to express appreciation for the support provided by other countries for implementing the Global Programme of Action programme of work, including Australia, Belgium, Canada, Finland, Iceland, Ireland, Italy, Norway, Sweden, and the United States of America.

## **A. Activities at the global level**

### **1. International forums and events**

#### **(a) Commission on Sustainable Development**

137. Many of the issues being considered in the water, sanitation and human settlements thematic cluster for the 2004–2005 cycle of the Commission on Sustainable Development are closely linked to the Global Programme of Action. In recognition of these linkages, UNEP was invited to provide inputs to many of the official reports produced for both the twelfth and thirteenth sessions of the Commission.<sup>13</sup> In providing these inputs, UNEP made efforts to ensure that relevant issues were addressed from a Global Programme of Action perspective and that Global Programme of Action-relevant outcomes of the Governing Council/Global Ministerial Environment Forum were fully reflected, including in the Jeju Initiative.<sup>14</sup> UNEP will endeavour to incorporate the policy recommendations expected to stem from the thirteenth session of the Commission into its future activities as much as possible.

#### **(b) World Water Forum**

138. During the Third World Water Forum, held in Kyoto, Shiga and Osaka, Japan, from 16 to 23 March 2003, UNEP continued efforts to further the ten keys for local and national action on municipal wastewater<sup>15</sup> and associated checklists and guidelines. Together with the UNEP Collaborating Centre on Water, the Coordination Office also organized a parallel event to address integrated coastal area and river basin management, entitled “Freshwater–coast, a missing link in water management”. This event was also used to launch a first version of key principles on integrated coastal area and river basin management, which are to be considered during future consultations.

139. In preparation for the Fourth World Water Forum<sup>16</sup> UNEP will work with the World Water Council in compiling the follow-up to the World Water Council’s “Financing Water for All” report and in preparing a programme element on coast and oceans issues. UNEP, through its regional offices, will also work to ensure regional contributions are addressed in the context of the forum’s theme of “global challenges, local action”.

#### **(c) White Water to Blue Water**

140. UNEP actively participates on the steering committee for White Water to Blue Water, a partnership led by the Caribbean Community, the Comisión Centroamericana de Ambiente y Desarrollo

<sup>12</sup> As endorsed by the Governing Council in its decision SS.VII/6 of 15 February 2002.

<sup>13</sup> The twelfth session was held in New York from 19 to 30 April 2004. The thirteenth session will be convened from 11 to 22 April 2005.

<sup>14</sup> Summary of the deliberations of the eighth Special Session of the Governing Council/Global Ministerial Environment Forum, held from 29 to 31 March 2004.

<sup>15</sup> The 10 keys were developed jointly by UNEP, the World Health Organization, the United Nations Human Settlements Programme (UN-Habitat), and WSSCC, and supported by the United Nations Children’s Fund (UNICEF).

<sup>16</sup> To be held in Mexico City in March 2006.

(Central American Commission on Environment and Development), the United Nations Economic Commission for Latin America and the Caribbean, UNEP and the United States of America with the aim of promoting the practice of integrated watershed and marine ecosystem -based management in support of sustainable development in the wider Caribbean region. UNEP was particularly active at the White Water to Blue Water conference held from 22 to 26 March 2004 in Miami United States of America. Contributions included organizing, through the UNEP Regional Office for North America, three sessions on donor-related issues in the wider Caribbean region and a “Global Programme of Action evening”, consisting of five parallel sessions organized around the following themes: a regional council for information sharing; national programmes of action; integrated watershed and coastal area management; tourism; and ports and harbours.

**(d) Hilltops-2-Oceans**

141. UNEP, with the financial support of the governments of Australia, Belgium and Canada, hosted the inaugural H2O: Hilltops-2-Oceans Partnership Conference in Cairns, Australia, from 11 to 14 May 2004. Co-chaired by Ms. Virginia Chadwick of the Great Barrier Reef Marine Park Authority and Mr. Jan Pronk of the Water Supply and Sanitation Collaborative Council, this interactive conference resulted in the Cairns Communiqué and 53 key points focusing on the integration of water resource and coastal area management from the hilltops to the oceans through multi-stakeholder partnerships (see <http://www.hilltops2oceans.org/>, and document UNEP/GC.23/INF/17).

**2. Guidelines on municipal wastewater management**

142. UNEP finalized a set of guidelines on municipal wastewater management, related checklists and the 10 Keys for Local and National Action on Municipal Wastewater on the basis of guidance received from the Committee of Permanent Representatives to UNEP. The Governing Council/Global Ministerial Environment Forum welcomed the 10 keys in the Jeju Initiative<sup>17</sup>, and recommended them as best practice principles suitable for wide application by local and national authorities, the private sector and relevant international organizations. Feedback on the 10 keys was also sought from other organizations working on water and sanitation issues, such as the United Nations Children’s Fund (UNICEF).

143. The feasibility of developing wastewater emission targets (informally known as WETs) for implementation at the national and subnational level has been assessed in three background reports:<sup>18</sup> Water and sanitation coverage in the UNEP regional seas programme regional presentation of data; Targets and indicators for domestic sanitation and wastewater treatment: discussion paper; and an inventory of regional specific data and the feasibility of developing regional wets. A multi-stakeholder discussion was convened on the subject during the H2O Partnership conference. The feedback received on the possibility of developing targets has generally been positive, as demonstrated by the launch during the Hilltops-2-Oceans conference of a partnership linking the environmental dimension of wastewater emission targets with a WSSCC hygiene and sanitation campaign.

**3. Training**

144. UNEP has worked with the UNESCO-IHE Institute for Water Education and the United Nations Division of Ocean Affairs and the Law of the Sea to develop a course on improving municipal wastewater management in coastal cities, promoting the above-mentioned guidelines. The course, which is given jointly with local training institutes and members of the Division’s Train-Sea-Coast Programme, has been offered five times, and 110 professionals and fifteen trainers from ten countries have been trained. Based on the positive feedback received, UNEP is expanding the programme into new subregions and languages. An adaptation of the course for the South Pacific region will also result in distance learning and multimedia elements. It is envisaged that new modules for other topics relevant to the Global Programme of Action will eventually be developed.

**B. Activities at the regional level**

145. Cooperation with the regional seas programme provides an important platform for regional implementation of the Global Programme of Action. Regional seas conventions and action plans bring

<sup>17</sup> The Jeju Initiative is a summary of the deliberations of the eighth special session of the Governing Council/Global Ministerial Environment Forum.

<sup>18</sup> Developed with WHO, UN-Habitat and WSSCC, in consultation with the UNEP Regional Seas Programme.

together major regional actors involved in the management and sustainable development of marine and coastal environments and facilitate links between the national Governments interested in each instrument. UNEP has been able to capitalize on these networks in several ways, including in the organization of regional meetings and workshops (for example in the wider Caribbean region, East Africa, South Asia, the Southeast Pacific region, the South Pacific region, and the Northeast Pacific region). UNEP has also teamed up with several conventions and action plans in conducting legislative reviews and other pilot projects.

