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Item 6 of the provisional agenda*

**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**

**Addressing environmental aspects of the water agenda:
Activities of the United Nations system: Contribution of the
Environmental Management Group to the eighth special
session of the Governing Council/Global Ministerial
Environment Forum and the twelfth session of the
Commission on Sustainable Development**

Note by the Executive Director

The annex to the present note contains information on the activities of members of the Environmental Management Group in the field of water, focusing upon environmental aspects and the ecosystem approach, as a contribution to the Governing Council/Global Ministerial Environment Forum at its eighth special session and the Commission on Sustainable Development at its twelfth session. The annex is being reproduced as submitted, without formal editing.

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Annex

Information on the activities of members of the Environmental Management Group in the field of water

Introduction

1. The Environmental Management Group (EMG) was established following the adoption of UN General Assembly Resolution 53/242 in 1999. The Group seeks to enhance cooperation in the fields of environment and human settlements within and beyond the UN system. Membership of the EMG is open to all UN agencies, funds and programmes, and includes the secretariats of the multilateral environmental agreements (MEAs) as well as the World Bank and the World Trade Organisation. The EMG follows an issue-management approach, aimed at promoting interagency collaboration and joint action on important and newly emerging issues on the environment and human settlements agenda. It also provides a platform for information exchange on environmental aspects of current and planned activities across the entire UN system.

2. As a contribution to the 8th Special Session of the GC/GMEF in March 2004, and to complement the preparatory activities for the 12th Session of the CSD in April 2004, it was decided at the EMG meeting in Geneva in September 2003 to prepare an information paper on EMG members' activities in the field of water, focusing upon environmental aspects and the ecosystem approach in particular. A questionnaire was then sent out to all members inviting information on their current and planned activities and partnership programmes in specific areas relating to environmental aspects of water. Detailed responses received from EMG members have been collated. This paper has been prepared in close consultation with the UN-Water Group¹. A number of EMG members have not been included, as they indicated in their responses that they do not have a specific focus on water and are therefore unable to contribute². A list of organisations which have responded is included in Annex 1.

3. This information paper sets out to underpin the UNEP paper on water policy issues (Item 6 of the provisional agenda of the 8th Special Session of the GC/GMEF, ref. UNEP/GCSS.VIII/4) in focusing the responses received upon three major areas :

- Ecosystem approaches in integrated water resource management (IWRM)
- Environmental dimensions of sanitation
- Water, health and poverty

The paper concludes with some issues for consideration as emerging topics of great importance to the water agenda, to which the UN system could respond by further joint action. This is particularly relevant as the decade 2005-2015 was declared the decade of "Water for Life" by the 58th General Assembly of the UN.

4. Relevant documents which have been consulted in the preparation of this paper include the Millenium Development Goals (MDGs) and targets; the Implementation Plan of the World Summit on Sustainable Development (WSSD); the 2003 World Water Development Report

¹ The United Nations System Chief Executives Board for Coordination in November 2003 confirmed the role of the UN-Water Group as the inter-agency mechanism for follow-up of the WSSD water-related decisions and the MDG concerning freshwater. UN-Water brings together the senior managers of the water resources and sanitation programmes of 24 UN system entities.

² The Convention on International Trade in Endangered Species (CITES); World Trade Organisation (WTO); World Intellectual Property Organisation (WIPO); International Civil Aviation Organisation (ICAO); International Labour Organisation (ILO)

“Water for People, Water for Life” (a UN-Water-led global assessment with contributions from 24 UN system agencies, regional commissions and programmes); the regional assessment on water and sanitation in the UNECE region prepared for the European Regional Implementation Forum on Sustainable Development (January 2004); and the reports of the UN Secretary General to the forthcoming 12th meeting of the Commission for Sustainable Development in April 2004 (CSD12). A bibliography is available in Annex 2.

MILLENNIUM DEVELOPMENT GOALS RELATED TO WATER :

Goal 7 : Ensure environmental sustainability

- *Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources.*
- *By 2015, reduce by half the proportion of people without access to safe drinking water.*
- *By 2020 achieve significant improvement in the lives of at least 100 million slum dwellers.*

5. The Johannesburg Plan of Implementation, in the Report of the World Summit on Sustainable Development (WSSD), reaffirms these goals and adds other targets, notably :

- Halve, by the year 2015, the proportion of people without access to safe drinking water (Target II.7a)
- Halve, by the year 2015, the proportion of people who do not have access to basic sanitation (Target II.8)
- Develop integrated water resources management and water efficiency plans by 2005 (Target IV.26)

A more complete list of WSSD targets on environmental aspects of water is included in Annex 3. There are also other MDGs and WSSD targets with indirect links to water, such as those relating to food security, childhood diseases, and malaria, which are crucial from an environmental perspective.

Ecosystem approaches in Integrated Water Resource Management (IWRM)

6. Many countries have responded to the WSSD call for action by starting Integrated Water Resource Management (IWRM) planning processes, while some already have such processes in place. The three pillars of IWRM are economic efficiency, equity, and environmental sustainability, within the overall aim of balancing “water for livelihoods” and “water as a resource” [Global Water Partnership, 2003]. IWRM has emerged as one of the overarching cross-sectoral frameworks incorporating integrated approaches to water which have been developed over time, including : integrated catchment management, integrated river basin management, integrated groundwater management, integrated flood management, and integrated coastal zone management. It must be stressed that putting IWRM in place is an iterative process, and is not the only starting point for action. While delivery and implementation of water supply, sanitation and wastewater treatment needs to take place within such an overarching framework, appropriate urgent action on the ground should also be ongoing.

7. Ecosystem approaches are management and implementation strategies which are complementary to IWRM, and provide the basis for the environmental sustainability of the IWRM process.³ Essentially, within ecosystem approaches, one particular resource or set of environmental goods and services cannot be considered separately from others. This is reflected within the WEHAB paradigm as put forward at WSSD, since Water as a resource or as a sector cannot be considered separately from Energy, Health, Agriculture and Biodiversity (WEHAB).

³ Decision V/6 taken at COP5 of the CBD in May 2000 elaborated and defined the Ecosystem Approach, as follows : “The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way . . . There is no single way to implement the ecosystem approach, as it depends on local, provincial, national, regional or global conditions.”

Ecosystem approaches are applicable at all scales, from the local to the global. Hence they can equally be applied to a small seasonal wetland in an upper catchment area, or to linking a number of river basins which impact on offshore marine ecosystems such as coral reefs. Incorporating ecosystem approaches in IWRM involves, *inter alia* :

- ⇒ Making the linkage between inland waters, coastal and marine waters
- ⇒ Focusing on the environmental flow requirements of all river systems and wetlands, especially where additional water storage is being planned, in order to maintain inland waters biodiversity
- ⇒ Focusing on water quality monitoring, maintenance and remediation
- ⇒ Incorporating the environmental dimensions of sanitation, and in particular their financial implications, in the achievement of the Millennium Development Goal on sanitation

Some available information resources for strengthening ecosystem approaches in IWRM are listed in section 2.1 below.

8. Maintaining biodiversity in inland waters is essential to maintaining the important goods and services that inland waters provide. "Biodiversity" involves more than the prominent animals and plants living in water and includes how the ecosystem functions in order to support life – including human life. Hence sustainable development, poverty and biodiversity of inland waters are intimately linked. In particular, changing biodiversity may well increase poverty, increase human health risks, and undermine livelihoods security (including food and water security). Through better water protection and production, and reduced economic costs, healthy inland water ecosystems contribute significantly to the sustainability of human settlements and fisheries.

9. The Environmental Management Group has identified a number of UN programmes and activities which are relevant to ecosystem approaches and IWRM, and these are listed below (section 2.2). Many such activities are funded or partially funded by the Global Environment Facility (GEF). Within the UN system, ecosystem approaches have been applied for some years by various agencies and programmes, for instance by **UNEP** in applying Integrated Coastal Area and Riverbasin Management (ICARM), bridging the often-existing divide between freshwater and coastal/marine institutions and policies, and also by **UNESCO, FAO, WHO, WMO** and **UNIDO**. Currently a great deal of activity on implementing ecosystem approaches in IWRM emanates from the multilateral environmental agreements (**MEAs**), specifically the **Convention on Biological Diversity (CBD)**, since the Ecosystem Approach was adopted during the second Conference of the Parties (COP2) as the primary framework for action under the CBD.

10. There are a large number of NGOs, river basin organisations and other partnerships, including the private sector and civil society, and supported by a variety of donor organisations and financing mechanisms, with or without UN involvement, which also link ecosystem approaches and IWRM. The **World Water Development Report "Water for People, Water for Life"** (UNESCO, 2003) gives details on many of these and also provides other useful websites for further information. Finally, the Water, Natural Resources and SIDS Branch of **UNDESA's** Division for Sustainable Development promotes integrated water resources management (IWRM) approaches, and provides normative inputs and substantive support to the Commission on Sustainable Development in the lead up to its first cycle (12th and 13th sessions, 2004/5) where water, sanitation and human settlements will comprise the main thematic cluster.

