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Item 4 (a) of the provisional agenda\*

**Policy issues: state of the environment**

**Implementation of the water policy and strategy of the United  
Nations Environment Programme**

**Report by the Executive Director**

*Summary*

The present report is being submitted to the Governing Council/Global Ministerial Environment Forum at its twenty-fifth session for its consideration, pursuant to paragraph 2 (e) of decision 24/16 of 9 February 2007. The report covers the period 2007–2008.

\* UNEP/GC.25/1.

## **Implementation of the water policy and strategy of the United Nations Environment Programme**

### **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:

*The Governing Council,*

*Recalling* decision 24/16 (Updated water policy and strategy of the United Nations Environment Programme), section A (Freshwater) of 9 February 2007,

*Recalling also* the United Nations Environment Programme medium-term strategy for 2010–2013, as welcomed by decision SS.X/3 (Medium-term strategy for the period 2010–2013) of 22 February 2008,

*Takes note* of the report of the Executive Director on the implementation of the water policy and strategy.

#### **Introduction**

2. The United Nations Environment Programme (UNEP) water policy and strategy ([www.unep.org/freshwater](http://www.unep.org/freshwater)), which was adopted by the UNEP Governing Council/Global Ministerial Environment Forum at its twenty-fourth session on 9 February 2007, provides the framework for UNEP activities on freshwater up to 2012. By paragraph 2 (e), the decision requests the Executive Director to report on the implementation of the water policy and strategy to the Governing Council/Global Ministerial Environment Forum at its twenty-fifth session. In compliance with this decision, the Executive Director presents below a summary of the organization's progress in meeting the objectives of the water policy and strategy over the period 2007–2008.

3. During the reporting period, work has been under way to reconfigure UNEP activities under the water policy and strategy into the six cross-cutting thematic priorities of the UNEP medium-term strategy for 2010–2013.

### **II. Progress made in implementing the water policy and strategy**

4. Progress in implementing the water policy and strategy is presented below in accordance with strategy's components, namely assessment, management and coordination. Document UNEP/GC.25/INF/31 contains a synopsis of the major outputs and results from the implementation of the water policy and strategy within the context of the medium-term strategy.

#### **A. Assessment**

5. The objectives of the integrated assessments conducted within the context of the water policy and strategy are to provide a knowledge base for water resources management; to raise awareness and inform stakeholders of water resource issues; and to assess threats trends and emerging issues. UNEP undertook several assessments to enable planners to apply ecosystem-based approaches for strengthening the environmental component of integrated water resources management, contributing to sound economic and social development, including poverty reduction, and addressing risks in line with the strategy's conceptual principles. The progress made towards meeting those objectives is highlighted below.

##### **1. Knowledge base for water resources management**

6. UNEP undertakes periodic integrated environmental assessment at the local, national, regional and global levels. These reports provide a knowledge base on the basis of which policymakers can take informed decisions. They are compiled using a participatory approach with the involvement of scientists

and policymakers from Global Environment Outlook collaborating centres. Examples of such reports are described in the following paragraphs.

7. At the global level, the fourth report in the *Global Environment Outlook* report series was launched in October 2007. The main messages from the comprehensive water chapter were, first, that climate change and unsustainable human activities have caused water and ecosystem degradation which affect ecosystems services and human well-being, including the sustainability of food supplies and biodiversity; second, that integrated water resources management is key to addressing water scarcity; and, third, that balancing development needs with water and aquatic ecosystems poses a major challenge, requiring a combination of legal, technological and institutional support.

8. At the regional level, the *African Environment Outlook* report and the publication *Africa: Atlas of Our Changing Environment* contain several assessments of the region's water resources, and also of the domestic water and sanitation situation in Africa. Both reports were used to identify hot spots in the region. The report was used to identify critical environmental issues in Africa that require concerted management activities. These include climate-induced ecosystem degradation, resulting in the loss of livelihood. The atlas was used to identify vulnerable geographical areas which needed urgent attention. As a result, UNEP and its partners identified Lake Faguibine as a hot spot and are supporting Mali in its efforts to restore the lake's ecosystems.

9. At the national level, the *Global Environment Outlook* report on water resources in Brazil, *GEO Brazil Water Resources*, prepared as a joint publication with the Brazilian Government, was launched in May 2007. The report presents a broad and up-to-date diagnosis of the state of water resources in Brazil, together with recommendations for improving the use of water policy and governance instruments at the federal, State, municipal and basin levels.

10. At the local level, including that of specific river basins, the *GEO Amazon* report is a collaborative effort by the Amazon Treaty Cooperation Organization, Universidad del Pacífico and UNEP. It is expected to present a comprehensive assessment of the Amazon ecosystem, using the GEO comprehensive integrated environmental assessment methodology and the latest information on the Amazon region. It is expected to provide a platform for the coordination and systematization of the information available, whose analysis and recommendations will contribute to policymaking and decision-making processes in the environmental field in the Amazon region.

11. To support decision-making, UNEP undertook subregional and regional water vulnerability assessments for Central Asia, North-East Asia, South Asia and South-East Asia. The resulting data on water vulnerability were integrated into the environmental knowledge hub and uploaded to a regional data portal for wider public access. In addition, UNEP supported Nepal in developing a comprehensive and integrated action plan for the Bagmati River, which provided tangible information for planning and mobilizing resources.

12. Through the Africa-Asia project on vulnerability assessment of freshwater resources to environmental change UNEP examined integrated impacts of potential environmental changes on water resources and developed the knowledge and understanding necessary for forward-looking cooperation between riparian States on competing water demands. The project has contributed to promoting South-South cooperation in Asia and between Asia and Africa.