146. Protocols on land-based sources of pollution attached to regional seas conventions and action plans are valuable tools for directly furthering implementation of the Global Programme of Action. To this end, UNEP is currently supporting the development and revision of protocols for the Black Sea (Convention on the Protection of the Black Sea Against Pollution), the Caspian Sea (Framework Convention for the Protection of the Marine Environment of the Caspian Sea), and Eastern Africa (Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region).

### **C. Activities at the national level**

147. Given that implementation of the Global Programme of Action is primarily the responsibility of national Governments, many UNEP activities are aimed at facilitating the development of national-level initiatives. This often includes supporting the development of national programmes of action for the protection of the marine environment from land-based activities. These comprehensive policy frameworks are built on long-term, cross-sectoral processes designed to identify priorities for implementation and to generate concrete, mainstreamed projects. UNEP also focuses on developing and testing pilot projects replicable in different national contexts.

#### **1. Support for the development of national programmes of action**

148. A target of 40 national programmes of action by 2006 was set in the framework for action on water and sanitation tabled at the World Summit on Sustainable Development. Current trends show that this target will likely be exceeded by 50 per cent: Sri Lanka and Yemen have recently developed pilot national programmes of action, with assistance from UNEP and financial support from Belgium. Egypt, Nigeria and the United Republic of Tanzania are in the final stages of developing national programmes of action, also supported by Belgium; Bangladesh, China and Pakistan have initiated national programmes of action, with support from UNEP; Jamaica, St. Lucia and Trinidad and Tobago are in the process of developing national programmes of action with assistance from UNEP and its Caribbean Regional Coordinating Unit and financial support from the United States. A number of Governments (including those of Canada, Finland, Iceland and India) are also preparing or implementing national programmes of action without support from UNEP. Many other plans are at earlier stages of development: a further eight Caribbean countries are poised to receive support for developing national programmes of action as a result of a partnership between UNEP and the United States National Oceanic and Atmospheric Administration; as a result of the close relationship between UNEP, the Global Environment Facility and other donors, projects pertaining to the Arctic Ocean, the Mediterranean Sea, the West Indian Ocean and the Gulf of Guinea will support the development of new national programmes of action for those waters.

149. To assist Governments and other stakeholders in developing best-practice approaches, UNEP is creating what will be known as the "Marine Pollution Solutions" online database. As an outcome of the H2O partnership conference, the Coordination Office will also develop an electronic network of NPA practitioners. UNEP has also produced a handbook entitled "Development and implementation of NPAs" (available from <http://www.gpa.unep.org>).

#### **2. Support for the implementation of national programmes of action: strategic action plan on municipal waste water**

150. UNEP, the World Health Organization (WHO), UN-Habitat and WSSCC developed a strategic action plan on municipal wastewater in response to the views expressed at various regional workshops of Government-designated experts within the framework of the UNEP regional seas programme between 1996 and 1999, and also in response to Governing Council decision 20/19 of 5 February 1999 (see UNEP/GPA/IGR.1/2 and UNEP/GPA/IGR.1/3). For its implementation, the strategic action plan relies upon the existing structure of the UNEP regional seas programme, its relevant conventions and protocols, UNEP regional offices and other regional bodies. It also directly contributes to the

Johannesburg Plan of Implementation and the targets on water and sanitation contained in the Millennium Declaration, in particular by putting emphasis on the environmental aspects of these major targets (i.e., water and sanitation should not be restricted to taps and toilets, but should include all aspects of the water management cycle, from hand washing and hygiene to wastewater collection, treatment, reuse and re-allocation to the natural environment).

151. The strategic action plan on municipal wastewater aims at promoting the use of alternative solutions in wastewater management, including low cost technologies, appropriate financial mechanisms, effective partnerships, and creating an enabling environment for action. It seeks to accomplish this by:

(a) Promoting global consensus on best practices and procedures to address municipal wastewater (the normative component); outputs developed have been a web-based knowledgebase (the Sanitation Connection – SANICON, available at [www.gpa.unep.org](http://www.gpa.unep.org)), guidelines on municipal wastewater management, developed jointly with WHO, UN-Habitat and WSSCC, and the 10 Keys for Local and National Action on Municipal Wastewater. Furthermore the feasibility of the possible use of wastewater emission targets has been explored through the UNEP regional seas programme;

(b) Distributing up-to-date knowledge on best practices and procedures and promoting their replication (the demonstration component);

(c) Supporting the efforts of municipalities and States to address the serious public health problems, economic losses and the degradation of coastal ecosystems that result from the disposal in coastal areas of inadequately treated municipal wastewater (the capacity-building component).

152. A number of training courses on municipal wastewater management, under the umbrella of the Train-Sea-Coast Programme of the Division of Ocean Affairs and the Law of the Sea, have been executed jointly with UNESCO-IHE and other partners. Projects identified to serve as pilot projects illustrating innovative approaches often still need substantive resources to bring them to a bankable and sustainable level.

153. During the coming period, efforts will focus on the development of mechanisms to enhance service deliveries in the field of water and sanitation, in particular addressing environmental aspects of wastewater management. Innovative financing mechanisms, institutional set-up, participatory approaches, private sector involvement and low-cost technologies are part of such approaches. Underpinning new developments through sharing experiences and lessons learned will be continued through the organization of multi-stakeholder forums, demonstrating possible ways to proceed. A closer link to progress reporting with respect to the implementation of the Johannesburg Plan of Implementation, addressing environmental aspects of water and sanitation, will be realized through collaboration with WHO and UNICEF in their Joint Monitoring Programme on Water and Sanitation.

### **3. Physical alteration and destruction of habitats programme**

154. The aim of this programme is to support the efforts of stakeholders in developing, enacting and enforcing the legislation and regulations necessary to protect coastal and marine habitats against physical alterations and destruction induced by development activities. Efforts are concentrated in the four sectors considered potentially threatening to habitats, namely, tourism; ports and harbours; aquaculture; and mining. At the national level, assistance available includes review of legislation, development of sectoral checklists and guidance and provision of policy advice. This assistance is provided on the basis of best practices emerging from both the public and private sectors. Broader stakeholder meetings are also organized to develop regional and sector-specific checklists and to initiate pilot projects and activities at the regional level. A number of case studies have illustrated the environmental, social, and economic benefits of positive actions in this area; extensive reviews of these case studies now constitute a broad knowledge base.

### **4. Integrated coastal area and river basin management**

155. The integrated coastal area and river basin management programme is designed to promote closer cooperation between the freshwater, coastal, and ocean communities, and to establish practical management linkages. To date, activities have been focused on organizing events (including regional workshops in South-east Asia, the South-east Pacific region, and South Asia), developing guidance documents, initiating pilot projects (including in Chile and Colombia, Germany and Poland, Mozambique and South Africa, Sri Lanka and Thailand), fostering partnerships, and creating regional

communities where integrated management principles are put into practice. An initiative on environmental footprints of future agricultural developments has also been launched with FAO.