SOME RESOURCES FOR STRENGTHENING ECOSYSTEM APPROACHES IN IWRM

- **The Oslo Principles on Poverty Reduction through an Ecosystem Approach.**
http://global.finland.fi/koyhyys/doc_unep%20report%20poverty%20environment%202002.doc
 These 12 guiding principles for incorporating into projects, programmes and national strategies were developed by **UNEP** and other stakeholders. There is also much information on ecosystems approaches and IWRM on the UNEP-GPA website at www.gpa.unep.org

- The **Convention on Biological Diversity** (at <http://www.biodiv.org>) provides a wealth of information on national and transboundary experiences and case-studies to assist efforts in establishing and maintaining protected inland water ecosystems;
- There is also a range of resource materials and guidance available through the **IUCN Commission on Ecosystem Management** (<http://www.iucn.org/themes/cem/>);
- The **Ramsar Convention strategic framework** (available at <http://www.ramsar.org>) for the future development of the List of Wetlands of International Importance, as well as the new **Ramsar guidelines** on management planning for Ramsar sites and other wetlands; at the most recent COP (November 2002) decisions were made dealing with dams, water allocation and wetlands, as well as wetlands and agricultural activities.
- Guidance and case-studies are available from the **UNESCO Man and the Biosphere programme** (<http://www.unesco.org/mab/>), the International Hydrological Programme (IHP) and the World Heritage Centre. MAB has now established a joint website with Ramsar at <http://www.unesco.org/mab/ramsarmab.htm>
- The **FAO Code of Conduct for Responsible Fisheries** promotes ecosystem approaches to managing inland and marine fisheries for sustainability, including attention to aquatic biodiversity needs. (<http://www.fao.org/fi/agreem/codecond/codecon.asp>)
- The **FAO's** Agriculture Department promotes Good Agricultural Practices (GAP) from the ecosystem perspective, focusing on sustainability and pollution control. (<http://www.fao.org/aq/>)
- The **WHO Gothenburg Consensus** defines Health Impact Assessment (HIA) in water resources development, and the WHO's Water, Sanitation and Health programme builds capacity in carrying out HIAs. (www.who.int/water_sanitation_health/resources/hia/en/)

OVERVIEW LIST OF MAJOR ACTIVITIES IN THE UN SYSTEM LINKING ECOSYSTEM APPROACHES AND IWRM

11. There are many partnership activities taking place within the UN system, involving close interagency collaboration, and this overview has been compiled by the EMG to inform member states of the full scope of UN activities. Such an overview also helps to ensure greater coherence and focus within the UN system, and to avoid the duplication of efforts. The following list provides the programme name and website for easy reference. On the following pages, the overview table provides more detailed information on the each programme's objectives, the partners involved, outputs and major activities.

- (i) **Inland Waters Biodiversity** <http://www.biodiv.org/programmes/areas/water/>
- (ii) **Millenium Ecosystem Assessment** <http://www.millenniumassessment.org/en/index.aspx>
- (iii) **Global International Waters Assessment** <http://www.giwa.net/>
- (iv) **Integrated Management of Water and related Ecosystems** <http://www.unece.org/env/water/cooperation/area422.htm>
- (v) **Integrated Coastal Area and River Basin Management** <http://www1.unep.org/icarm/>
- (vi) **Applying the Ecosystem Approach to restore fisheries in Coastal Areas** <http://www.unido.org/en/doc/3637>
- (vii) **The International Coral Reef Action Network (ICRAN)** <http://www.coralreefund.org/>
- (viii) **Associated Programme on Flood Management (APFM)** <http://www.wmo.ch/apfm/>
- (ix) **Environmental Management for Vector Control in Water Resources Development** http://www.who.int/water_sanitation_health/resources/envmanagement/en/
- (x) **Sustainable management of wetlands for poverty alleviation** <http://www.iwmi.cgiar.org/health/wetlands/projects.htm#afr>
- (xi) **Examples of capacity building and capacity development which is available within the UN system, for incorporating ecosystem approaches in IWRM :**
 - **Cap-Net** <http://www.cap-net.org>
 - **IW:LEARN (UNDP-GEF)** <http://www.iwlearn.org/>
 - **The Train-Sea-Coast (TSC) Programme** http://www.un.org/Depts/los/tsc_new/TSCindex.htm
 - **UNESCO-IHE Institute for Water Education** <http://www.ihe.nl/>

OVERVIEW TABLE OF MAJOR ACTIVITIES IN THE UN SYSTEM LINKING ECOSYSTEM APPROACHES AND IWRM : PARTNERS, OBJECTIVES AND OUTPUTS

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|---|--|---|---|
| <p>Inland Biodiversity Waters</p> | <p>Promoting the ecosystem approach through watershed management; appropriate technologies; research, monitoring and assessment; and cooperation with other conventions and organizations through Joint Work Plans.</p> | <p>Convention on Biological Diversity (CBD), working together with the Ramsar Convention</p> | <p>The CBD's inland waters programme promotes integrated watershed management as the best way to reconcile competing demands with dwindling supplies of inland waters. The programme identifies the actions that Parties need to carry out to halt the trend of biodiversity loss including monitoring, assessment and evaluation of biological diversity of inland water ecosystems, conducting Environmental Impact Assessments of water development projects, development of pollution prevention strategies, choosing and using appropriate technology, promoting transboundary cooperation, and the involvement of local and indigenous communities in ecosystem management.</p> |
| <p>Millenium Ecosystem Assessment (MA)</p> | <p>Meeting the needs of decision makers and the public for scientific information concerning the ecosystem capacity in providing and maintaining services in the present and future, the consequences of ecosystem change for human well-being, and options for responding to those changes.</p> | <p>A multi-agency initiative of UNEP together with UNDP, UNESCO, FAO, WHO, the World Bank, the MEAs (including the CBD and Ramsar Conventions), IUCN, the GEF and other stakeholders</p> | <p>Freshwater is one of the thematic areas addressed by the MA which considers water as both providing goods and ecosystem services, and as an ecosystem that provides supporting, provisioning, regulatory, and cultural services. The MA helps identify priorities for action and provides tools for planning and management of water resources, as well as building individual and institutional capacity of participating</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|---|---|
| <p>Global International Waters Assessment</p> | <p>Addressing the priority problems and the trend of future threats to 66 regions of transboundary waters, both freshwater and seawater, and associated ecosystems.</p> | <p>UNEP working in partnership with the World Bank and UNDP and partner countries in 66 subregions, funded by the GEF and the governments of Finland and Sweden</p> | <p>countries in undertaking integrated ecosystem assessments and acting on their findings. Using an ecosystem-based approach in the context of transboundary waters, GIWA identifies priority issues and policy responses needed for mitigation and management at the national and regional levels. GIWA promotes the sustainable use and integrated management of aquatic resources by scoping options in management interventions and policy responses needed for alleviating the problems in the transboundary waters, and eventually reversing the loss of environmental resources in each of the 66 regions.</p> |
| <p>Integrated Management of Water and Ecosystems</p> | <p>Providing assistance to countries to : prevent damage to the environment; ensure the conservation and, where necessary, the restoration of water-related ecosystems; prevent damage by waters, including river regulation, drainage, floods, droughts and erosion; promote the ecosystem approach in water management; and foster measures for water demand management.</p> | <p>UNECE in collaboration with UNEP, WHO, Switzerland and EU countries under the 1992 UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Water Convention).</p> | <p>Guidance on the role of ecosystems as water suppliers; developing practices to protect and sustainably use ecosystems (forests and wetlands) by means of innovative economic tools, such as payments for environmental services; development and implementation of legal and regulatory frameworks; establishment and strengthening of institutions; development of monitoring and assessment; improved access to information and public participation; improved river basin management planning;</p> |
| <p>Integrated Coastal Area and River Basin Management (ICARM)</p> | <p>Developing an approach to manage both river basins and coastal areas in an integrated manner, on the basis of their</p> | <p>UNEP together with IUCN and the Global Water Partnership (GWP), and the partner</p> | <p>UNEP has produced the Conceptual Framework and Planning Guidelines for Integrated Coastal Area and River</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|---|--|
| | hydrological, ecological and geochemical relationship, as well as based on a need for a more effective socio-economic development of the two management units. | countries in the case study areas | Basin Management, and on this basis organises many expert meetings and regional ICARM workshops on request. For example, ICARM contributed to the development of project proposals on the Incomati River, Mozambique; and also on Sonkhla Bay, Thailand. |
| Applying the Ecosystem Approach to restore fisheries in Coastal Areas | Promoting job security and economic development by providing a scientific basis for the sustainable use of marine and coastal fisheries in Large Marine Ecosystems | UNIDO , in partnership with local governments and funded by the GEF, with the involvement of UNDP | A successful project under this programme is entitled Water Pollution Control and Biodiversity Conservation in the Gulf of Guinea. This 5-year project aims to protect and restore the health of the Gulf of Guinea Large Marine Ecosystem and its natural resources, and provides a good example of how the ecosystem approach can be applied in practice, through cooperation between UNIDO , FAO , UNEP , UNESCO and the strong commitment of the 6 countries involved in the project, namely Benin, Cameroon, Côte d'Ivoire, Ghana, Nigeria and Togo. The second phase of the project is now under way which has drawn ten additional governments into the project consortium. |
| The International Coral Reef Action Network (ICRAN) | Developing a public-private response to help implement the "Framework for Action", the internationally agreed blueprint for the conservation of coral reefs, addressing the disturbing decline in coral reef ecosystems and its impact on the world's communities. Showing that the major threats to coral reefs – coastal development, destructive fishing, the | United Nations Environment Programme (UNEP), the WorldFish Center, the World Resources Institute (WRI), and other stakeholders | Working with local and indigenous communities, ICRAN promotes environmentally responsible activities near reefs, including eco-friendly tourism, and provides funding to monitor threatened reefs. The Coral Reef Fund's activities emphasize a holistic approach – including sustainable natural resource usage. |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|---|--|---|
| | <p>souvenir trade and pollution – can be addressed using the ecosystem approach.</p> | | <p>economic needs, training, capacity building, and the exchange of traditional knowledge and scientific research – to ensure the future of these valuable ecosystems, and to provide for the future of the communities that the coral reefs sustain.</p> |
| <p>Associated Programme on Flood Management (APFM)</p> | <p>Having environmental/ecosystem approaches in mind as one of the important considerations, APFM promotes Integrated Flood Management, which is Flood Management within the context of Integrated Water Resources Management (IWRM) through various means.</p> | <p>WMO working together with the Global Water Partnership (GWP)</p> | <p>The APFM promotes Integrated Flood Management (IFM) as a new and best approach to flood management, through various activities such as the compilation of an IFM concept paper and other supporting materials, with an emphasis on ecosystem approaches, best practices and lessons learned of flood management practices; the implementation of regional pilot projects; and joint activities with other initiatives.</p> |
| <p>Environmental Management for Vector Control in Water Resources Development</p> | <p>To provide Member States with technical guidance on deployment of environmental management for health protection and promotion, by producing a toolkit. The toolkit is based upon a methodology which has already been developed to estimate the fraction of the burden of vector-borne diseases that can be attributed to components of water resources development, and the promotion of good practice in water management and other environmental management approaches (including the ecosystem approach).</p> | <p>WHO working together with FAO and UNEP</p> | <p>Environmental Management for Vector Control is the planning, organization, carrying out and monitoring of activities for the modification and/or manipulation of environmental factors or their interaction with man with a view to preventing or minimising vector propagation and reducing man-vector-pathogen contact. It may entail one of two options (or both): environmental modification (permanent) (infrastructural changes of a capital-intensive nature) and environmental manipulation (recurrent actions aimed at achieving temporary unfavourable</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|---|--|--|
| <p>Sustainable management of wetlands for poverty alleviation</p> | <p>Developing ecologically sound options, using the ecosystem approach, for wetland-based livelihood strategies in southern Africa.</p> | <p>FAO together with the International Water Management Institute (IWMI), IUCN and other NGOs</p> | <p>conditions for vector breeding). The programme is currently operating in eight countries in Southern Africa (Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe) and Rwanda in Central Africa. There is currently almost no scientific information on profitable agronomic measures and technological interventions for wetland cropping suitable for poor people. Productivity-enhancing measures may entail serious ecological risks in terms of the hydrology and biodiversity of these seasonal wetlands, which are at risk of both drying and flooding. The proposed project aims to address this lack of scientific data.</p> |
| <p>Cap-Net</p> | <p>Capacity-building and networking in IWRM, including the ecosystems approach, focused on institutional strengthening, with the objective being to develop the capacity of water professionals in the area of IWRM to better manage water resources.</p> | <p>UNDP and its many regional and country partners; GWP and its regional and country partnerships; regional and country networks of training institutions; Gender Water Alliance; Stream of Knowledge; UNU and UNESCO-IHE</p> | <p>Currently the regional networks in Southern Africa (WaterNet), South East Asia, South Asia, Central America, South America and the Caribbean are well-developed, with a range of activities in each region. Networks in the rest of Africa (West Africa, the Nile Basin), and the Arab Region are in an early stage of development. Country networks have been established in larger countries (e.g. India, Pakistan, Indonesia, Argentina). Activities include: training of trainers in IWRM, regional seminars on IWRM, development of training materials.</p> |
| <p>International Waters Learning Exchange</p> | <p>Building an Internet-based "global knowledge community" to protect, restore</p> | <p>A UNDP programme, sponsored by the Global</p> | <p>Structured learning from GEF International Waters (IW) projects.</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|---|---|---|
| <p>and Resource Network IW:LEARN (UNDP-GEF)</p> | <p>and sustain the world's aquifers, great lakes and river basins, coastal zones, seas and oceans. IW:LEARN specifically builds capacity among transboundary water resource projects worldwide.</p> | <p>Environment Facility (GEF) and its United Nations and World Bank partners</p> | <p>such as the successful Lake Tanganyika Biodiversity Project. Capacity building in IW projects. Technical assistance to countries cooperating in GEF-IW projects. Testing innovative approaches.</p> |
| <p>Train-Sea-Coast (TSC) Programme</p> | <p>An inter-country cooperative training network aiming at strengthening the capabilities of institutions and individuals having responsibilities in the field of coastal and ocean management.</p> | <p>UN/DOALOS together with UNEP, UNDP, and funded by GEF, working through 13 training/educational centres in developing countries, countries in transition and developed countries</p> | <p>The TSC Programme is network-based and is a mechanism for establishing a flow of information and resources among universities, governmental institutions, NGOs and the private sector. Training is closely matched to the requirements of the tasks/jobs involved with the outputs feeding directly into the solution or prevention of key problems affecting the coastal areas at the national or regional level. The topics of the courses vary from e.g. integrated coastal management, to marine protected areas to pollution control, according to established national or regional priorities.</p> |
| <p>UNESCO-IHE Institute for Water Education</p> | <p>Contributing to the education and training of professionals; building the capacity of sector organisations, knowledge centres and other institutions active in the fields of water, the environment and infrastructure, in developing countries and countries in transition.</p> | <p>UNESCO together with the IHE Foundation (originally the Institute for Hydraulic Engineering) and the Dutch government, Cap-Net</p> | <p>This large institute situated at Delft, in the Netherlands, provides a variety of training programmes for water managers and urban planners from many developing countries. Capacity-building is provided through post-experience courses and short focused courses; training and research to Masters and PhD level. IHE also functions as an international standard-setting body for postgraduate water education programmes.</p> |