13. As the lead United Nations body on the environment, UNEP was requested to coordinate a significant section of the third *World Water Development* report, with a view to reviewing the impacts of human and natural activities on water resources. At the regional level, UNEP is contributing to the development of the second *African Water Development* report.

14. The Global Environment Monitoring System Water Programme has been providing policymakers with information on global water quality trends for decision-making for over 20 years. The monitoring network has grown to over 3,100 stations with over 4 million data points. The data are searchable online at the water quality database GEMStat (<http://www.gemstat.org>). A national monitoring network and laboratory evaluation service has been developed to help national water authorities to obtain accreditation under the International Organization for Standardization. The global water quality indicators and water quality index developed by the programme have been used globally, including in the water component of the 2008 Environmental Performance Index, launched at the World Economic Forum in Davos, Switzerland.

## 2. Raising awareness

15. In 2002, UNEP developed its popular overview of the state of the world's fresh and marine waters, published as "Vital Water Graphics", which has been updated to incorporate new information.

16. UNEP has also contributed to building the capacity of journalists, communicators, teachers and media representatives from environmental ministries, non-governmental organizations and the media in integrated water resources management. Workshops have been held in Mexico and will be extended to other countries in Latin America and the Caribbean. As part of this process, UNEP and the Albatross Foundation produced several television programmes focusing on the environment and water. These programmes were aired monthly on 34 channels in a number of countries, including Bolivia, Colombia, Costa Rica, Dominican Republic, Panama and Peru.

17. UNEP serves as the implementing agency for the Global Environmental Citizenship project with the support of the Latin American Parliament, Consumers International, the Latin American Council of Churches, the Council for Environmental Education of the International Union for the Conservation of Nature, the World Association of Community Radio Broadcasters and its Latin American chapter and the Mexican Association of Municipalities, representing the Latin American and Caribbean Federation of Municipalities. The project has helped to raise public awareness of global environmental issues in Argentina, Chile, Costa Rica, Cuba, Ecuador, Mexico and Peru. Various radio broadcasting programmes for educational purposes in the fields of international waters, biodiversity, climate change and the ozone layer were aired by the Mexican broadcasting station, Pulsar, and the Latin American Association of Radio Education broadcasting stations.

18. UNEP and the Ramsar Convention on Wetlands of International Importance, Especially as Waterfowl Habitat have worked together in raising awareness of wetlands. An awareness-raising documentary film on extractive industries and wise use of wetlands in Africa was launched at the tenth meeting of the Contracting Parties to the Ramsar Convention on Wetlands held from 28 October to 2 November 2008 in Changwon, Republic of Korea. In addition, the two bodies launched a documentary entitled "Petit Loango: Oil and Gorillas?", which examines the risks facing this important Gabonese wetland, a national park where commercial oil exploration is putting the park and its unique biodiversity at risk.

## 3. Assessing threats, trends and emerging issues

19. In 2006, UNEP and the United Nations Educational, Scientific and Cultural Organization (UNESCO) supported 10 African cities (Abidjan, Addis Ababa, Bamako, Cape Town, Cotonou, Dakar, Lusaka, Mombasa, Niamey and Ougadougou) in their efforts to assess the vulnerability of their groundwater resources. The results were presented to the African Ministers' Council on Water at its sixth session, in 2007, which resulted in a call for the establishment of an African groundwater commission. UNEP and UNESCO have been assisting the Council in this effort by organizing workshops and meetings to promote the commission, which is expected to be operational in 2009.

20. The UNEP Sudan post-conflict assessment on freshwater found that, first, sedimentation was a major problem in the Sudan; second, that dams were causing the degradation of habitats, particularly the Blue Nile wetland and the lower Atbara River forest; third, that treatment of sewage and crude oil waste was inadequate; and, fourth, that degradation owing to climate change, among other factors, had caused a 30 per cent drop in rainfall levels in northern Darfur over the past 80 years and was projected to reduce crop yields by up to 70 per cent in the most vulnerable areas. The resulting environmental degradation is considered to be an important contributing factor behind population displacement and local conflict outbreaks in Darfur. In follow-up, UNEP is providing technical advice on sustainable groundwater extraction in camps for internally displaced persons and supporting the reestablishment of the water governance framework at the State level through its integrated water resources management project (<http://postconflict.unep.ch/publications.php?prog=sudan>)

21. Through a memorandum of understanding with the Russian Parliament, UNEP supported the country to assess the current status of the new Russian water code and to recommend legislation to regulate river basin management, in particular the activities of the Volga Basin Council. Furthermore, an assessment of climate change impact on the state of water resources in the Volga river basin made recommendations to authorities and decision makers on necessary amendments to legislation. Through the project on the environment and security in South-Eastern Europe, UNEP supported South-East European countries to build regional capacity to manage shared regional resources and pollution hot spots. As a result, five hot spots requiring follow-up through risk mitigation and technical options for

remediation were identified. Local early warning capacity was improved to reach European Union standards.

22. UNEP and the World Glacier Monitoring Service jointly launched a report (or “mini-atlas”), *Global Glacier Changes: Facts and Figures*, in Geneva at the twenty-ninth session of the Intergovernmental Panel on Climate Change, held on 1 September 2008. The report is based on the global distribution of glaciers and ice caps and focuses on long-term front variation (going back to the late nineteenth century) and mass balance series in the various regions (going back to the mid-twentieth century). It complements other glacier-related products such as the regular fluctuations of glaciers and the glacier mass balance bulletins by the World Glacier Monitoring Service, in addition to the *Global Outlook for Ice and Snow* report by UNEP (2007) and the planned satellite imaging of glaciers by the Global Land Ice Measurements from Space initiative. Furthermore, at World Environment Day 2007 (4 June) in Tromsø, Norway, UNEP launched the Global Outlook for Ice and Snow, in cooperation with the UNEP Global Resource Information Database, located in Arendal, Norway, at the outset of the International Polar Year 2007–2008.