#### **5. Development of national legislation**

156. In September 2004, UNEP launched a ten-month project aimed at developing guidance on legislative provisions to address marine pollution from land-based activities to support the implementation of national programmes of action. This guidance is being formulated on the basis of land-based activities protocols to regional seas conventions and principles related to various Global Programme of Action components, as well as legislative reviews undertaken in the Caribbean, Eastern Africa and South Asia regions in the framework of the physical alteration and destruction of habitats programme and the list of “top ten” actions for legislators to address land-based activities prepared by Global Legislators Organization for a Balanced Environment (GLOBE) International. The project is being implemented in partnership with national Governments and institutions, as well as with relevant GEF projects. One of the first activities being undertaken is the provision of assistance to the Government of Costa Rica to strengthen and adapt its national legal framework to enable better integration of Global Programme of Action principles, an activity that will be used as a case study within the Central American region.

#### **6. Innovative financing**

157. In 2004, UNEP began intensifying its efforts to ensure that all its activities promoted the development of innovative financing arrangements for securing affordable, sustainable, and long-term financing for implementation of the Global Programme of Action. At the national level, activities are focused on helping countries to strengthen national capacity in environmental financing and to develop financing mechanisms and instruments (with an emphasis on mobilizing domestic resources) within the framework of their national programmes of action.

### **D. Preparations for the second meeting on the intergovernmental review of the status of the Global Programme of Action**

158. Pursuant to Governing Council decision 20/19 B of 5 February 1999, the first intergovernmental meeting to review the status of the Global Programme of Action was convened from 26 to 30 November 2001 in Montreal, Canada. In the Montreal Declaration<sup>20</sup> adopted during this meeting, the Executive Director was requested to organize a second intergovernmental review meeting in 2006. In its decision 22/2 II the Governing Council requested the Executive Director to report to the Governing Council at its twenty-third session on preparations for this review meeting, including offers by Governments to host the event. UNEP has initiated preparations for this meeting and is in the process of consulting a cross-section of stakeholders on organisational matters and possible themes. Although one Government has expressed possible interest in hosting the event, no formal offer has been received.

## **IV. Domestic, industrial and hazardous waste management: towards a life-cycle economy**

159. The objective of this chapter is to present the current challenges which Governments and other stakeholders in developed, developing and transition countries face in establishing life-cycle economies (also referred to as circular or closed loop economies), as a cross-cutting strategy to achieve more sustainable consumption and production patterns. Life-cycle thinking allows all relevant environmental and social impacts to be taken into account in an integrated fashion, with due recognition of transboundary impacts and responsibilities over the whole life-cycle of material flows, products and services. The most visible sign of the present lack of life-cycle economy, in particular in developing countries and countries with economies in transition, is the growing volume of household waste and the increasing health effects this causes for the day-to-day life of poor people. This chapter therefore focuses on the global and local challenges facing those who seek to develop, promote and implement integrated waste management policies.

160. Current UNEP strategy is to prepare specific projects that demonstrate the added value of generic tools. Such tools are greatly needed to protect the environment, safeguard human health and conserve critical natural resources through the implementation of environmentally sound waste

<sup>20</sup> UNEP/GPA/IGR.1/9, annex I.

management that promotes the “4 Rs”: reduction, reuse, recycle, and repair. A waste prevention strategy based on the 4 Rs will have a positive effect on the structure of current unsustainable consumption and production patterns. It should, however, not be ignored that the present and still growing waste problem – open dumps causing serious dangers for health and environment whose numbers increase daily – must be addressed in the short term; a greater sense of urgency is required at all political levels, as are new partnerships to develop and implement proper disposal policies and facilities.

161. UNEP is implementing this strategy in partnership with intergovernmental, governmental, private sector and civil society organizations active in the area of environmentally sound waste management. Foremost among these are relevant multilateral environmental agreements, including the Basel Convention on the Control of the Transboundary Movement of Hazardous Wastes and their Disposal, the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, and the Montreal Protocol on Substances that Deplete the Ozone Layer to the Vienna Convention on the Protection of the Ozone Layer. Of particular relevance are the Johannesburg Plan of Implementation and the Strategic Plan for Implementation of the Basel Convention.

## A. Introduction

162. The problems caused by the most visible sign of a lack of life-cycle economy – the unsound management and disposal of waste – are well-known: pollution of air, water and soil; serious health impacts on people; and increasing investments needed for addressing these problems. According to the GEO 3 assessment, between one third and one half of solid waste generated within most cities in developing countries is not collected. Across Africa, only 30 per cent of solid waste in urban areas is collected. In Asia, only a few cities have adequate waste disposal sites. The situation in Latin America and the Caribbean is also of concern, with increasing amounts of non-biodegradable components, such as plastics and aluminium. In the countries of West Asia, in addition to increasing quantities of household waste, new industries produce large amounts of hazardous waste. At the global level, over 70 per cent of household wastewater is being discharged into open waters without any treatment. Of operational treatment plants, only 10–20 per cent function adequately. Meanwhile, solid waste in the form of marine litter threatens the world’s oceans – it has been estimated that over 13,000 pieces of plastic litter are floating on every square kilometre of ocean surface, posing a dire risk to coastal environments and communities as well as the marine environment. In addition to damaging the environment, waste is increasingly becoming a major obstacle for economic and social development, particularly in developing countries and countries with economies in transition. On the other hand, waste is a potential source of income generation; currently there are missed opportunities for turning waste into valuable resources.

163. The main reasons for this alarming situation are well known, notably a lack of financial resources, insufficient infrastructure, inadequate technologies and management systems and a lack of public and political awareness. There is at present insufficient global leadership to deal with the problem.

164. The management of waste is being addressed at various levels of policy coordination and decision-making. At the international and regional levels, the work of the United Nations has resulted in multilateral environmental agreements with waste management elements (in particular relating to chemicals, hazardous waste and the atmosphere) and related regional agreements.<sup>22</sup> In addition, in some cases new waste streams and waste management challenges that will require action may be created as the result of the proper implementation of multilateral environmental agreements.<sup>23</sup> Furthermore, as noted in previous chapters, a strategic action plan on municipal wastewater has been developed under

<sup>22</sup> See the document on international environmental governance: multilateral environmental agreements (UNEP/IGM/INF/3), which was presented at the first meeting of the Open-Ended Intergovernmental Group of Ministers or their Representatives on International Environmental Governance in April 2001.

<sup>23</sup> For example, the phase-out of ozone-depleting substances under the Montreal Protocol has resulted in waste (e.g., contaminated and unneeded ozone-depleting substances) that needs to be managed and ultimately destroyed. It will probably be the same with hydrofluorocarbons (HFCs) under the Kyoto Protocol to the United Nations Framework Convention on Climate Change in the future, and HFC destruction is already being considered under the Protocol’s Clean Development Mechanism.

the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. At the national level, a multitude of initiatives by national Governments has resulted in policy frameworks and action plans. At the local level, municipalities have put in place “hardware” (e.g., infrastructure for collection, transport, disposal) and “software” (e.g., awareness-raising campaigns and training and management systems) for addressing waste management.