Environmental dimensions of sanitation

12. In this section, we examine the information available on activities in the UN system regarding the environmental aspects of sanitation only. Implementation and delivery of sanitation is being dealt with comprehensively in the CSD12 meeting. The following section (section 4) on water, health and poverty will look at aspects of sanitation related to health and poverty reduction, and includes information on some of the major programmes in the sanitation arena. In this section of the paper (section 3) the focus is solely on how environmental problems related to sanitation are being tackled within the international system. Environmental dimensions of sanitation are not yet common goods within the UN system, and require strengthening.

13. Systems to manage human excreta are usually major **contributors to water pollution** worldwide, while at the same time, waterborne sanitation systems are very inefficient **users of scarce water resources**. These are the two major environmental dimensions of sanitation. The outputs of sanitation systems and the resultant water pollution impact both directly and indirectly on human and ecosystem health, resulting in enormous costs caused by increased levels of illness and mortality, higher costs for accessing and producing drinking water, and substantial loss of income from tourism, fisheries and aquaculture. Conversely, in situations of increasing water scarcity, it is imperative to move towards the adoption of alternative sanitation methods which do not rely upon waterborne sewerage systems. Where such ecological methods are not applied, the costs of wastewater collection, treatment, re-use and reallocation to the environment must be included in the estimates of the costs of meeting the sanitation MDG.

14. The rapid urbanisation taking place in developing countries puts problems of urban water management, and especially sanitation issues, at the forefront of the struggle for sustainability. Hence one of the major actors within the UN system in dealing with environmental dimensions of sanitation in urban areas is **UN-HABITAT**. UN-HABITAT's numerous Water for Cities Programmes, working with local authorities in many regions, together with its Sustainable Cities Programme, are key to addressing these issues. The Water, Natural Resources and SIDS Branch of **UNDESA's** Division for Sustainable Development executes projects and provides policy advisory services at national and regional levels in integrated water resource management, including environmental aspects of sanitation, with the aim of assisting developing countries in building their own capacity for practical application of the sustainable development concept.

15. **UNDP** works on a variety of activities through its country offices worldwide, most notably on ecological sanitation, in an effort to promote/develop sanitation systems that are sustainable both to human health and the environment. **UNEP** is contributing strongly to pollution prevention through the Strategic Action Plan on Municipal Wastewater. The research and capacity-building activities of **UNESCO** provide the scientific basis for new approaches to sanitation. A useful and accessible knowledge base on all aspects of sanitation is available on the Sanitation Connection website, which is a **WHO**-coordinated initiative. The **WHO** will shortly be publishing guidelines for on-site sanitation, and together with **FAO** is developing updated guidelines for the safe use of waste water and excreta in agriculture and in aquaculture.

OVERVIEW LIST OF MAJOR ACTIVITIES IN THE UN SYSTEM ON ENVIRONMENTAL DIMENSIONS OF SANITATION

- (i) **Global Urban Indicators** http://www.unhabitat.org/programmes/guo/guo_indicators.asp
- (ii) **Water for Cities**
 - **Managing Water for African Cities** <http://www.un-urbanwater.net/>
 - **Water for Asian Cities** <http://www.unwac.org/>
- (iii) **Sustainable Cities Programme** <http://www.unchs.org/programmes/sustainablecities/>
- (iv) **Strategic Action Plan on Municipal Wastewater** <http://www.gpa.unep.org/pollute/sewage3.htm>
- (v) **GEMS/Water Programme** <http://www.gemswater.org/>
- (vi) **Ecological Sanitation** <http://www.undp.org/water/ecol.html>
- (vii) **Community Water Initiative** <http://www.undp.org/water/initiative.html>
- (viii) **Transfer of Environmentally-Sound Technologies (TEST)** http://www.unido.or.jp/wwf/agenda/NO3_2.htm
- (ix) **Capacity-building on environmental dimensions of sanitation**
 - **UNESCO Water Portal** <http://www.unesco.org/water/>
 - **UNEP International Environmental Technology Centre** <http://www.unep.or.jp/>
 - **The Sanitation Connection (SANICON)** <http://www.sanicon.net/>
- (x) **Guidelines for Wastewater Reuse** *(no website yet available)*
- (xi) **Selected research projects on environmental dimensions of sanitation**

OVERVIEW TABLE OF MAJOR ACTIVITIES IN THE UN SYSTEM ON ENVIRONMENTAL DIMENSIONS OF SANITATION : PARTNERS, OBJECTIVES AND OUTPUTS