## **B. Management**

23. The management component of the water policy and strategy follows the three integrated water resources management pillars: strengthening the enabling environment; strengthening institutional functions; and improving access to management instruments. Within this framework, results from UNEP activities for management are presented below according to the thematic areas of the water policy and strategy (see appendix 2 to the UNEP water policy and strategy).

### **1. Mainstreaming of environment into development process**

24. UNEP has been supporting Angola, Argentina, Brazil, Cambodia, Chile, Colombia, Côte d’Ivoire, Grenada, Honduras, Indonesia, Kyrgyzstan, Lao People’s Democratic Republic, Lesotho, Liberia, Malaysia, Nicaragua, Paraguay, Peru, Philippines, Tajikistan, Thailand, Uruguay, Uzbekistan, Venezuela (Bolivarian Republic of) and Viet Nam to undertake the process of developing integrated water resources management plans. This begins with supporting countries to develop road maps that outline the main legal and institutional reform activities to be undertaken. Nineteen countries have prepared such road maps. In follow-up, seven West African States (Côte d’Ivoire, Gambia, Guinea, Guinea-Bissau, Liberia, Sierra Leone and Togo) are using these road maps to develop their respective integrated water resources management plans. In Guatemala, the UNEP support provided included training courses in indigenous languages that enabled local communities to participate in the process for developing the plans.

25. To support the international community to monitor the development of the integrated water resources management plans, UNEP undertook a survey on integrated water resources management planning processes. The results provided the basis of the *United Nations-Water Status Report on Integrated Water Resources Management and Water Efficiency Plans* presented to the Commission on Sustainable Development at its sixteenth session, in 2008. The survey methodology developed by UNEP was used to develop indicators for the World Water Assessment Programme.

26. With the adoption of the Johannesburg Plan for Implementation, there has been a flurry of activity to develop integrated water resources management plans. From past experience, more effort is placed on the development than on the implementation of plans and policies. UNEP is therefore concentrating on providing the enabling conditions for implementation of the integrated water resources management plans. In West Asia, UNEP supported national institutions to identify gaps that hinder the implementation of integrated water resources management plans, to identify institutional reforms for enhancing integrated water resources management, and to review the status of implementation of the integrated water resources management. This activity has increased decision makers’ awareness of the importance of implementing the plans paving the way for institutional reforms. UNEP is also promoting implementation of integrated water resources management plans beginning with selected river basins in Africa and Asia.

### **2. Legal instruments**

27. In conjunction with the Ministry of Environment of Spain, UNEP provided technical support to Costa Rica to review a new bill on water resources. UNEP proposed alternative text to tackle new issues such as the right to water, reuse of water, economic instruments relating to wastewater discharges, a

water information system, the role of indigenous knowledge, disaster management and more comprehensive clauses relating to water services.

28. To improve water governance, UNEP developed policy briefs for use by Governments and other stakeholders on various issues of freshwater governance and provided technical support to countries to implement water policy and legislation; to strengthen their capacity for bridging the gaps between transboundary and national frameworks; and to integrate environmental dimensions of integrated water resources management.

### 3. Water resource augmentation (e.g., rainwater and desalinization)

29. With increasing water scarcity caused by, among other things, overabstraction, water quality degradation and climate change, it has become critical to use existing water resources more efficiently. UNEP is supporting countries to adopt gender-sensitive and ecosystem-friendly technologies to augment water resources as part of integrated water resources management. The projects take into consideration the roles and responsibilities of both sexes and strengthen capacity where necessary. For example, the Kajiado project in Kenya began with a comprehensive capacity-building programme for women to enable them to participate in water management, given that they lacked adequate capacity as a result of cultural restrictions. In partnership with several stakeholders, UNEP supported communities to adopt ecosystem-friendly technologies for:

(a) Using rainwater harvesting to augment water resources:

(i) UNEP continued supporting the Kajiado community to promote rainwater harvesting for augmenting water resources and for catalysing poverty reduction. The project consists of capacity-building for women, run-off rainwater harvesting ponds, groundwater recharge, rooftop rainwater harvesting, family woodlots, energy efficient stoves and a microfinance component for sustainability. The project is implemented through common interest groups consisting of 10 members, mostly women, per group who decide on their priorities. The results are as follows:

- The success of the project attracted neighbouring communities and the common interest groups increased from 19 to 50 over a two-year period. Numbers continue to rise. Furthermore, the project is used for training other groups from in and outside Kenya (e.g., United Republic of Tanzania) and has been repeated in these areas
- The project has also attracted additional partners (rotary clubs, the Ryan's Well Foundation, China and individuals, among others) who have begun to support the community to extend the project to other areas
- The microfinance component of the project has been strengthened. Common interest groups are now able to borrow funds from commercial institutions. In September 2008, some 1 million Kenya shillings was circulating in the community without any defaults in payment. Funds are used for income generation purposes (goat rearing, crafts) and for family commitments, particularly illness and meeting educational expenses
- Members do not have to walk long distances to fetch water. The time saved is used for development activities contributing to poverty alleviation
- Families with improved ponds have enlarged their kitchen gardens. In addition to family nutrition, surplus vegetables are sold to neighbouring communities, thus contributing to poverty and hunger reduction
- The number of trees planted in the community increased to 18,000. Tree planting was also extended to communal areas such as schools