165. Action at the local level is key. Neither multilateral environmental agreements nor national action plans can be effectively implemented without the active and solid support of local authorities and other local stakeholders. For example, UNEP, jointly with partners, developed the 10 keys for local and national action on municipal wastewater, yet the problems and concerns facing these local actors are not always among the highest-ranking priorities at national and international levels, and financial and human resources are lacking.

166. The public sector, particularly in developing countries and countries with economies in transition, is generally not sufficiently financed or equipped to put in place the required infrastructure; in many developing countries, even basic infrastructure such as roads in urban areas is lacking. Adequate policies require development, implementation and enforcement to ensure that efficient and effective waste management systems are in place.

167. Partly as a result of this, the private sector perceives this market as not being sufficiently profitable, due to low returns on initial investment, low profits during the operational phases, and the lack of basic infrastructure such as the roads required to make municipal waste management practical and profitable. The informal private sector, usually at the local community level, facing the problems associated with waste, strives to benefit from wastes by turning it into income-generating opportunities, but with the associated health risks and unacceptable labour conditions.

## **B. Key challenges and responses**

168. To achieve the overall objective of better protecting human health and the environment from municipal and industrial waste in developing countries and countries with economies in transition, and creating income generation opportunities through better waste management, the following challenges need to be addressed:

- (a) Political: lack of a sense of urgency and awareness at all levels regarding the requirement for better waste management;
- (b) Legal: lack of adequate laws and regulations for implementing multilateral waste-related agreements and provisions at the national level as well as sound national laws on waste management in general;
- (c) Technical: proper waste management technologies and waste reduction strategies exist, but they do not always respond to local needs and characteristics. Moreover there is a lack of clear agreement on what constitutes recyclable materials and hazardous exports;
- (d) Infrastructure: adequate infrastructure (basic infrastructure such as roads, and waste management infrastructure for collection, disposal and treatment) needs to be put in place;
- (e) Management: how to operate and maintain waste management infrastructure, how to monitor and report progress;
- (f) Social: imported high-tech waste solutions can come at the expense of local employment; equity issues; poor labour conditions in informal collection and recycling systems);
- (g) Economic: how to generate financial resources (e.g., through taxes, fees, subsidies) for investments in infrastructure and for operational phases of waste management;
- (h) Organizational: who organizes the work; who takes the lead in bringing the various stakeholders of integrated waste management projects together.

169. A coherent integrated waste management strategy engages individuals. Individual consumers, managers and workers and government officials need to take action. This requires that they be informed, encouraged and enabled to carry out activities consistent with the needs of different stakeholders. This calls for good data and information, effective incentives (legislative, financial) and good infrastructure.

170. Mobilizing financial resources to invest in waste management infrastructure and finding innovative means of covering the recurring costs of waste collection and management are critical

elements in this effort. New forms of public-private partnership will be part of the answer, as will innovative financing schemes (e.g., concessional loans, revolving funds). Multilateral development banks may provide grants or loans to leverage additional financing from private banks or waste management companies. With regard to the recurring costs of waste collection and management, Governments will also have to provide basic regulatory frameworks that create disincentives, including financial ones, for those who do not dispose of waste in an environmentally sound manner. This will effectively reduce but may not entirely cover recurring costs. Consultation with the private sector during the design of these regulatory frameworks can ensure that they create the right combination of economic and legal signals to attract investment and create profitable waste management opportunities.

### C. Different challenges for different types of waste

171. There are a number of waste categories, which can be classified according to various criteria, including<sup>24</sup>

- (a) Waste from households and businesses, including retail business, and municipal solid and liquid wastes and e-wastes that are typically handled by municipal waste management systems;
- (b) Industrial waste, for example resulting from manufacturing and servicing operations;
- (c) Agricultural waste, including chemical wastes (pesticides, fertilizers), crop residues and manure (liquid and solid wastes);
- (d) Construction waste from demolition activities or renovation of built structures;
- (e) Mining wastes;
- (e) Munitions, including chemical weapons and ammunition associated with military activities;
- (f) Nuclear waste related to energy production, military applications, laboratory and medical uses;
- (g) Medical waste from hospitals, medical offices and clinics.

172. Different waste management strategies are required for household and industrial activities by virtue of the nature, point of generation and dumping or disposal of these wastes. Household waste is less toxic, more homogenous, bulkier and of lower value for recycling or reuse compared with many industrial wastes. Household waste is also generated at a lower rate, in broadly dispersed sites entailing higher collection and transport costs. The economic, technical and organizational challenges of dealing with these waste streams are therefore very different, as are the political and social factors that determine the feasibility of solutions.

173. For household waste, in principle the objective is reduction of the consequences of overall increasing quantities of waste. Apart from integrating waste prevention in cleaner production (design for environment), other business (including retail) and consumer programmes (including producer responsibility schemes and consumer information tools such as the German “green dot”), adequate collection, recycling and reuse systems need to be promoted and implemented. Under certain conditions, there is also the potential to create employment and markets from recovered household waste streams. Product design as well as promotion of repair facilities can achieve product life extension.

174. Moreover, addressing the short-term risks for health and environment of conventional open dumps requires the construction of well-managed landfills. Current risks require reduction by closing the most dangerous dumps (“hot spots”), while at the same time establishing new landfills. This must be planned and implemented in close co operation with local communities in order to safeguard and stimulate local employment and its associated social benefits. In addition, incineration of non-hazardous waste as a waste management option is attractive when coupled with energy recovery (particularly if it offsets the use of fossil fuels), but that has its own – possibly serious – environmental implications if poorly implemented. Turning waste into valuable resources (promoting reuse, recycling, and energy production through landfill gas, a mixture of methane and carbon dioxide) will stimulate economic

<sup>24</sup> In most of the categories, there are waste types that affect different media (air, water, soil). At this stage, the strategy focuses on household and industrial waste and wastewater. Specific waste streams – and the various existing programmes to address them – such as agricultural waste, nuclear waste, e-waste, space waste and litter, are not addressed in this note.

growth and create safe employment opportunities for local communities. Such actions would need to achieve these goals while at the same time protecting the local and global environment, notably the goals of the Kyoto Protocol.

175. The concentration and intrinsically higher value of many industrial waste streams implies that reuse and recycling can generate substantial economic returns. Given that, the potential for developing circular economies based on industrial waste streams is higher, and private investment can be more readily attracted to such innovation, which can increase resource efficiency, reduce costs and enhance competitiveness. Cleaner production and “design for environment” are also key strategies. Creating circular economies that facilitate resource flows between small and medium-sized enterprises and various sectors in the affected neighbourhoods and sectors associated with the resource base is a particularly attractive strategy. This approach will simultaneously reduce the environmental and health hazards faced by poor communities, while creating employment and income generation opportunities. This will also contribute to the implementation of certain multilateral environmental agreements (including those related to persistent organic pollutants, certain banned and severely restricted chemicals, and ozone depleting substances) which promote the environmentally sound management of waste through an integrated life-cycle approach.<sup>25</sup>

176. Any strategy on industrial waste should address industrial hot spots, where waste generation is creating acute or rapidly growing environmental hazards. These may be linked to a single industry sector or to a range of industries concentrated at one site. Hot spots may also present a challenge to the implementation of specific multilateral environmental agreements, e.g., dismantling ships or computer waste – issues on which the Basel Convention Secretariat and Conference of the Parties have recently focused. The failure to deal with hot spots to date and the particular technical skills, partnerships and financial and technological resources needed to do so must be assessed.