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|---|--|--|
| Global Indicators Urban | Monitoring, reporting and analyzing global urban indicators; developing local capacity to use urban indicators as a policy decision tool; promoting the exchange of information and strengthening the roles of local authorities, communities and NGOs in the selection and collection of indicators. | UN-HABITAT in collaboration with UNICEF , ECLAC , EU , USAID and member governments | Indicators developed so far cover shelter, economic and social development, governance and basic service delivery. Environmental management aspects are so far limited to percentage of wastewater treated, solid waste disposal, travel time and transport modes, air pollution indicators, disaster prevention and mitigation instruments, and the existence of local environmental plans. No indicators on urban biodiversity have yet been included. |
| GEMS/Water Programme (Global Environment Monitoring System) | Facilitating the formulation and implementation of programmes to build capacity of developing countries for the management of water quality information | UNEP together with more than 100 partner countries and counterparts within and outside the UN system | The GEMS/Water programme is a global water quality monitoring and assessment programme that provides information on the state and trends of global inland water quality as a basis for decision-making processes in integrated water resources management. GEMS/Water has recently broadened the scope of its datasets to cover parameters related to sanitation, such as metals, POPs, water-borne pathogens, and micropollutants. |
| Water and Sanitation in the World Cities Report | Monitoring and analysing the situation of water and sanitation in world cities and providing practical policy options for achieving the MDGs, in line with the Habitat Agenda for "environmentally sustainable, healthy and liveable human | UN-HABITAT in collaboration with UNEP , UNICEF , WHO , World Bank , WSP , IIED , WSSCC , and the Governments of Japan and Sweden | The first edition of the Report was launched at the World Water Forum in Japan, March 2003. The second edition is to be published in 2006. |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|---|--|
| Managing Water for African Cities | <p>settlements".</p> <p>Supporting African countries to address effectively the growing urban water crisis and to protect water resources from being polluted. Phase 2, just launched, aims to meet the MDG sanitation challenge and to scale up urban catchment management, meeting the needs of the poor through promoting pro-poor investments and pro-poor governance.</p> | <p>UN-HABITAT and UNEP in collaboration with UNDP, World Bank, WSSCC, and the Governments of Sweden, Netherlands, Germany, and Finland. In Phase 2, the African Development Bank, NEPAD and various public-private-community partnerships are involved</p> | <p>Seven African cities have so far been involved: Abidjan, Côte d'Ivoire; Accra, Ghana; Addis Ababa, Ethiopia; Dakar, Senegal; Johannesburg, South Africa; Lusaka, Zambia; and Nairobi, Kenya. Phase 2 will see the programme scaled up considerably.</p> |
| Water for Asian Cities | <p>Enhancing capacity at city, country and regional levels and enabling new investments with a view to meeting the water and sanitation-related Millennium Development Goals in Asian cities.</p> | <p>UN-HABITAT, in collaboration with the Asian Development Bank and the Government of Netherlands</p> | <p>The programme creates an enabling environment for new flows of investments in the urban water and sanitation sector. The programme's priorities include: mobilization of political will, community-based initiatives, urban sanitation and pro-poor urban water governance.</p> |
| Water for Latin American and Caribbean Cities (planned) | <p>Supporting the LAC countries in improving urban water and sanitation services.</p> | <p>UN-HABITAT together with the Inter-American Development Bank</p> | |
| Water for Eastern and Central European Cities (planned) | <p>Expanding the water and sanitation activities of UN-HABITAT in countries with economies in transition.</p> | <p>UN-HABITAT together with the European Union</p> | |
| Sustainable Cities Programme | <p>Building local capacities in urban environmental planning and management; promoting urban environmental governance processes, as a basis for achieving sustainable urban growth and development.</p> | <p>UN-HABITAT and UNEP</p> | <p>The programme is founded on broad-based cross-sectoral and stakeholder participatory approaches. Currently the SCP operates in 20 main demonstration cities and 25 replicating cities around the world.</p> |
| Strategic Action Plan on Municipal | <p>Promoting concrete action at the local and national levels, addressing sewage as</p> | <p>Sponsored by UNEP, the World Health Organization (WHO), the</p> | <p>(1) The further development and wide use of the document Key Principles</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|-------------------------------------|---|---|--|
| <p>Wastewater</p> | <p>one of the major source categories of pollution impacting the coastal and marine environment. Alternative solutions are explored, including low cost technologies, appropriate financial mechanisms and partnerships, and creating an enabling environment for action.</p> | <p>United Nations Human Settlements Programme (UN-HABITAT) and the Water Supply and Sanitation Collaborative Council (WSSCC), and coordinated through the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)</p> | <p>and Guidelines for Municipal Wastewater Management, outlining global consensus on innovative approaches in municipal wastewater management. (2) The establishment of regional multi-stakeholder fora to exchange experiences and expertise on best practices and alternative approaches to municipal wastewater management. (3) capacity building through replicable pilot projects addressing one or more of the innovative approaches advocated in the guidelines, and through the development of focused training modules. (4) The Wastewater Emission Targets (WET) initiative facilitates recognition by Governments of the threats to human health, marine and freshwater resources and ecosystem integrity caused by increasing emissions of untreated wastewater into groundwater, freshwater, estuaries or coastal and marine areas; exploring the application of global or regional economic instruments, such as water markets, pollution reduction trading mechanisms and multi-stakeholder water funds.</p> |
| <p>Ecological Sanitation</p> | <p>Supporting Ecological Sanitation activities and technology diffusion; promoting ecological sanitation as a viable option for water-free sanitation; developing best practice guidelines for ecological sanitation.</p> | <p>UNDP working together with international institutions, including the Stockholm Environment Institute, EcoSolutions, WaterAid, and research institutions in</p> | <p>In the long run, waterborne sewerage is not a sustainable sanitation option, particularly in countries where the wastewater treatment infrastructure is not yet well established. UNDP's activities are focused on supporting</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
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| | | <p>Germany, South Africa, Zimbabwe, India and Mexico, in close collaboration with SIDA and GTZ</p> <p>UNESCO Expert Working Group on Ecological Sanitation involves partnerships with the WSSCC, the IWA, several universities and research institutes</p> | <p>practical ecological sanitation options and advocacy. UNESCO's Expert Working Group is developing best practice guidelines on ecological sanitation and collating information on best available technology.</p> |
| <p>Community Initiative</p> <p>Water</p> | <p>This is a microgrants funding programme supporting household and community water resources, water supply and sanitation activities.</p> | <p>UNDP together with the GEF Small Grants Programme, WaterAid, and local NGOs/CBOs</p> | <p>In the 2003/2004 pilot year, eight countries have programmes to support activities in four focal areas:</p> <ul style="list-style-type: none"> • Water supply for communities and household activities • Household sanitation • Local watershed management • Innovative financing and management structures |
| <p>Transfer of Environmentally-Sound Technologies (TEST)</p> | <p>Reducing contaminant loads from industrial activities, by supporting technology transfer among industries of environmentally-sound processes and end-of-pipe solutions.</p> | <p>UNIDO jointly with UNDP, local industries and local governments; UNCTAD is now also becoming involved</p> | <p>The TEST approach was first applied to address medium and large industrial polluters in countries with economies in transition, bordering the middle-lower River Danube Basin. The programme is now being scaled up worldwide with UNCTAD's assistance.</p> |
| <p>The VacuTug Project</p> | <p>Developing an appropriate technology to service pit latrines in low income settlements, contributing to income generation through the provision of basic sanitary services, and integrating the technology into the formal sanitation system.</p> | <p>UN-HABITAT with support from DFID and Irish Aid</p> | <p>The technology is currently operating in 8 cities, after which the design of the machine will be made available for global manufacture. Although the VacuTug is not the complete solution to providing sanitation in poor urban areas, it helps in bridging the gap between appropriate low-cost sanitation services and the formal urban sanitation system.</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
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| <p>Capacity-building and research on environmental dimensions of sanitation</p> | <p>Research and capacity-building; creating the conditions for multidisciplinary interactions and the appropriate transfer of knowledge and technology, <i>inter alia</i> on integrated urban water management and sanitation</p> | <p>UNESCO's International Hydrology Programme (IHP) and the UNESCO Water Portal</p> | <p>The UNESCO water portal at http://www.unesco.org/water/ brings together gateways to a multitude of activities taking place within UNESCO and across the UN system with regard to water research and capacity-building.</p> |
| <p>Information Environmental Technology Centre</p> | <p>Developing environmentally sound technologies for the management of cities and freshwater resources</p> | <p>UNEP supported by the Japanese government, working in collaboration with other UN agencies (UN-HABITAT, UNDP, WHO, UNIDO, UNCTAD, UNESCO)</p> | <p>IETC's main role is to promote the application of Environmentally Sound Technologies (ESTs) to address urban environmental problems, such as sewage, air pollution, solid waste and noise, and the management of freshwater resources to developing countries and countries with economies in transition. The Centre serves as a proactive inter-mediator for cooperation between sources and users of ESTs.</p> |
| <p>The Sanitation Connection (SANICON)</p> | <p>Developing and maintaining a knowledge base on sanitation; sharing experience and expertise in best practices and procedures</p> | <p>WHO together with WSP, UNEP, WSSCC and the International Water Association</p> | <p>This programme supports a very useful website at http://www.sanicon.net/ which provides a wealth of information on environmental sanitation.</p> |
| <p>Capacity-building : developing Guidelines for Wastewater Reuse</p> | <p>Improving wastewater treatment and reuse in partner countries, by providing guidance to Member States on best practice in wastewater reuse with a view to minimising health hazards.</p> | <p>WHO together with FAO and the UNEP GPA</p> | <p>Developing Guidelines for Wastewater Reuse in agriculture and aquaculture (activity in progress, no website yet available). In many parts of the world, wastewater reuse is an established agricultural practice which may have serious health implications, but its safe application carries ecological and economic benefits through its fertiliser value (phosphates, nitrates and organic matter). The guidelines aim to maximise the benefits of this practice while minimising the health hazards.</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|---|--|---|--|
| <p>Selected research being carried out within the UN system on environmental dimensions of sanitation</p> | <p>Research examining the effects of population growth on village water supply, housing and sanitation</p> <p>Research on the effects of water-related diseases and inadequate sanitation on adolescent girls' reproductive health</p> <p>Research investigating agricultural impacts related to heavy metals in water, for agricultural sustainability and potential food chain effects</p> | <p>UN Population Fund (UNFPA) together with the Environmental Institute in New Delhi, India</p> <p>UNFPA with the WHO and WEDO as partners</p> <p>FAO together with WHO and UNDP</p> | <p>The research aims to understand the interrelationships between population growth, water supply and sanitation in the village context, and their implications and consequences.</p> <p>This research project is primarily focusing on girls growing up in dense informal settlements without adequate services.</p> <p>A water quality monitoring programme is being set up, and areas where high concentrations of toxic heavy metals are identified will be studied to investigate downstream impacts.</p> |