(ii) In Antigua and Barbuda, capacity-building in rainwater harvesting using training courses incorporating the roles of both sexes, the development of geographic information system maps for planning purposes and field project to demonstrate the use of rainwater harvesting in commercial and residential areas, and groundwater recharge is continuing. The outputs realized to date are a rainwater harvesting handbook, which is being used by water practitioners in the region,

and the geographic information system maps used for planning by government officials in the country;

- (iii) In Santa Rosa del Peñón, Nicaragua, and El Ingeniero, Chiquimula, Guatemala, a rainwater harvesting capacity-building programme, focusing on rural and indigenous women, was initiated. The components include training on rainwater harvesting techniques and implementing the necessary facilities as an alternative and sustainable supply of water and a potential source of income for these communities to reduce poverty. This is a continuing project and the expected results include improvement in the quality of life for residents of the region by minimizing and avoiding extracting groundwater contaminated by arsenic, in the case of Nicaragua.
- (iv) Treating effluent from domestic wastewater treatment plants for reuse, using artificially constructed wetland in Bocaina, Brazil. The project is continuing and includes capacity-building for local authorities and dissemination of experiences acquired throughout the country;
- (v) Promoting the use of ecosystem-friendly technologies suitable for sensitive areas in Jamaica. The technologies were identified and their application demonstrated in selected areas. The project will generate data required for larger-scale interventions in Jamaica, together with data in other small island States. Lessons learned will be made available to stakeholders.

#### **4. Groundwater**

30. Groundwater management is a major challenge owing to the hidden nature of the resource. For the sustainable use of the water, all stakeholders must cooperate and participate in the management of the resource. UNEP supported stakeholders of the Iullemeden aquifer system in Algeria, Libyan Arab Jamahiriya, Mali, Niger and Tunisia to develop a joint legal and institutional Iullemeden aquifer system cooperative framework and to establish mechanisms for monitoring the transboundary aquifers to reduce the probability of risk and conflict. The project will be extended to North-West Africa.

31. Overexploitation of groundwater is a major challenge globally that needs urgent attention since it can result in the abstraction of water with high arsenic levels, as in the case of several countries such as Bangladesh and Nicaragua. The UNEP assessment of groundwater vulnerability could be extended to include arsenic monitoring.

32. Over the past three decades, there has been increased abstraction to meet the water needs of expanding irrigation in West Asia, particularly in the Arabian Peninsula. UNEP, with its partners, is promoting sustainable use of groundwater in the region. A regional expert dialogue on Wadi hydrology, groundwater protection and water ethics in the Arab region was held to foster cooperation in the management of water in the region. As a result, proposed solutions for sustainable management of groundwater were identified.

#### **5. Climate change**

33. Estimates suggest that climate change will account for some 20 per cent of the increase in global water scarcity. For instance, by 2020, between 75 and 250 million people living in Africa are projected to be exposed to increased water stress. Developing countries will suffer the most because they lack adequate capacity to cope with the change. UNEP has been supporting countries to cope with climate change.

34. In West Asia, UNEP supported Jordan, the Syrian Arab Republic and the United Arab Emirates to raise awareness of the link between climate change, ecosystems and water, and the capacity for optimum use of water through dialogues and workshops.

35. UNEP, in partnership with a non-governmental organization, Internationale Weiterbildung und Entwicklung (Capacity Building International, Germany), initiated a process to strengthen the capacity of river basin organizations to adapt to climate change. An Africa-wide workshop was held in Entebbe, Uganda, in August 2008. This will be followed by seminars to meet regional challenges and needs. The seminar for West Africa will tackle drought. In Southern Africa, the seminar will focus on improving dam operations in the light of climate change.

36. In South-East Asia, the impact of climate change results in increased frequency and magnitude of droughts and floods. Rainwater harvesting has been used to retain water for use during droughts and to detain water during floods. UNEP has supported the Iloilo Water Management Committee in the Philippines to develop gender-sensitive plans, which recognize the role of both sexes, for mainstreaming rainwater harvesting in integrated water resources management, to develop geographic information system maps for planning water management activities in the river basin and to demonstrate the use of rainwater harvesting to tackle floods and droughts. Rainwater harvesting technologies in the form of terraces, ponds and domestic tanks were installed in the Tigum-Aganan river basin, Philippines.

37. Immediately following completion, the catchment area was ravaged by Typhoon Frank, which caused the deaths of 200 people, displaced a million others, damaged ecosystems through landslides and erosion resulting in the river changing its course and destroying domestic and agricultural water sources. As a result of UNEP assistance, people in the project areas were able to cope better because of the rainwater harvesting facilities. In areas with high silt, ponds and terraces trapped silt that would have smothered rice fields downstream, making the land unsuitable for growing rice for the next five years. Farmers, both men and women, in Cabatuan had water in their ponds that was used to raise fish and ducks and for growing vegetables, providing them with a livelihood after the disaster. Furthermore, the rainwater harvesting tanks provided the only reliable drinking water for a significant period after the disaster.

38. In cooperation with local organizations, UNEP is supporting Guatemala, Honduras and Nicaragua to incorporate climate change adaptation consideration into integrated water resources management. The process has brought local communities together by increasing the common understanding of the concepts of integrated water resources management and climate change adaptation. This has also facilitated a dialogue between stakeholders who did not previously have a forum for discussion. A sourcebook with case stories of climate change adaptation and integrated water resources management, and pilot demonstration plans for implementation in the latter half of the biennium 2008–2009 were developed.