177. A need for effective regulatory frameworks to deal with industrial wastes is often a critical factor, given that the costs of treating large volumes of waste or particularly toxic waste create strong incentives for dumping or other forms of environmentally hazardous disposal. Effectiveness implies enforcement of legislation, as well as its creation, raising governance issues. This is particularly true in the hazardous waste sector, where enormous profits can be made through illegal disposal. The increasing attention to recycling must be welcomed, but must be accompanied by proper action to prevent it from becoming another opportunity for illegal trade in hazardous substances. Experience from implementation of the Basel Convention provides strong pointers to key challenges and appropriate policy and enforcement responses.

#### **D. Major actors in waste management**

178. There is no dearth of organizations working on waste management issues at the international, national and local levels. The United Nations Industrial Development Organization (UNIDO), UNDP, the United Nations Conference on Trade and Development, the World Bank, FAO and WHO have significant waste programmes. UN-Habitat has included waste management as an issue in its Sustainable Cities programme. Bilateral programmes of many development agencies and development banks include many successful projects on this issue. UNEP itself is engaged in many waste management activities. The activities span information and awareness, strategy development, capacity building, coordination and implementation. Important players within UNEP include (but are not limited to) the Division of Technology, Industry and Economics (on waste management, in particular its IETC centre, based in Japan, on waste prevention, in particular its Sustainable Consumption and Production programme, based in Paris), the Division of Environmental Policy Implementation, the Division of Early Warning and Assessment, the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, regional seas programme, the regional offices (e.g., the Regional Office for Africa and the Nairobi River Basin Project). Many UNEP waste management activities directly or indirectly support the objectives of multilateral environmental agreements, and some are financed through multilateral financial mechanisms.

---

<sup>25</sup> Environmentally sound management of these wastes through an “integrated life-cycle approach” involves strong controls from the generation of a waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal. This includes prevention, minimization, recycling, recovery and disposal of waste, promotion and use of cleaner technologies, reduction in the production and release of waste, reduction of the transboundary movements of waste, prevention and monitoring of illegal waste traffic, improvement of institutional and technical waste management capacity, transfer of environmentally sound technologies, and creation of action-oriented awareness and understanding on the part of decision makers and the public.

## 1. Multilateral environmental agreements

179. The four multilateral environmental agreements pertaining to chemicals and hazardous waste (Basel Convention, Montreal Protocol, Rotterdam Convention, Stockholm Convention) all address waste management issues. Multilateral environmental agreements in at least one other area, atmosphere, which include the Montreal and Kyoto Protocols, also deal with chemicals and waste management issues, and there are several regional agreements that deal with waste management.<sup>27</sup> The secretariats and (as applicable) implementing agencies of these agreements have considerable capacity and experience in waste management within their mandates. At least one (Basel Convention) has an innovative voluntary waste management initiative with industry, known as the Mobile Phone Partnership Initiative. Demonstration projects, feasibility studies, and information assistance on the destruction of some wastes within the purview of these agreements (e.g., persistent organic pollutants, ozone-depleting substances and global warming gases) are underway. It should be noted that the above-mentioned agreements have been given different mandates by their Parties, and are therefore not harmonized on their priorities, waste definitions, waste management strategies and goals, and in some cases may act in opposition to one another.

## 2. Multilateral and bilateral financial mechanisms

180. Financial mechanisms that provide financial, technical and capacity-building resources for specific waste-related issues include GEF and the Multilateral Fund for the Implementation of the Montreal Protocol. As an implementing agency of both GEF and the Multilateral Fund, UNEP is currently working in partnership with other implementing agencies (UNDP, UNIDO, the World Bank) on chemical and waste management issues. A noteworthy multi-agency initiative funded under GEF is the Africa Stockpiles Programme, the objective of which is to eliminate all obsolete pesticide stocks from Africa and put in place measures to prevent their recurrence.<sup>28</sup> The Regional Solid Waste Management Project in Mashreq and Maghreb Countries, financed by the European Commission and executed by the World Bank, is a successful example of regional action. The Kyoto Protocol's Clean Development Mechanism is another mechanism that could support climate-related waste issues (indeed, destruction of HFCs is already being considered). The Multilateral Fund provides significant financial support for national projects related to the proper management of ozone-depleting chemicals (although it has not financed destruction). Bilateral support from individual Governments, alone or in cooperation with UNEP and other international organizations, also finances waste management projects.

## 3. International associations and multinational corporations

181. Industry associations (or public-private partnerships such as the International Solid Waste Association), companies and non-governmental organizations that operate at the international and/or regional levels are important partners for UNEP. International waste management companies combine business expertise with access to private finance and new technologies, and can contribute to the solution of waste management problems beyond the resources of some Governments. Attracting investment from such companies, however, requires some guarantees that it will be secure, and that others will bear part of the risk. UNEP plays a valuable role in bringing together these private enterprises with public sector financial institutions and Governments to create the conditions that make significant private investment in waste management in developing countries and countries with economies in transition an attractive proposition.

## 4. National and local governments, industry associations, non-governmental organizations and companies

182. Household and industrial waste is a serious international issue, but is primarily a local and regional concern. Accordingly, the major expertise and capacity in waste management resides in entities operating at the national and sub-national levels. There are many innovative and successful schemes undertaken by Governments (e.g., Australia's "no waste" initiative), public-private partnerships, industry associations and non-governmental organizations that could be replicated.

<sup>27</sup> Notably the Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa and the Waigani Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region. Several regional seas conventions also have annexes or protocols governing land-based pollution of regional seas.

<sup>28</sup> See, for example, the Africa Stockpiles Programme ([www.africastockpiles.org](http://www.africastockpiles.org)).

## E. UNEP waste management activities

183. Waste management has been among UNEP core activities for a long time, and a number of successful partnerships have been conducted in this area, such as that between the Global Programme of Action and WSSCC, the UNEP Division of Policy Development and Law and the Global Programme of Action Cities Alliance, addressing water, sanitation and urban development, the regional waste management strategy, and the solid waste management activities of CityNet (the Regional Network of Local Authorities for the Management of Human Settlements).

184. With regard to waste prevention and promotion of the life cycle economy approach, DTIE has led partnerships with Governments, the private sector, civil society and the research community on promoting sustainable consumption and production patterns, promoting the use of energy systems that have reduced environmental impact, environmentally sound management of chemicals, protecting the ozone layer, encouraging environmentally sound technology transfer, and integrating environmental objectives into economic and trade policy. Linkages with the financial sector exist through the Finance Initiative, which brings together in a voluntary partnership approach the world's leading banks and insurance companies. Through IETC, based in Japan, UNEP supports the Japanese Government's "3R" (reduce, reuse, recycle) initiative, which will be launched in a ministerial conference scheduled for 28 to 30 April 2005. The initiative will promote a shift towards a closed loop economy, and will include waste prevention initiatives addressing consumption and production patterns through legal, economic and voluntary instruments, including cooperation with developing countries. (Further information on the 3R concept may be found in document UNEP/GC.23/INF/11.) A programme of outreach to cities is being developed as well, including a partnership with Kawasaki city aiming for zero-waste industrial development. A demonstration project on circular economy in China (Guiyang) is being conducted with support from the European Union.