Water, health and poverty

16. The lives of poor people are the locus where the overarching themes of water, health and poverty intersect. Clean drinking water, proper water management, sustainable sanitation and good hygiene are essential for human health, and this part of the paper reviews activities in these sectors from the point of view of access by poor communities. Gender issues and reproductive health are highly relevant, as poor women carry the greatest burden in situations of water scarcity and poor sanitation. Disaster reduction and early warning systems are an essential part of water management, since poor people are the most vulnerable and the hardest hit by water-related disasters, such as floods and drought. Many other issues are relevant to the linkage between water and poverty, such as food security, equitable trade mechanisms, and exposure to industrial pollution. Good water governance and capacity-building at a local level are crucial for poverty alleviation. Finally, the equitable sharing of transboundary water resources is recognised as a necessary underpinning for effective national sustainable development plans and poverty reduction strategies.

17. All UN agencies have a poverty reduction focus. Hence **UNDP's** country offices support many of the activities listed below in the field of water, health and poverty, as do **UNICEF's** and **WHO's** country teams, **UNEP's** regional offices, and **UNESCO's** regional resource centres. The **WHO/UNICEF** Water and Sanitation Joint Monitoring Programme (JMP) tracks coverage of water supply and sanitation world-wide, thereby providing the baseline information for implementation of the Millennium Development Goals related to water and sanitation. The Water, Sanitation and Health programme of the World Health Organisation (**WHO**) analyses the Burden of Disease attributable to the lack of access to water, sanitation and hygiene, and emphasises low-cost solutions, where minimal investments can lead to maximum health gains in vulnerable communities. In this regard the WASH Campaign of the Water Supply and Sanitation Collaborative Council (WSSCC), which is supported by the WHO and many other UN agencies, has been especially effective.

18. The **UNDP-World Bank's** Water and Sanitation Programme (WSP) reaches many countries and works with poor communities. WSP is working with the JMP and a number of donor agencies to promote regional reform to accelerate the implementation of the MDGs, as well as to strengthen the integration of water supply and sanitation into the Poverty Reduction Strategy Papers (PRSPs) of various countries, notably in Africa. PRSPs are the main instruments whereby individual countries plan their approach to fighting poverty, hence it is crucial that water, health and environmental linkages are reflected in these strategies. The Bank-Netherlands Water Partnership Programme (BNWPP) is an example of how a donor organisation links with the UN system to tackle key strategic areas of water and poverty, and similar partnerships have been established by USAID, the EU, ADB, AfDB, DFID and others.

19. **UN-HABITAT's** numerous Water for Cities programmes have already been discussed in section 3, as they cover environmental aspects of sanitation, which was the focus of the previous section. However, since these programmes have strong components on urban poverty, water governance and issues of access, they must also be mentioned here (for details and websites of these programmes, please refer to section 3 above). The International Strategy for Disaster Reduction (**ISDR**) is an essential interagency mechanism of the UN which seeks to reduce the human, social, economic and environmental losses resulting from water-related disasters. The **ISDR** and **WMO** are working together to prepare for World Water Day 2004, which has the theme "Water and Disaster". It must be noted that the impact of disasters on poor people includes both the immediate effects of flood or drought events, in terms of death, disease and loss of income, as well as longer-term environmental problems which may be caused regarding the loss of resources and infrastructure.

20. The **World Bank** and **UNDP** have programmes dealing with transboundary water issues (often in a GEF-World Bank-UNDP partnership), as does **UNEP**, the latter through the Global

International Waters Assessment (GIWA) which was covered in section 2 above. The Water, Natural Resources and SIDS Branch of **UNDESA's** Division for Sustainable Development works at national and regional levels on livelihoods issues in integrated water resource management as well as other natural resources areas, and in the sustainable development of Small Island Developing States (SIDS). Other UN agencies and MEAs including **UNEP, FAO, UNESCO, UNFPA, UNITAR, UNCTAD** and the **Basel Convention** have activities linking poverty and livelihoods issues with water, from a multiplicity of perspectives. The **Ramsar Convention** is developing a major focus on wetlands and livelihoods, in preparation for its next Conference of the Parties in 2005.

OVERVIEW LIST OF MAJOR ACTIVITIES IN THE UN SYSTEM ON WATER, HEALTH AND POVERTY

- (i) **WHO/UNICEF Water and Sanitation Joint Monitoring Programme**
<http://www.wssinfo.org/en/welcome.html>
- (ii) **The Water and Sanitation Program (WSP)** <http://www.wsp.org/>
- (iii) **WHO's Water, Sanitation and Health Programme / Health in Water Resources Development**
http://www.who.int/water_sanitation_health/en/
- (iv) **Water Supply and Sanitation Collaborative Council and the WASH Campaign**
<http://www.wsscc.org/>
- (v) **Prevention, control and reduction of water-related diseases in Europe under the London Protocol on Water and Health to the 1992 UNECE Water Convention**
http://www.unece.org/env/water/text/text_protocol.htm
- (vi) **FRESH (Focusing Resources on Effective School Health)**
http://www.unesco.org/education/efa/know_sharing/flagship_initiatives/
- (vii) **UNFPA Case Studies** <http://www.unfpa.org/>
- (viii) **Pro-poor Urban Water Governance**
- (ix) **CIFAL Centers Training of Local Authorities : Centres Internationaux de Formation des Acteurs Locaux (CIFAL)**
<http://www.unitar.org/dcp/french/index.htm>
- (x) **Bank-Netherlands Water Partnership Program**
<http://www-esd.worldbank.org/bnwpp/>
- (xi) **Strategies for Disaster Reduction** www.unisdr.org
www.eird.org (website for Latin America and the Caribbean)
- (xii) **UNEP's Water and Poverty Reduction activities**
<http://www.unep.org/GoverningBodies/GC22/documents.asp>
- (xiii) **The Special Programme for Food Security (SPFS) / Water component**
<http://www.fao.org/spfs/>
- (xiv) **The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Other Wastes and their Disposal** <http://www.basel.int/>

- (xv) The Africa Stockpiles Programme** <http://www.africastockpiles.org/>
- (xvi) Reconciliation of Environmental and Trade Policies** http://r0.unctad.org/trade_env/nethpro.htm
- (xvii) The Transboundary River Basin Initiative (TRIB)** <http://www.undp.org/water/trans.html>
- (xviii) The Nile Basin Initiative** <http://www.nilebasin.org/>
<http://www.worldbank.org/afr/nilebasin/overview.htm>
- (xix) Small Island Developing States Network (SIDSnet)** <http://www.sidsnet.org/>

OVERVIEW TABLE OF MAJOR ACTIVITIES IN THE UN SYSTEM ON WATER, HEALTH AND POVERTY : PARTNERS, OBJECTIVES AND OUTPUTS

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|---|--|--|--|
| Water and Sanitation Joint Monitoring Programme | Monitoring status and trends in the global coverage of improved water supply and adequate sanitation in all Member States. | WHO and UNICEF . Other affiliations include UN-HABITAT , UNEP , WSSCC , WSP , DFID , and the International Water Association | The programme supports the global mobilization of resources to facilitate data collection, focusing on service user information. It includes the preparation of baseline and monitoring methodologies to ensure reliable and consistent reporting on water and sanitation statistics. |
| The Water and Sanitation Program (WSP) | Helping the poor gain sustained access to improved water supply and sanitation services; supporting water and sanitation sector reform focusing primarily on poverty-targeted, gender-sensitive, community-based solutions in rural settlements, urban areas, and small towns. | World Bank, UNDP and external country partners. | Primarily a field-based organization with regional offices in Africa, East Asia and the Pacific, Latin America, and South Asia, and a Washington, D.C.-based headquarters. WSP staff provide advisory support, help identify and disseminate best practices and lessons from experience across countries, and facilitate informal networks of practitioners and sector stakeholders. |
| WHO's Water, Sanitation and Health Programme / Health in Water Resources Development | Assessing the Burden of water-associated Disease associated with water resources development; strengthening the knowledge base on the association between water resources and health; cost-effectiveness analysis of water interventions for health. | WHO | This broad programme focuses on three areas, namely : health impact assessment , intersectoral collaboration , and environmental management , in order to reduce transmission and exposure risks. It also explores options to integrate health risk assessment and management into strategies and programmes for nature conservation, in particular of wetlands, and for the promotion of biological diversity . Through the Water, Sanitation and Health programme, the WHO now participates and provides health inputs into a range of poverty reduction activities, including the Asian Water and Poverty initiative in collaboration with the Asian Development Bank. |
| The Water Supply and Sanitation | Enhancing collaboration in the water supply and sanitation sector, focusing on | A multi-stakeholder initiative housed by | A successful and visible campaign entitled "WASH: Water, Sanitation and Hygiene for all" has |

| AMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|---|--|--|---|
| <p>Collaborative Council (WSSCC) and the WASH Campaign</p> | <p>hygiene promotion, environmental sanitation, institutional and management reform in the water and sanitation sector, and community-based approaches, including a code of ethics and gender mainstreaming, based on a fundamental commitment to poverty elimination and sustainable human development.</p> | <p>WHO, and working in close cooperation with the UN's Department of Economic and Social Affairs (UN/DESA)</p> | <p>been launched by WSSCC, aimed at mobilizing political support and action around the world to end the suffering of the more than 2.4 billion people who are without access to adequate sanitation and the 1.1 billion without a safe and affordable water supply. UN-HABITAT is now collaborating with WSSCC to launch a WASH campaign in cities and towns, entitled Urban WASH.</p> |
| <p>Prevention, control and reduction of water-related diseases in Europe, under the London Protocol on Water and Health to the 1992 UNECE Water Convention</p> | <p>Assisting countries to achieve the MDG goals related to drinking water supply and sanitation, and substantially to reduce water-related diseases; including strong stakeholder participation, a pro-poor emphasis, and gender sensitivity.</p> | <p>A multi-agency (under the auspices of UNECE and WHO) and multi-country initiative</p> | <p>Promoting sustainable water supply and management in cities and rural areas; rehabilitation of defective water-supply and sewage systems; minimization of adverse impact of human activities (e.g. waste-water discharges, water resources development projects) on human health and safety; reducing health problems and diseases due to poor water quality; development of guidelines and methodologies; human resources development and institutional capacity building.</p> |
| <p>FRESH (Focusing Resources on Effective School Health)</p> | <p>Improving holistic approaches and providing multiple strategies - rather than individual approaches - to promote health and nutrition through schools. The programme also promotes gender equity and provides skills-based health education, and school-based health and nutrition services.</p> | <p>Launched by UNESCO, UNICEF, WHO and the World Bank during the World Education Forum, Dakar, April 2000, and is now run in association with Education International. The FRESH initiative is not intended to create new structures and projects, but to build in the approach in various educational</p> | <p>The programme links health-related school policies with the provision of safe water and sanitation - the essential first steps towards a healthy physical learning environment. This has been shown to be a highly effective mechanism for reaching the poorest children, and making a tangible contribution to their lives by improving their levels of basic hygiene and nutrition.</p> <p>The school environment may damage the health and nutritional status of schoolchildren, particularly if it increases their exposure to hazards such as infectious disease carried by the water supply. Hygiene education is meaningless without clean water and adequate sanitation facilities. It is a realistic goal in most countries to ensure that all schools have access to clean water and sanitation.</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
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| UNFPA Case Studies | <p>(1) Illustrating the linkages between poverty eradication, women's empowerment and access to and control of natural resources, including water.</p> <p>(2) Exploring the effects of water scarcity on the reproductive health of women living in unplanned settlements.</p> | <p>projects and programmes.</p> <p>UNFPA in conjunction with WEDO</p> <p>UNFPA together with WHO and UN-HABITAT</p> | <p>and that separate toilet facilities are provided for boys and girls.</p> <p>This case study aims to show the interconnectedness of MDGs 1, 3 and 7 (regarding poverty eradication(Goal 1), gender equality and women's empowerment (Goal 3) and environmental sustainability (Goal 7)) and to demonstrate how progress on one goal depends on the advancement of other goals.</p> <p>This project looks at the links between water scarcity and quality and reproductive health needs in marginal settlements in selected countries. Exposure to contaminated water is linked to pregnancy failures as well as infant illnesses and deaths. Lack of access to safe water and sanitation obliges poor women to spend hours every day collecting water from communal taps or directly from streams and rivers. This exposes them and their children to malaria and to water-related diseases that affect their reproductive health.</p> |
| Pro-poor Urban Water Governance | Supporting global efforts in sector reform, partnerships and decentralization, within the urban water supply and sanitation sector, for poverty reduction and the achievement of the MDGs. | Chaired by UN-HABITAT and the Bank-Netherlands Water Partnership , and carried out in collaboration with the Global Water Partnership , IIED and L'Alliance Maghreb pour l'Eau. | The programme is developing a methodology to assess governance regimes in urban water supply and sanitation sector, as well as toolkits for national and local government policy makers to improve urban water management for cities. |
| CIFAL CENTERS TRAINING OF LOCAL AUTHORITIES / | Capacity-building and supporting exchanges of best practices between local authorities, NGOs and the private | UNITAR working with UNDP , CITYNET , Veolia | Through training in "Integrated Urban Planning for Sustainable Urban Management", local authorities acquire capacity in improving access by the urban |

| AMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|--|--|
| <p>Centres Internationaux de Formation des Acteurs Locaux (CIFAL)</p> | <p>sector.</p> | <p>Environnement, City of Kuala Lumpur (Malaysia), Curitiba (Brazil), Programme de développement Municipal, Mairies Francophones, European cities (Lyon, Geneva, etc.), and the City of Ouagadougou (Burkina Faso)</p> | <p>poor to water and wastewater infrastructure and services. 3 training sessions for 25 participants were undertaken between September and November 2003 in Africa, Asia and Latin America, on access to essential services which includes a strong focus on water and poverty, and disaster management. Following the success of the first phase of CIFAL, there are 18 training sessions for 25 participants each planned in 2004 – 2005 in Africa, Asia and Latin America, on access to essential services. A CIFAL newsletter, CITYNET and web-based training also support distance learning for many more participants.</p> |
| <p>Bank-Netherlands Water Partnership Program (BNWPP)</p> | <p>Increase water security through the sponsorship of novel approaches in Integrated Water Resources Management, and thereby contributing to the reduction of poverty.</p> | <p>Government of the Netherlands and the World Bank</p> | <p>The programme is organised through a number of “windows”, such as the Environmental Flow window which strives to integrate environmental flow requirements into water allocation decision making, and the Livelihoods of the Poor window, which increases participation of poor people in water resources management by strengthening project design to include the poor’s representation in institutions through which water policy is made. To date, the BNWPP has financed over 200 activities.</p> |
| <p>Sanitation and Hygiene Promotion window of the BNWPP</p> | <p>Exploring how hygiene and sanitation programs may be effectively scaled up in order to achieve the Millennium Development Goals in Indonesia; analysing key success factors for sustainable sanitation, and summarising lessons learned for use in project design and implementation.</p> | <p>World Bank in close collaboration with the Government of Indonesia, WHO and UN-HABITAT</p> | <p>This is one of the projects funded by the BNWPP Sanitation and Hygiene Promotion Window. Most of the investments made in infrastructure in Indonesia have been made by households, industrial, and commercial establishments utilizing their own resources. Untreated human wastes have polluted ground water, canals, and other water bodies. Particularly, the negative impacts have been felt by the children of the urban poor, as they live and play in faecally-contaminated neighborhoods. A policy framework paper is</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|---|--|
| <p>Strategies for Disaster Reduction</p> | <p>Addressing vulnerability, risk assessment and disaster management, with the objective of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental disasters, as an essential element of a safer world in the 21st century.</p> | <p>The Inter Agency Task Force on Disaster Reduction includes FAO, UNDP, UNESCO, UN-HABITAT, UNEP, WFP, WHO, WMO, World Bank, and other public and private organisations</p> | <p>being developed in collaboration with the Indonesian government.</p> <p>Vulnerability to disaster is closely associated with poverty. The analysis of disaster impact shows that an estimated 97 per cent of natural disaster-related deaths each year occur in developing countries. Regional consultations carried out by UN/ISDR during 2002 in the Africa region, the Asia region, the American Hemisphere and the Europe region assessed the current needs and constraints in respect to early warning. The past decade has seen many technical improvements, arising from better understanding of the physical causes of disasters, better tools for forecasting and prediction, including seasonal forecasts, and better monitoring and modelling of flood-related factors: soil moisture, crop status and river levels. Slower progress is being made in developing comprehensive drought monitoring and mitigation programmes. There remains a need to develop specific methodologies to reduce risk and vulnerability to disasters in areas such as environmental management, land use planning, financial tools and early warning. A framework is being developed to provide principles and goals in disaster risk reduction, in order to facilitate the adoption by Member States of a Plan of Action 2005-2015.</p> |
| <p>UNEP's Water and Poverty Reduction and strategies activities</p> | <p>Developing sustainable policies for integrated water management and transboundary waters; addressing the interface between freshwater, coastal area management and the marine environment in order to protect livelihoods.</p> | <p>UNEP in partnership with the UNDP, the World Bank, expert groups, civil society organizations and other stakeholders, including the</p> | <p>The application of UNEP's conceptual framework on poverty and ecosystems (see documents UNEP/GC.22/8/Add.3 and UNEP/GC.22/Inf.30) is being translated into action through six pilot cases, focusing on country studies, notably in Africa. The link between poverty, health and the environment is nowhere closer than with regard to water issues. Capacity-building, technology transfer,</p> |

| | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|---|---|
| <p>The Special Programme for Food Security (SPFS) / Water component</p> | <p>Helping those living in developing countries to improve their food security through rapid increases in food production and productivity, by reducing year-to-year variability in food production on an economically and environmentally sustainable basis, and by improving people's access to food.</p> | <p>governments of the Netherlands, Norway and Belgium</p> <p>FAO together with local institutions in a number of countries</p> | <p>development of sustainable policies for water management, and raising of finance for integrated water management projects are some of the very concrete steps that are being taken by UNEP. Furthermore, the regional seas programme, the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and the Global International Waters Assessment (GIWA) provide the basis for targeted action for the sustainable use of oceans and coastal areas, leading to the protection and enhancement of millions of livelihoods.</p> <p>Assisting farmers to increase their production means using more effective, low-cost technologies and proven techniques adapted to local conditions. Locally-adapted irrigation management can be used to improve the food security of the poorest and most vulnerable groups. Under the SPFS Water Control Component, simple locally-available or adaptable technologies such as the treadle pump are developed and diffused throughout project areas. It is essential to introduce irrigation technologies which are affordable and which can be easily learned and maintained by the users.</p> |
| <p>The Strategic Plan for the Implementation of the Basel Convention to 2010 – Contribution to protection of health, reduction of poverty and sustainable development</p> | <p>Control and reduction of transboundary movements of hazardous and other wastes; prevention and minimization of their generation and their environmentally sound management; development of waste prevention and minimization programmes and tools, and active promotion of the development, transfer and use of cleaner technologies, especially for developing countries and countries with economies in transition.</p> | <p>Secretariat of the Basel Convention working with UNEP, FAO, UNIDO, WHO, UNITAR, UNCTAD, and the UN Regional Economic Commissions</p> | <p>The Strategic Plan focuses on concrete implementation of prevention, minimization, recycling and disposal of hazardous and other wastes. Priority is given to support countries to develop a capacity to move away from the unsound management of wastes (e.g. biomedical and healthcare wastes, used oils, obsolete stocks of pesticides, PCBs, and used lead-acid batteries) that have adverse effects on water quality, can directly affect health or aggravate water-related vector-borne diseases, and affect vulnerable or sensitive ecosystems like coral reefs or mangroves</p> |

| PROGRAMME NAME | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|---|--|---|
| <p>The Africa Stockpiles Programme</p> | <p>Cleaning up and disposing safely of all obsolete pesticide stocks from Africa, and establishing preventive measures to avoid future accumulation; bringing together the skills, expertise, and resources of a diverse group of stakeholders to offer a rapid, sustainable solution to an urgent problem.</p> | <p>Secretariat of the Basel Convention (SBC) working together with partners including the FAO, the Stockholm Convention, UNEP, UNIDO, UNECA, the World Bank and the African Union, as well as NGOs (GEF funded)</p> | <p>that play an important role in sustaining local communities. Another priority is to reduce or limit contamination or pollution of a transboundary nature, resulting from hazardous or other wastes, or from toxic compounds contained in waste that endangers transboundary river systems, lakes or coastal zones</p> <p>Thousands of tonnes of obsolete pesticides have accumulated throughout the African continent, threatening the environment and surrounding communities - often the poorest and most vulnerable - through the contamination of food, water (both surface and groundwater), soil, and air. Following the success of the Africa Stockpiles Programme, the SBC is planning to develop the Used Oil Partnership for Africa, a global partnership for environmentally sound management of used oils in Africa, to prevent contamination of surface and groundwater. The partnership will involve interagency collaboration, national governments, environmental NGOs and industry.</p> |
| <p>Reconciliation of Environmental and Trade Policies</p> | <p>Strengthen the capacity of developing countries and economies in transition to reconcile trade and trade policy with sustainable development objectives, to promote a positive agenda on trade and environment in the WTO and other relevant forums; to trade in environmental goods, services and technologies as well as in products and services derived from eco-systems and traditional knowledge</p> | <p>UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development, MEAs, particularly CBD and UNFCCC, WTO, FAO, WHO, UN regional commissions</p> | <p>Policy analysis, parliamentary and technical assistance services relating to specific trade obligations and enabling measures in relevant MEAs; (liberalization of) trade in environmental goods and services, including water distribution, waste-water management and sanitation services; and the production of and trade in eco-system goods and services</p> |
| <p>The Transboundary River Basin Initiative (TRIB)</p> | <p>Management of transboundary waters for sustainability and poverty reduction.</p> | <p>UNDP together with various river basin organizations in Asia, Africa, Central</p> | <p>The TRIB project provides focused support to riparian countries. It comprises several components designed according to a basin's specific circumstances which have been shaped</p> |

| | GOALS AND OBJECTIVES | PARTNERS | OUTPUTS AND ACTIVITIES |
|--|--|---|---|
| <p>The Nile Basin Initiative</p> | <p>Achieving sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources</p> | <p>Asia and Latin America</p> | <p>by ongoing processes and riparian relations. Wherever possible, the project coordinates closely with ongoing activities hosted by UNDP or other partner agencies to leverage outcomes beyond its resource base. The TRIB project is lending measured support to: Mekong Basin, Niger Basin, Frio Sub-basin, Senegal Basin, Kura-Aras Basin, Southern Africa transboundary waters (Limpopo and Zambezi Basin countries, and the SADC). The project aims to support riparian countries as they seek sustainable and equitable development of their shared waters resources.</p> |
| <p>Small Island Developing States Network (SIDSnet)</p> | <p>Adopting and implementing plans and programmes to support the sustainable development and utilization of the marine and coastal resources of small island developing States (SIDS), including meeting essential human needs, maintaining biodiversity and improving the quality of life for island people; adopting measures that will enable small island developing States to cope effectively, creatively and sustainably with environmental change.</p> | <p>Rwanda, Burundi, Democratic Republic of Congo (DRC), Eritrea, Egypt, Kenya, Tanzania, and Uganda, supported by UNDP, CIDA and other donors</p> | <p>The Nile Basin Initiative, launched in February 1999, is a regional partnership within which the 10 countries of the Nile basin have united in common pursuit of the long-term development and management of Nile waters, expressing a serious concern about the need to work together to fight poverty. The NBI has developed an agreed basin-wide framework and a strategic plan of action, within which a portfolio of agreed projects are to take place.</p> |
| | | <p>UN-DESA working with the Alliance of Small Island States (AOSIS) and UNDP, with funding from GEF and the governments of Japan, Norway, Italy, Germany and France</p> | <p>The SIDS share similar sustainable development challenges, including small population, lack of resources, remoteness, susceptibility to natural disasters, excessive dependence on international trade and vulnerability to global developments. SIDSnet is a direct follow-up to the 1994 Barbados Programme of Action (BPOA) on SIDS, improving Internet awareness and infrastructure and linking 41 SIDS in support of the objectives of the BPOA. National training workshops are organised, and currently regional preparatory meetings are ongoing for the 10-year review of the BPOA to be held in Mauritius in September 2004.</p> |

Conclusions

21. This survey of programmes and activities across the UN system shows the extent of inter-agency cooperation taking place on three crucial environmental aspects of the water agenda. As water is the medium which supports all life on earth, the interrelationships between water and other key sectors are many and complex. Effective responses to the water crisis must necessarily take on consultative and participatory multi-disciplinary, multi-sectoral approaches. The cross-cutting issues of capacity building, technology transfer, and water governance have been merely touched on in this review, but there is a great deal of activity taking place in these areas too across the UN system. In November 2003 the UN-Water Group was formalised as the coordination mechanism for water activities across all UN organisations, which will increase the efficiency and effectiveness of the UN system in responding to the water crisis, and the EMG is collaborating closely with the UN-Water Group in this respect on the environmental aspects. Concerted and combined programming of activities is essential, and this also needs to be underpinned by more concerted action on the part of donors.

22. Hence the UN system is responding to the need and urgency for tackling the water crisis and responding to the challenge of the MDGs in a systematic way. The first United Nations World Water Development Report, prepared by UN-Water, was mandated by CSD-6. Its publication coincided with the International Year of Freshwater 2003 and the Third World Water Forum in Kyoto. It is an excellent example of cooperation within the UN system. UN-Water's World Water Assessment Programme, with a Secretariat hosted by UNESCO, has the WWDR as its flagship report and main product so far. The first edition of the WWDR shows progress in the implementation of Agenda 21 since Rio de Janeiro, and in the attainment of the water related MDGs. Work has already started in the preparation of the second edition that should be launched in 2006. This multi-faceted report provides many pointers for the way forward. Together with the information provided by UN-Water member agencies and programmes and other EMG members for the preparation of this information paper, some proposals are set out below for strengthening action in the following three areas :

- 1) the application of ecosystem approaches within integrated water resource management;
- 2) the environmental dimensions of sanitation;
- 3) issues regarding water, health and poverty.

23. **Strengthening ecosystem approaches in IWRM within the UN system :**

- **Allocation of water to environmental flow requirements.** With a great deal more awareness now with regard to water scarcity, especially in "closed" river basins where existing allocations have already exhausted or exceeded available supplies of freshwater, issues of water reallocation among sectors come to the fore. The allocation of water to environmental flow requirements remains to be addressed in many national water policies and strategies, without which these policies are unsustainable. New approaches and concerted action within the UN system are needed to ensure that environmental sustainability is achieved.
- **Increasing urban biodiversity and using ecosystem approaches in urban stormwater management and urban catchment management.** Within rapidly urbanising developing countries, there is a great opportunity to improve urban biodiversity, as well as improving water quality and reducing health risks, by applying the ecosystem approach in the design of urban stormwater systems. Such a programme, perhaps linking the activities of UN-HABITAT, the World Bank with UNESCO's International Hydrology Programme may be beneficial.
- **Applying ecosystem approaches in irrigated and rainfed agricultural systems.** It has been demonstrated that ecosystem approaches can be used to make farmers aware of the benefits of increasing biodiversity within the system, in various ways including linking aquaculture with agriculture; making use of the principles of Integrated Pest Management (IPM); and improved fertiliser management. There is scope to scale up these approaches within international programmes. Other issues where ecosystem approaches may be applied include rainwater harvesting systems designed to increase biodiversity; and the sensitive management and cultivation of seasonal wetlands. The Secretariats of the Convention on Biological Diversity and the Ramsar Convention may wish to reinforce their joint activities with FAO's Land and Water Division in regard to both irrigated and rainfed agriculture.
- **Promoting awareness of the virtual water trade.** On a global level, the issue of the virtual water trade deserves a higher profile, as some countries can make substantial water savings by decreasing their exports of virtual water. Water-scarce countries need to refocus agricultural production to export less of their water-intensive, irrigated crops, and make the switch to higher-value crops or other uses, thereby increasing the productivity of the water they consume. Conversely, virtual water can be imported by water-scarce

countries, through the importation of water-intensive, low-value crops and products. This is an issue in the economics of water, with complex political and social implications, where the international organisations such as FAO and UNCTAD could intensify their activities.