## **6. Water demand management and water conservation**

39. Water withdrawals are projected to rise for approximately the next 20 years. Water abstraction is estimated to increase by 50 per cent in developing countries and 18 per cent in developed countries. The major water users are agriculture and industry. UNEP is promoting the efficient use of water in these sectors through demand management and also the application of environmentally sound technologies.

40. In the industrial sector, UNEP is working with businesses and industry to ensure that highly water-dependent industries and companies adopt sustainable water use practices. Water efficiency methods will look at supply chain management, production processes, design of products and services and marketing and pricing influence on consumer behaviour. UNEP, in partnership with the African Round Table on Sustainable Consumption and Production, undertook a sectoral analysis and framework study of breweries in Ethiopia, Ghana, Morocco and Uganda. The results showed that African breweries used 60–200 per cent more than the global average of water consumption per unit volume of beer and highlighted the key areas where improvements could be made. A CD-ROM containing key techniques and guidelines that could be adopted by breweries to improve water efficiency was developed. A follow-up water saving initiative has been developed and will be implemented as a public-private partnership.

## **7. Freshwater coastal-area linkages**

41. Owing to the small land size of islands, water resources from mountain to sea are managed as one unit. There is no distinction between fresh and salt water. UNEP has secured funds from the Global Environment Facility (GEF) to support small island developing States to improve their water management. Through the project on integrating watershed and coastal area management in Caribbean small island developing States, UNEP, in partnership with the Caribbean Environmental Health Institute, is supporting countries to demonstrate innovative approaches for augmenting water resources and water efficiency in the tourism sector. In the Indian Ocean, in conjunction with the Indian Ocean Commission, demonstration projects focus on reducing and strengthening the regional legal basis for preventing land-based sources of pollution and encouraging capacity-building. In Pacific small island developing States, UNEP, in partnership with the South Pacific Applied Geoscience Commission, will support the region to improve water and waste management in a sustainable manner.

42. UNEP has conducted a series of regional workshops for Africa, Asia and the Caribbean. These were attended by senior government officials drawn from ministries and agencies responsible for environment, economic affairs and finance of the respective countries. The workshops facilitated sharing of national-level experiences in integrating coastal and marine environmental issues into national development plans and budgets. The presentations and discussions at the workshop helped the countries to reach a new understanding on mainstreaming approaches and created new incentives to expedite the mainstreaming process. UNEP will provide additional support to countries based on specific proposals in the light of the outcomes of the workshop.

43. A number of case studies have been compiled from a wide diversity of contexts (Africa, Asia, Australia, Central and South America, Europe and Middle East and North America) to highlight the benefits of linked coastal and river basin management and demonstrates why the resolution of linked issues is important. The selected cases include mature cases with a long management history and cases in which the need for linked management is obvious, but first steps in establishing such a link are still to be made. The case studies elucidate factors contributing to success and the major challenges that must be resolved to realize the potential benefits and to tackle the constraints of the management.

## **8. Ecosystem restoration**

44. Water resource management requires the correct functioning of ecosystems. The reverse is also true. Millions of people, particularly in developing countries, depend on ecosystem services for their livelihood. Since 2004, UNEP has been supporting Iraq to undertake the long process of rehabilitating its once famous but now degraded marshlands, using a gender-sensitive approach where the roles of both men and women, including young people, were incorporated into the rehabilitation implementation plans. The project included raising awareness, improving water quality and restoring wetlands, and improving access to water and sanitation facilities using ecosystem sustainable technologies. In conjunction with UNESCO, UNEP will support Iraq to develop and implement a plan for the preservation and sustainable development of the marshlands. This will include having the marshlands designated as a World Heritage site and applying ecosystem-sound technologies in such sites.

45. UNEP is supporting the protection and rehabilitation of Lake Faguibine in Mali and Chicualacuala district in Mozambique as part of water resources management and to reduce poverty. Based on the results of thoroughgoing stakeholder analysis, the needs of both sexes and vulnerable groups are taken into account in the rehabilitation plans and their participation supported. Through UNEP efforts, Afghanistan and the Islamic Republic of Iran are working together on the management of the Sistan basin wetlands. The basin was severely degraded by prolonged drought resulting in a loss of livelihood and significant population migration. (<http://postconflict.unep.ch/publications/sistan.pdf>)

## **9. Transboundary water resources management**

46. The International Commission of the Congo-Oubangi-Sangha River Basin was established in 1999 by Cameroon, Central African Republic, Congo and Democratic Republic of the Congo with the main aim of facilitating cooperation regarding navigational matters that was a key issue for the four countries. With the growing environmental concerns, proposals for, among others, inter-basin transfers, the Commission is now in a transformation process towards being a genuine river basin organization that will include water resources management and extend the membership to other countries. UNEP assisted the Commission to reformulate the intergovernmental agreement between the countries and to develop a road map for the transition process.

47. The UNEP activities in transboundary water resources management take into account the ongoing programmes implemented by the riparian countries and works closely with the river basin organizations to avoid duplication and promote synergies. UNEP has worked with the Nile Basin Initiative in its capacity-building programmes. These include the development of the UNEP programme on capacity-building in water using the South-South cooperation mechanism in May 2008; the initiatives on strengthening the capacity of river and lake basin organizations to adapt to climate change and promoting sound environmental governance in transboundary water resources.