185. Delivery mechanisms through the UNEP regional offices (in Africa, Europe, Latin America and the Asia Pacific region) include regionalized multilateral environmental agreement-support teams (e.g., the Compliance Assistance Programme) and also the regional seas programmes. Basel Convention regional centres are also vehicles for regional delivery.<sup>29</sup> National delivery mechanisms include UNEP national offices (China, Brazil), Global Programme of Action national programmes of action, and the UNEP/UNIDO national cleaner production centres.<sup>30</sup> Various partnerships with business associations and consumer and youth groups in different regions and countries are being used as well.<sup>31</sup>

186. Based upon the analysis above and building on its existing programmes and networks, UNEP is undertaking activities on the problems and opportunities related to household and industrial waste, with the following objectives: first, to reduce volumes and toxicity of, and exposure to, household and industrial waste; and, second, to promote closed loop economies by promoting reduce, reuse, recycle and repair activities as well as energy generation from landfills ("waste to energy").

187. The main categories of activities to achieve these objectives are, first, identifying and implementing local and sector-specific demonstration projects, working with the best available experts and technologies (including technologies based on indigenous or traditional knowledge), involving the private sector, national and local governments and local communities, and resulting in tangible reductions of waste, reductions of toxicity of waste and reductions of human and environmental exposure to waste, and creation of employment, in particular in repair services; and, second, disseminating the results, lessons learned and policy recommendations to secretariats of multilateral environmental agreements, Governments and other stakeholders involved in global policy decision-making processes. The UNEP Governing Council and its deliberations on the programme on sustainable consumption and production<sup>32</sup> represent one such process, the result of which will facilitate a major policy review, scheduled by the Commission on Sustainable Development for 2010–2011.

<sup>29</sup> As of June 2004, there were 13 Basel Convention regional centres.

<sup>30</sup> As of June 2004, there were national cleaner production centres in 24 countries.

<sup>31</sup> Examples of DTIE activities can be found at [www.uneptie.org](http://www.uneptie.org), including the life cycle initiative, cleaner production, sustainable consumption, industry association outreach, the OzonAction programme, energy, chemicals, economics and trade. Reference works on waste management produced by DTIE (IETC) include Principles of Municipal Solid Waste Management - Proceedings of a Seminar [RS 2] March, 1998, International Source Book on Environmentally Sound Technologies for Municipal Solid Waste Management [TP 6], November, 1996, Urban Waste Management Strategy, August, 2003, and Waste Management in Agenda 21, December, 2003.

<sup>32</sup> Marrakech process, or ten-year framework on promoting sustainable consumption and production patterns, led jointly by UNEP and the United Nations Department of Economic and Social Affairs The Commission on

188. Suitable demonstration projects must apply well-established and innovative waste prevention, recycling and disposal techniques; find investment and meet additional costs, including from the private sector, aid agencies and environmental taxes (e.g., replacing labour taxes); and feature the design and implementation of “packages” of integrated policy tools, including ones which help create circular economies and promote establishment of meaningful and safe jobs for local communities.

189. The table contained in document UNEP/GC.23/INF/11 highlights examples of potential projects that UNEP is seeking to carry out with good linkages and cooperation with all relevant partners (which are tentatively listed in the table). Projects are proposed for providing practical responses to “hot spots” (household waste dumps, safe disposal, creation of jobs, specific industrial waste streams); demonstrating “waste to energy” solutions for landfills and incineration; setting up waste management infrastructure facilities (hardware and software) in selected pilot regions with investment, management and operational support (waste collection, recycling, landfills, incineration systems); testing specific waste management tools, policy instruments and systems (3 R or 4 R initiatives, developing local markets for waste, initiating packaging industry partnership, piloting business and government training on waste management and prevention, exchange of good practices in legislation and enforcement); demonstrating closed loop economy concepts for communities, industry sectors, industrial parks, and as support for multilateral environmental agreements; and disseminating results and lessons learned to global policy makers.

## V. Coral reefs

190. The present chapter provides a progress report on the implementation of Governing Council decision 22/2 IV on coral reefs. It reflects the response of UNEP to this decision, which is being led and coordinated by the UNEP Coral Reef Unit. UNEP, and the UNEP-facilitated regional seas conventions and action plans, have continued to facilitate and implement activities to support the International Coral Reef Initiative (ICRI) and the International Coral Reef Action Network (ICRAN), to realize the coral reef-related commitments, goals and targets originating from the Johannesburg Plan of Implementation, and to promote the conservation and sustainable use of coral reefs in the international arena.

191. The Coral Reef Unit was established in 2000 as the focal point for coral reefs within UNEP and the United Nations system. In May 2003, the unit was relocated to the UNEP World Conservation Monitoring Centre in Cambridge. This move enabled it to join forces with co-located coral reef units and programmes such as the ICRAN Coordinating Unit, the ICRI secretariat and the World Conservation Monitoring Centre Marine and Coastal Programme. A brochure has been produced to explain the roles and synergies of these four units and programmes, which together constitute a centre of excellence for coral reefs.

192. In August 2003, UNEP transferred to the Coral Reef Unit the responsibility for the administration of the annual counterpart contributions which the Government of the United States of America kindly provides to support UNEP work on coral reefs and ICRI. In accordance with the wishes expressed by the United States Government, monies have been allocated to regional trust funds for the Caribbean, East Africa and Southeast Asia. Furthermore, memorandums of understanding have been prepared between UNEP and government agencies regarding the disbursement of funds in support of the Global Coral Reef Monitoring Network (GCRMN), the Reef Check programme and the ICRI secretariat.

193. Since January 2004, the Coral Reef Unit has operated under the Division of Environmental Policy Implementation and has provided UNEP programme support and policy analysis on the conservation, management and sustainable use of coral reef resources. With a number of reports, information posters and presentations, the unit has promoted the diverse portfolio of coral reef work supported by UNEP dealing with issues ranging from the importance of coral reefs for small island developing states, the impact of African dust on Caribbean corals and the aquarium trade in corals and reef organisms to the need for environmental guidelines for dredging operations in coral reef areas.

### A. Support to ICRI

194. In order to enhance the development and impact of ICRI, UNEP assisted in the transfer of the ICRI secretariat functions from the co-host partners Sweden and the Philippines to the new joint host

---

Sustainable Development will review sustainable consumption and production policies and waste management policies in 2010 and 2011.

Governments, the United Kingdom of Great Britain and Northern Ireland and the Seychelles, which took place in July 2003. Furthermore, UNEP contributed to the development of new organizational and management procedures for ICRI, which were adopted in November 2003. The Coral Reef Unit will continue to help ICRI and ICRI members implement these procedures and to keep them under review.

195. The Coral Reef Unit cooperates closely with the ICRI secretariat by, among other things, providing organizational support for secretariat management meetings and general meetings of ICRI (e.g., Turks and Caicos Islands, November 2003; Okinawa, Japan, July 2004) and advising on new or emerging international efforts to reverse the degradation of coral reefs.

196. UNEP and UNEP-facilitated programmes have provided regular contributions and information to ICRI general meetings on work related to coral reefs. The Coral Reef Unit furthered the subject of cold-water coral reefs, raised the issue of dredging in coral reef regions and informed ICRI about the administration of United States counterpart contributions. The unit is also developing relationships and potential collaboration with coral reef stakeholders from private and industrial sectors such as the dredging industry. The unit has also initiated a collaborative project with the International Association for Dredging Companies (IADC) and the Central Dredging Association (CEDA) to provide guidance on reducing the environmental impact of dredging operations in areas with corals. This project was welcomed by industry partners and ICRI, and was promoted at the seventeenth World Dredging Congress, held in Hamburg, Germany, in September 2004.

197. Following an international call for action on cold-water coral reefs backed by the United Nations, UNEP established a collaborative initiative with Ireland, Norway, the United Kingdom and WWF. Under the leadership of the Coral Reef Unit, a report was commissioned to provide a comprehensive and up-to-date baseline on cold-water coral reefs from around the world. The report, "Cold-water corals: out of sight – no longer out of mind", was launched by UNEP in June 2004 at the World Environment Day celebrations in Barcelona, Spain, and was subsequently released on 28 June 2004 at the International Coral Reef Symposium in Okinawa. The report aims to provide policy makers with the information required to take concerted action in the conservation, protection and sustainable management of these largely unexplored and fragile coral reefs. The report also supported UNEP efforts to have cold-water coral reefs included in the programme of work under ICRI, thereby widening the organization's remit and potential membership base in a way that would not divert attention or resources from actions to reverse the degradation of warm-water coral reefs. Following initial discussion at the ICRI general meeting in November 2003, ICRI decided at its subsequent meeting in Okinawa in July 2004 to include cold-water coral reefs within its remit. Also at this meeting, Norway, as the first cold-water coral reef range State, became a member of ICRI. Together with UNEP and other ICRI members, Norway will prepare a draft programme of work on cold-water coral reefs for adoption at the ICRI general meeting in April 2005.

## **B. Support to the International Coral Reef Action Network (ICRAN)**

198. UNEP continued to support the ICRAN partnership and operations, which were presented and promoted at a number of international events including the second International Tropical Marine Ecosystems Management Symposium in Manila, Philippines (March 2003), the Annual meeting of the Society for Conservation Biology in Duluth, United States (July 2003), the World Parks Congress in Durban, South Africa (September 2003), the Global Conference on Oceans, Coasts and Islands, Paris, France (November 2003), meetings of Reef Conservation UK (December 2003, November 2004), the seventh meeting of the Conference of the Parties to the Convention on Biological Diversity, Kuala Lumpur, Malaysia (February 2004), and the White Water to Blue Water meeting in Miami, United States (March 2004). In this context, the Coral Reef Unit and the UNEP regional seas programme supported the publication of the proceedings of an ICRAN workshop on marine protected areas held at the second International Tropical Marine Ecosystems Management Symposium and the revision and translation of the ICRAN poster series, which are now available in English, French, Spanish and Japanese.

199. During its action phase, ICRAN has made further progress, and the last two years has seen a long list of outputs from the various partners and activities.<sup>33</sup>

200. In the context of the H2O initiative, the Coral Reef Unit worked closely with the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, ICRAN and Television for the Environment's Earth Report in the production of two thirty-minute

<sup>33</sup> See [www.icran.org](http://www.icran.org) for details on these and other ICRAN activities.

documentaries to raise the awareness of the impacts of land-based sources of pollution on our seas and marine ecosystems, especially coral reefs. The coral reef footage for these documentaries was filmed at ICRAN demonstration sites in Viet Nam and Fiji. The documentaries were screened in July 2004 on the BBC World Service, and were subsequently distributed by UNEP to national Governments.

201. In February 2004, the ICRAN Mesoamerican Reef Alliance project was signed in Belize City. Deputy Prime Minister of Belize, Mr. John Briceno, and Mr. Russell F. Freeman, United States Ambassador to Belize, welcomed international and national guests to the ceremony. It was attended by Mr. Glenn Anders, Guatemala – Central American Programmes Mission Director for the United States Agency for International Development (USAID); Mr. David Carter, United Nations Foundation Vice-President and Chief Financial Officer; Mr. Juan Mario Dary, Minister for the Environment of Guatemala and President -pro tempore of the Central American Commission for Environment and Development; Mr. Nelson Andrade, UNEP Caribbean Environment Programme Coordinator; and Mr. Kristian Teleki, ICRAN Managing Director. The activities under this alliance form a key part of ICRAN coral reef work in the Caribbean and will be coordinated by the UNEP regional coordinating unit in Jamaica. As with other ICRAN projects, United Nations Foundation funds for the project will be administered by UNEP. A major feature of this project is the establishment and strengthening of alliances with the private sector, including the agro-industry, fishing and tourism sectors.

202. In preparation for the expansion of ICRAN into additional coral reef areas as announced at the Johannesburg Summit, UNEP supported an assessment of the needs, priorities and opportunities for coral reef work to be carried out in the Red Sea and Gulf of Aden (under the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) in this region) and the sea area within the ambit of the Regional Organization for the Protection of the Marine Environment (ROPME) and the Kuwait Regional Convention on Cooperation for Protection of the Marine Environment. Additional work has been undertaken to support activities related to the conservation, management and sustainable use of coral reefs and related resources in South Asia, in collaboration with the South Asia Cooperative Environment Programme and other partners in the region. Furthermore, in June 2003 the Marine Aquarium Council and the Nature Conservancy became partners in ICRAN. The addition of the Marine Aquarium Council represents a first step towards a greater participation of industry in the partnership.

203. The report “Reefs at risk: Caribbean” was a major output published in September 2004 by the World Resources Institute (WRI) with additional support from ICRAN, the UNEP regional coordinating unit for the Caribbean and USAID. This detailed analysis describes the threats to Caribbean coral reefs, and is an important information source for stake holders, scientists, managers and decisions makers alike. This report was launched at the third meeting of the Contracting Parties to the Protocol Concerning Specially Protected Areas and Wildlife in the Wider Caribbean Region, the eleventh intergovernmental meeting on the Action Plan for the Caribbean Environment Programme and the eighth meeting of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, held in September 2004, in Montego Bay, Jamaica.