48. UNEP, with GEF funding, supported efforts in the Bermejo River basin to tackle the root cause for environmental degradation through the implementation of the Strategic Action Programme for the Bermejo River Binational Basin. As a result, the institutional aspects for integrated water resources management were strengthened and the public is able to contribute to the management of the resource. UNEP also supported the Volta basin to create a regional institutional framework, a regional policy, and legal and regulatory frameworks for meeting transboundary concerns of the basin.

## **10. Environment and security – post-disaster management**

49. The UNEP role in environment and security includes conducting post-disaster assessments. The results are used to develop and implement rehabilitation plans that promote environmental sustainability.

50. UNEP has assisted the Afghan National Environmental Protection Agency to prepare draft management plans for Dashte Nawar Flamingo and Waterfowl Sanctuary, Kole Hashmat Khan wetlands and Band-e Amir National Park. It is also supporting Afghanistan to prepare the accession instrument to the Ramsar Convention.

51. In the Sudan, UNEP is encouraging humanitarian agencies operating in internally displaced persons camps to ensure the sustainability of water supplies, particularly during times of drought, and to improve water governance through its integrated water resources management project.

52. In Liberia, UNEP assisted the Environmental Protection Agency and the Ministry of Lands, Mines and Energy to set up a small laboratory facility for analysing water quality. An eight-day training course on water quality testing methods and procedures including the use of the above-mentioned laboratory equipment was provided for 20 laboratory technicians in 2007.

## **11. Water and the Millennium Development Goals**

53. UNEP, as a strategic partner of the African Union Commission and the African Ministers' Council on Water, provided technical support and policy advice in the preparatory process of the June 2008 African Union summit that focused on accelerating progress toward the 2015 Millennium Development Goal targets on water and sanitation. It also provided technical support to the implementation of the various declarations adopted by the Council, such as the Sirte Declaration on the Challenges of Implementing Integrated and Sustainable Development on Agriculture and Water in Africa adopted at the second extraordinary session of the Assembly of the African Union meeting in Sirte, Libyan Arab Jamahiriya; and the 2008 eThekweni Declaration at the Africa Sanitation and Hygiene Conference in Durban, South Africa, which was a first for sanitation. The support included contributing to the assessment of implementing the Millennium Development Goal on water and sanitation, developing the rainwater harvesting programme and facilitating the discussions for establishing the Africa Groundwater Commission.

## **12. Infrastructure and sustainable development**

54. In support of international efforts to attain the Millennium Development Goals through environmentally sustainable infrastructure, UNEP successfully implemented a dams and development project, which was concluded in May 2007. It promoted global and diverse regional and national multi-stakeholder dialogues and consensus-building around controversial environmental and social issues related to dams. It established a database and published a compendium of relevant examples of frameworks and practices for use as reference material by decision makers and practitioners in sustainable development of dams and their alternatives (<http://www.unep.org/DAMS/>).

55. Since the closure of the project, UNEP has developed, in a consultative manner, a comprehensive programme on mainstreaming environmental sustainability into planning and management of infrastructure. The goal of this programme is the extensive application worldwide of environmental due diligence to the planning and management of infrastructure, leading to environmentally sustainable outcomes that contribute to sustainable development and poverty reduction. This programme will focus on infrastructure and environmental sustainability; awareness-raising; networking and dialogue; building a practices and technology information base; training; and improving frameworks.

## **13. Capacity-building**

56. Inadequate capacity to tackle environment aspects of water is a major challenge in developing countries. Building national and regional capacity within the framework of the Bali Strategic Plan for Technology Support and Capacity-building is one of the operational strategies of the water policy and strategy. Though capacity-building has been identified as a major constraint to sustainable water resources management, UNEP recognizes that some countries have acquired expertise in one or more integrated water resources management disciplines while other countries need assistance with developing expertise in these disciplines. The challenge is, therefore, to bring the countries together and to find an operational model for exchanging knowledge between the countries.

57. To facilitate developing countries to assist each other the following were undertaken by UNEP:

(a) In 2007, UNEP supported Cuba to provide legal assistance to the Dominican Republic in drafting legislation to reform the water sector;

(b) During the period 2007–2009, UNEP held two workshops in Nairobi that were attended by representatives from Algeria, Bangladesh, Brazil, China, Indonesia, Kenya, Lesotho, Oman, Panama, South Africa, Thailand, United Republic of Tanzania and Viet Nam, together with subregional organizations;

58. Participants developed a South-South water capacity-building programme with the following components: information knowledge exchange and awareness-raising; skills development; formulation and implementation of national, regional, transboundary policy, strategy and integrated water resources management plans; and institutional development. Gender-sensitive, awareness-raising information will be produced and the skills development programme will give preference to qualified women. The programme will be used to guide developing countries to support each other. As a result, the Government of China has offered technical and financial assistance to train African experts in rainwater harvesting in 2009. Through the programme, UNEP has listed a number of African countries that identified rainwater harvesting as a priority area for training to be assisted by China.

59. UNEP also supported the Ramsar Convention Secretariat to strengthen the capacity of African countries in negotiation.

#### 14. Gender issues

60. The secretariat of the African Ministers' Council on Water is in the process of developing its gender strategy. UNEP provided technical support to this process beginning with the meeting in October 2008 in Entebbe, Uganda. The meeting developed a skeleton of the strategy and considered a structure that will fit into the existing Council structure, from the regional to the national levels. The process of developing the strategy and ensuring a structure for its implementation is a long-term process. Considering that the Council secretariat has recently been established and has limited capacity, UNEP will continue to support this process in partnership with other institutions.

### C. Cooperation

61. UNEP recognizes that it lacks the capacity to implement all aspects of the water policy and strategy by itself. To forge synergies with other agencies and avoid duplication, UNEP cooperates with other institutions at the national, regional and global levels.