204. UNEP provided additional support for ICRAN in 2003 and 2004 by providing strategic and programmatic advice to the partnership via UNEP participation and representation at ICRAN board and steering committee meetings. In November 2003, the UNEP Evaluation and Oversight Unit finalized a mid-term evaluation for the ICRAN action phase (June 2001–May 2005). The outcome of this evaluation was discussed with ICRAN partners at the joint ICRAN board and steering committee meeting in Washington DC in January 2004. Subsequently, UNEP prepared a proposal containing suggestions to further strengthen ICRAN, increase its impact in the regions and prepare it for the challenges ahead. With help of the ICRI co-host countries, a new ICRAN framework document was adopted in October 2004. This framework document emphasizes a regional focus by ICRAN, by, among other things, promoting the establishment of regional coral reef partnerships. These regional partnerships will provide a forum for Governments and other coral reef stakeholders to work together on determining the needs and priorities of coral reef work in the region. The necessary actions to implement the programme of work will be carried out in close association and cooperation with ICRAN partners, ICRI and its operational networks and the relevant regional seas conventions and action plans to avoid duplication, strengthen national and regional capacities and make best use of existing resources and infrastructure.

205. The United Nations Foundation funding arrangements for ICRAN were completed in December 2004. With the support of UNEP and other ICRAN partners, ICRAN was able to use all the \$5 million that the Foundation had provided as matching funds. The projects initiated in this context include the €5

million Coral Reef Initiative of the South Pacific (CRISP), co-funded by the Agence Française de Développement (AFD), the French Global Environment Facility (FFEM) and other partners, including the United Nations Foundation, as part of their commitment to ICRAN. These and other ICRAN projects represent a major step forward towards combating the global degradation of coral reefs and working with communities to improve livelihoods in a manner that is consistent with the viability of the coral reefs themselves.

### **C. Realization of the Johannesburg Plan of Implementation with respect to coral reefs**

206. The Johannesburg Summit broadened the understanding of sustainable development, particularly the important linkages between poverty, the environment and the use of natural resources. The Johannesburg Plan of Implementation includes a number of references to coral reefs and associated ecosystems, and several of the agreed goals and targets are directly relevant to coral reefs (compare the UNEP/WWF brochure “Conventions and Coral Reefs”).

207. All the work carried out or facilitated by UNEP in the context of implementing Governing Council decision 22/2 IV, including UNEP support for ICRI and ICRAN and UNEP collaboration with multilateral environmental agreements and United Nations agencies, is guided by the commitments made at the Johannesburg Summit. Working with partners, UNEP undertakes its coral reef activities with the aim of contributing to the implementation of the international and national processes within and outside the United Nations system.

208. A particular focus in UNEP present and future coral reef activities aimed at realizing the Johannesburg Plan of Implementation is increased cooperation with the Convention on Biological Diversity. At its seventh meeting the Conference of Parties to the Convention adopted several decisions and work programmes, including those on marine and coastal biodiversity (decision VII/5), protected areas (decision VII/28), cooperation with other conventions and international organizations and initiatives (decision VII/26) and the strategic plan: future evaluation of progress (decision VII/30). Together, these form a framework which defines the Johannesburg Summit outcomes, initiates action and is suitable for evaluating progress in implementing and achieving the agreed targets and goals, such as “to achieve by 2010 a significant reduction in the current rate of loss of biological diversity” or “the establishment of marine protected areas ..., including representative networks by 2012”. UNEP coral reef work, and UNEP collaboration with partners, is ideally suited to facilitating and supporting these decisions at the global, regional, national and local levels.

### **D. Collaborative efforts in coral-related activities with multilateral environmental agreements**

209. UNEP work on coral reefs is closely linked with that carried out under the United Nations Framework Convention on Climate Change and under the global intergovernmental biodiversity conventions indicated in paragraph 6 of Governing Council decision 21/12 and reiterated in decision 22/2 IV. In June 2003, UNEP and WWF published a brochure entitled “Conventions and Coral Reefs”, which sets out the mandates of 14 multilateral environmental agreements relevant to the protection and conservation of coral reefs. The Coral Reef Unit has since carried out a comprehensive review of the coral-reef-related policies and measures adopted under these decisions and under the auspices of other intergovernmental organizations to identify synergies and collaboration opportunities.

210. So far, most UNEP collaboration with these conventions has been carried out via targeted support of projects and programmatic work within the framework of ICRI and its operational networks such as ICRAN and the Global Coral Reef Monitoring Network (GCRMN). Using these channels, UNEP ensures that the results of ICRAN and GCRMN work is being communicated to the relevant multilateral environmental agreements and their bodies. As part of these activities, UNEP provided input to the development of the marine and coastal work programme and related targets under the Convention on Biological Diversity and in the discussions on trade in corals held under the auspices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and supported the reprint of a two-volume report on poverty and reefs published by IOC of UNESCO.

211. In addition to programmatic collaboration at the global level, UNEP will continue to implement the requirement set out in paragraph 6 of decision 21/12 and reiterated in decision 22/2 IV by promoting the engagement of relevant multilateral environmental agreements in regional coral reef partnerships and by supporting site-specific, synergistic projects which are suitable to implementing the

requirements and commitments made by Governments under these agreements at the regional, national and local levels.

**E. Collaboration with United Nations agencies to address the economic, social and environmental urgency of achieving sustainability in the management and use of coral reefs**

212. The need to achieve sustainability in the management and use of coral reefs is at the core of UNEP coral reef work, and guides as an overarching objective UNEP support to ICRI, ICRAN and GCRMN and UNEP collaboration with other organizations, including the United Nations agencies set out in paragraph 7 of decision 21/12 and reiterated in decision 22/2 IV.

213. The importance of coral reefs for the marine environment and biodiversity is intrinsically linked with the livelihood of billions of people who rely on reefs and associated ecosystems for shelter, food and income. The UNEP “reefs for people” approach calls for an increased focus on reef management actions to safeguard the biological and biodiversity functions of reefs, which provide goods and services for the benefit of people and contributes to the sustainable development of communities who depend on them. Monitoring programmes, such as those under GCRMN, increasingly include the compilation and assessment of data on social and economic indicators and parameters related to the use of coral reefs and the goods and services they provide. UNEP will continue to support projects which address both the environmental and social and economic functions of coral reefs, and will encourage the dissemination of their results to Governments and intergovernmental organizations, including FAO, the World Trade Organization, UNDP and UNESCO.

214. UNEP will continue to implement the requirement set out in paragraph 7 of decision 21/12 and reiterated in decision 22/2 IV by strengthening existing or developing new inter-agency processes between UNEP and other United Nations agencies with a view to exploring opportunities for collaboration and joint work. In addition, UNEP will support the active engagement of the regional networks and representatives of United Nations agencies such as FAO and UNDP in the regional coral reef partnerships.

**F. Engagement of international financing institutions**

215. UNEP has pursued the engagement of international financial institutions with a view to creating a diverse and sustainable framework for the funding of coral reef work at the global, regional and national levels.

216. In the light of the completion of the United Nations Foundation funding arrangements for ICRAN at the end of 2004, UNEP, via the Coral Reef Unit, initiated projects to attract funds from GEF and the European Community for coral reef work to be carried out under the ICRAN umbrella in East Africa and South Asia. Further proposals to these and other international financing institutions are planned.