#### 1. Global-level cooperation

62. At the global level, UNEP is an active member of the United Nations mechanism for inter-agency coordination on water resources, whose main objective is to coordinate and improve synergies between United Nations agencies working in the water field to contribute effectively towards achieving such global goals as the Millennium Development Goals and the Johannesburg Plan of Implementation. UNEP is an active player in the following:

(a) Task force on transboundary waters, where UNEP is contributing to the organization of the 2009 Water Day, which focuses on transboundary water;

(b) Water task force on integrated water resources management, which focuses on promoting and monitoring the progress of integrated water resources management planning and the outcomes of policy decisions related to water resources management at the national level. This included organizing seminars at global meetings and providing significant inputs to the Commission on Sustainable Development at its sixteenth session where global work on water was reviewed;

(c) Task force on country-level coordination that focuses on country-level coherence and coordination.

63. UNEP contributed to activities held during the 2007 and 2008 World Water Weeks in Stockholm, where it promoted the environmental aspects of water and organized sessions on indicator development and monitoring of integrated water resources management. UNEP is also a co-coordinator of the theme on global change and risk management of the Fifth World Water Forum, which will be held in Istanbul, Turkey, in March 2009. Moreover, UNEP and the Global Water Partnership are

co-conveners of the session on climate change adaptation and integrated water resources management planning under the same theme.

64. UNEP is providing technical support to the Ramsar Convention Secretariat to assess its future institutional framework and legal status to maximize its effectiveness.

65. UNEP provides secretariat services to the International Panel for Sustainable Resource Management, which it helped to form (<http://www.unep.fr/scp/rpanel>). The Panel has indicated initial interest in including the topic of water efficiency in its work programme. If confirmed, then the activities will likely aim at providing scientific assessments that can contribute to promoting the efficient use of water resources through water demand management.

## 2. Regional-level coordination

66. The water policy and strategy mandated UNEP to provide institutional support to regional environmental ministerial bodies and water ministerial bodies such as the African Ministers' Council on Water. This provides a strategic orientation and platform for implementing the policy and strategy, taking into consideration regional priorities.

67. UNEP provides the secretariat to the Forum of Ministers of the Environment of Latin America and the Caribbean. In 2008, the Forum adopted a matrix for developing a regional action plan for the period 2008–2009. The plan includes a section on building human and institutional capacity and supporting water projects.

68. As part of its contribution to the Conference of Ibero-American Water Directors, UNEP was appointed advisor in the following areas of the Ibero-American water training programme: climate and extreme events (coordinated by Brazil); water quality (coordinated by Uruguay); and glaciology (coordinated by Chile).

69. UNEP supported the subregion to design a capacity-building programme in the field of water governance for the Iberoamerican region. A consolidated programme proposal was adopted at the ninth Conference of Iberoamerican Water Directors held in Zaragoza, Spain, in September 2008. In Lima in March 2008, UNEP also participated in the panel on the development of integrated water resources management plans by providing reflections on progress and difficulties regarding the formulation of integrated water resources management national plans in Latin America.

70. UNEP has played a substantial role in supporting African countries to prepare for the various forums. The ministerial declaration made at the first African Water Week, held in Tunis in March 2008, tackled issues for consideration by the African Union Heads of State and Government summit (June 2008), the Group of Eight summit in Japan (July 2008) and the fifth World Water Forum, to be held in March 2009 in Istanbul, Turkey.

71. UNEP continues to provide technical support to the African Ministers' Council on Water in the implementation of the following key regional initiatives: the rural water supply and sanitation initiative; the programme on water and sanitation for African cities, the integrated water resources management initiative; and the networking of water basin organizations and transboundary water initiatives. Furthermore, UNEP provided substantial input to the *African Water Development Report*, the *African Water Journal* and the African Water Information Clearing House. Policy support was provided to the African Water Facility and technical support to the African Ministers' Council on Water Trust Fund.

72. In Central Africa, UNEP continued to provide technical support to the water ministers of the Economic Community of Central African States to cooperate on water resources management. As a result, a subregional water policy based on integrated water resources management was adopted by water ministers in 2007. A ministerial committee that provides political guidance to member States on subregional and transboundary water issues, such as the continuing efforts to strengthen cooperation on the Congo River basin, was formed.

73. Using ecosystems approaches that regard the entire catchment from the mountain to the sea as one management unit, in the Asia and Pacific region, UNEP is strengthening the environmental sustainability of coastal development and promoting sound investment and action in coastal ecosystem management within the Mangroves for the Future regional initiative (<http://mangrovesforthefuture.org/>). This initiative is implemented in partnership with the International Union for Conservation of Nature, the United Nations Development Programme, CARE International, the Food and Agriculture Organization of the United Nations and Wetlands International. During its inception phase (2007–2011) the initiative is focusing on India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand.

Furthermore, UNEP is supporting the Philippines to strengthen its institutional capacity to adapt to climate change, a process that includes a water sector analysis.

74. UNEP has initiated several activities in the Asia and Pacific region, including development of the methodology and arrangements for the GEF transboundary waters assessment programme, with the objective of developing a methodology for assessing major concerns, key causes and necessary interventions of the world's major transboundary water systems; and vulnerability assessment and adaptation measures for climate change in the coastal zone of Cambodia, considering livelihood improvement, ecosystems and biodiversity

75. UNEP supports small island developing States in integrated natural resources management. The following are the water-related activities:

- (a) Supporting the partnership initiative on management of coastal aquifers and freshwater in Caribbean to improve groundwater management;
- (b) Supporting the Talamanca-Caribbean Biological Corridor project between Cuba, the Dominican Republic and Haiti, which provides a framework for environmental rehabilitation, particularly in Haiti;
- (c) Supporting the Government of Dominica to develop a 10-year water resources management strategy in conjunction with the Food and Agriculture Organization of the United Nations;
- (d) Supporting the Partnership Initiative on Sustainable Land Management in Caribbean small island developing States, which is participating in the Jagdeo initiative on strengthening agriculture for sustainable development, the Caribbean Community blueprint for the development of the agricultural sector in the region which aims at improving land and water management.

### 3. National-level coordination

76. UNEP, together with the Food and Agriculture Organization of the United Nations, the United Nations Development Programme, UNESCO, the United Nations Human Settlements Programme, the United Nations Children's Fund, the World Food Programme and national counterparts, participated in the development of joint programmes under the environment and climate change thematic areas. In Panama, the basins are located in the provinces of Darién, Chiriquí and Veraguas; in Peru, these are located in Andean microbasins; in Nicaragua, the programme will be executed in the Bosawas biosphere reserve; and in Mozambique the project is in the Limpopo basin.

77. UNEP supported the development of the Plata Basin Social and Environmental Knowledge and Care Centre that was launched in 2007 with the support of the Itaipú Binational Entity (Paraguay and Brazil) and the countries of the River Plata basin (Argentina, Bolivia, Brazil, Paraguay and Uruguay).

78. Over the years, UNEP has supported the Kenyan Government and the Nairobi community in their efforts to improve the Nairobi River. The Government of Kenya has demonstrated significant political commitment by establishing a steering committee consisting of 11 permanent secretaries for transforming the Nairobi River. The private sector is also involved. At a donor consultative forum, the Government presented a 36-month rehabilitation plan with a budget of \$250 million, of which it has committed to underwrite 30 per cent of the total cost. Development partners and the private sector are expected to fill the financial gap through a strategic resource mobilization process. The National Environment Management Authority and the City Council of Nairobi have applied law enforcement against polluters of the rivers with good results. Further plans to rehabilitate the Nairobi dam are at an advanced stage and a water-quality monitoring programme is under way.

## III. Lessons learned and way forward

79. The biennium 2007–2008 marked the beginning of the implementation of the water policy and strategy and was used to determine the UNEP costed workplan for the 2008–2009 biennium activities in the field of freshwater. The major lessons learnt are set out below.

80. The importance of mainstreaming ecosystems approaches, not only at the national and regional levels, but also within the United Nations system, particularly the United Nations Development Assistance Framework, thus demonstrating an integrated approach to water resources management by United Nations agencies.

81. Though environment is one of the pillars of the integrated water resources management approach adopted by countries, it remains much weaker than the social and economic pillars and needs to be strengthened through capacity-building, among other things.

82. The contribution of water to development is not fully appreciated at the planning level, as indicated by the level of financial resources allocated to water development compared to other sectors, for instance efficient use of the available water resources (improving rain-fed agriculture, water reuse and recycling, adoption of appropriate technologies, etc.) will contribute to improving food production.

83. The United Nations mechanism for inter-agency coordination on water resources has improved cooperation between United Nations agencies, at both the global and regional levels, and is now providing mechanisms for greater cooperation at the country level.

84. During the course of the biennium, UNEP clarified its priorities, which are based on the 2010–2013 medium-term strategy: climate change, disasters and conflicts; ecosystems management; environmental governance; harmful substances and hazardous waste; and resource efficiency and sustainable consumption and production. As a result, the water policy and strategy will be implemented through these six cross-cutting thematic priority areas, as appropriate, which comprise the six sub-programmes in the 2010–2011 programme of work. Following the adoption of the medium-term strategy, and in preparation for 2010–2011, the organization has initiated a robust ecosystems management programme and initiatives on climate change adaptation, governance and resource efficiency. These are long-term programmes that align with the water policy and strategy, whose results will be realized within the biennium to which the implementation of the water policy and strategy will contribute. Gender equality and equity will continue to be mainstreamed in all activities.

85. During the current biennium, UNEP will lay the groundwork for the full-scale implementation of the six cross-cutting thematic priorities under the medium-term strategy. In this context, demonstration projects that aim at improving and rehabilitating ecosystems functioning and show the benefits of adopting ecosystems approaches as outlined in the water policy and strategy will be supported. Projects to this effect have been initiated in Africa, Asia, Latin America and the Caribbean and West Asia. For example, UNEP is supporting the Government of Mali to restore the ecosystems functioning of Lake Faguibine, which had been decimated in size by prolonged drought compounded by poor catchment management.

86. Clearly, UNEP sees great value in this integrated approach as it enables all UNEP divisions to demonstrate their contribution to sustainable water resources management through the six cross-cutting thematic priorities, i.e., from assessment through policy development and implementation, including the adoption of ecosystems appropriate technologies and improved governance in water management. It also enables the organization to tackle emerging issues such as the food crisis and water efficiency.

87. Furthermore, through the implementation of the new programme on environmental sustainability and infrastructure, UNEP will contribute to sustainability in initiatives and developments targeted at poverty reduction and coping with climate change. The initiation of the South-South water capacity-building programme will enable countries to cooperate in water resources management with the catalytic support of UNEP.

88. In addition, UNEP will continue to play a major role in promoting ecosystems approaches in water at international events. As the co-coordinator of one of the themes at the fifth World Water Forum, UNEP will influence the strategic direction of the discussions.