- **Producing better statistics and more accurate estimates of the true values of freshwater resources.** The important relationships between inland waters, the biodiversity they support, and the livelihoods of people are still not well documented. Improved information on production, fisheries, the level of livelihoods dependency, and the extent of utilisation of inland waters biodiversity is urgently required. Clearly, this information together with the creation of a widespread awareness of the interrelationships between these three factors is necessary to underpin successful implementation of ecosystem approaches in IWRM. The FAO and the World Bank would be essential partners in this activity, together with the initiative on indicators being led by the World Water Assessment Programme.
- **Applying ecosystem approaches in the construction of new dams and the management of existing dams.** Following the report of the World Commission on Dams in 2001, there are increasing opportunities to apply ecosystem approaches and principles in the ongoing international debate on the sustainability of existing and new dams, the human health implications of which also deserve further emphasis. The CBD, Ramsar, UNEP, WHO and the World Bank have critical roles to play in these issues.

24. **Strengthening environmental dimensions of sanitation within the UN system :**

- **The intensification of wastewater reuse for a range of uses other than agricultural irrigation.** At present the practice of wastewater reuse in agriculture and aquaculture is under scrutiny, especially by WHO, but there is as yet little coordinated effort internationally to achieve higher levels of wastewater reuse and recycling in a range of other uses (including urban irrigation, and water for lower-quality uses such as firefighting and industrial cooling). Widening the range of uses for reclaimed wastewater contributes to intensifying land-based recycling of water, which is a powerful way of keeping water demand in check, and increasing the economic productivity of each litre of water that is abstracted. As most of the alternative uses are urban, the Sustainable Cities Programme of UN-HABITAT could be expanded to incorporate this issue, working together with UNEP and the GPA.
- **Ecological sanitation and the future of waterborne sewerage systems.** While ecological sanitation is currently receiving some attention within programmes, there is a strong motivation for expanding this approach. Waterborne sewerage is not a sustainable large-scale sanitation option for many water-scarce countries. In meeting MDGs, a greater emphasis will need to be placed on small decentralised sanitation systems, minimising water use, as compared to waterborne sewerage.
- **The viability of establishing zero-effluent discharge targets for human settlements as well as industries.** Many *industries* are currently striving for cleaner production, including zero-effluent targets for on-site wastewater management. However, there is no international programme which explicitly examines the viability of zero-effluent discharge targets for *human settlements*, in the context of sanitation. The possibilities of establishing a variety of national and regional Wastewater Emission Targets are currently under investigation in the Strategic Action Plan on Municipal Wastewater, and this approach could be strengthened.
- **Endocrine-disrupting chemicals.** Many chemicals, including of course those used in the manufacture of contraceptive pills, have endocrine-disrupting effects, which have been linked in numerous ecosystems to the widespread feminisation of male fish, dwindling fish stocks and a resultant loss of biodiversity. This is an issue that is closely related to wastewater discharge, as conventional treatment does not remove many of these chemicals. The criteria for subjecting chemicals to the provisions of the MEAs do not explicitly include endocrine disruption, so not all endocrine-disrupting chemicals are covered by them. Also, the management of chemicals under these Conventions does not necessarily address their endocrine-disrupting effects, although the Basel Convention would be well-placed to remedy this. More research on the health implications is also needed to be done, under WHO leadership.

25. **Strengthening water, health and poverty approaches within the UN system :**

- **Flood and drought risk management versus emergency assistance.** Progress in the use of warnings to achieve effective responses and interventions aimed at disaster reduction has been inadequate, particularly at the local level and at the national and community levels in developing countries. Major concerns and constraints include the design of warning messages, community engagement, understanding of appropriate responses, the credibility of warnings, issues of responsibility and authority, as well as inadequate access to warnings by poor, vulnerable, high-risk groups. Forecasting and early warning of natural hazards also require strengthening of basic data collection mechanisms in the form of hydrologic and meteorologic data networks. There remains an important gap in the amount of resources devoted to hazard identification and risk management, compared to emergency assistance. An integrated approach to flood

management and prevention, duly addressing flood risk issues and incorporating all available options, must be encouraged. Further, the interagency cooperation coordinated by ISDR needs to be strengthened. The promotion of sustainable disaster reduction strategies, such as wetland conservation as buffer zones, storm water management, and upstream catchment re-forestation need substantially greater efforts and resources.

- **Risk management for low-level disasters.** Low-level disasters, i.e. those which affect a smaller number of people in one incident, are very wide-spread and affect large numbers of poor people world-wide every year. Poor people in both urban and rural areas tend to locate on marginal land with high levels of inherent risk and vulnerability to disaster. Progress in the use of warnings of fires, floods and land-slides to these groups of people is at a very early stage and deserves to be strengthened across the international system. The UNDP's Bureau for Crisis Prevention and Recovery could provide guidance on this issue together with ISDR and UNEP.

- **Water supply and sanitation in the context of an integrated approach to informal settlement upgrading.** 72% of Africa's urban population currently live in slums, most of which are informal (self-built) housing. The rapid urbanisation projected to take place in Africa will result predominantly in the formation of more and larger informal settlements as well as the densification of existing informal settlements. In this context, the approach to service provision in informal settlements is a very important subset of the UN's focus on slum-dwellers. Purely physical interventions risk damaging the fragile community fabric of these areas, and should be seen as emergency responses rather than the sustainable delivery of services. The upgrading of informal settlements needs to be a participatory and integrated process, in which the physical provision of services such as water and sanitation plays an important but subsidiary role to the social and economic transformation of these areas. This would require further interagency effort, including UN-HABITAT, WHO, UNESCO, and UNEP as well as the ILO.

- **Water-Poverty-Environment indicators to underpin effective water governance and management.** Water, poverty and environment are closely interlinked, because the poor are the most vulnerable to environmental risk factors including unsafe water or climate change, especially women and children. However, the poor are often the least empowered to bring about improvements, because of their lack of economic or political power. To break this cycle, the international community should increase awareness and interest in multi-sectoral integrated approaches, including poverty, health and environment. Since much of the development aid from donor countries is focusing on poverty reduction, the UN system should improve the mainstreaming of Water-Poverty-Environment indicators into ongoing processes (such as PRSPs and other planning processes addressing these interlinkages), and actively use them to harmonise sectoral aid programming and to measure the progress made in meeting the Millennium Development Goals and implementing multilateral environmental agreements.

ANNEX 1. ORGANISATIONS RESPONDING TO THE EMG QUESTIONNAIRE

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| CBD | Convention on Biological Diversity, www.biodiv.org |
| FAO | Food and Agricultural Organization of the United Nations, www.fao.org |
| IAEA | International Atomic Energy Agency www.iaea.org |
| ILO | The International Labour Organisation, www.ilo.org |
| RAMSAR | The Ramsar Convention, www.ramsar.org |
| UN/ISDR | The International Strategy for Disaster Reduction, www.unisdr.org |
| UNCTAD | UN Conference on Trade and Development, www.unctad.org |
| UN/DESA | The UN Department of Social and Economic Affairs, www.un.org/esa/ |
| UNDP | The United Nations Development Programme, www.undp.org |
| UNECA | The Economic Commission for Africa www.uneca.org |
| UNECE | The Economic Commission for Europe www.unece.org |
| UNECLAC | The Economic Commission for Latin America and the Caribbean, www.uneclac.cl |
| UNEP | The United Nations Environment Programme, www.unep.org |
| UNESCAP | The Economic and Social Commission for Asia and the Pacific, www.unescap.org |
| UNESCO | The United Nations Educational, Scientific and Cultural Organisation, www.unesco.org |
| UNESCWA | The Economic and Social Commission for Western Asia, www.unescwa.org.lb |
| UNFPA | The United Nations Population Fund, www.unfpa.org |
| UN-HABITAT | UN-HABITAT (formerly the UN Commission on Human Settlements, UNCHS), www.unhabitat.org |
| UNHCR | The UN High Commission for Refugees, www.unhcr.org |
| UNICEF | The United Nations Children's Fund, www.unicef.org |
| UNIDO | The UN Industrial Development Organisation, www.unido.org |
| UNITAR | The United Nations Institute for Training and Research, www.unitar.org |
| UNU | The United Nations University, www.unu.edu |
| WHO | The World Health Organisation, www.who.org |
| WMO | The World Meteorological Organisation, www.wmo.org |
| World Bank Group | The World Bank Group. The term "World Bank" refers specifically to the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). www.worldbank.org |
| WTO | The World Trade Organisation, www.wto.org |

OTHER ABBREVIATIONS USED

| | |
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| ADB | Asian Development Bank |
| AfDB | African Development Bank |
| BMP | Best Management Practice |
| CSD | Commission on Sustainable Development |
| DFID | Department for International Development, United Kingdom |
| EMG | Environmental Management Group |
| EU | European Union |
| GC | UNEP Governing Council |
| GIWA | Global International Waters Assessment |
| GMEF | Global Ministerial Environment Forum |
| GPA | Global Programme of Action for the Protection of the Marine Environment from Land-based Activities |
| IIED | International Institute for the Environment and Development |
| IPM | Integrated Pest Management |
| IWA | International Water Association |
| IWRM | Integrated Water Resources Management |
| JMP | Water and Sanitation Joint Monitoring Programme |
| MDG | Millennium Development Goal |

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|-----------|---|
| MEA | Multilateral Environmental Agreement |
| PRSP | Poverty Reduction Strategy Paper |
| SCP | Sustainable Cities Programme |
| UN/DOALOS | UN Division for Ocean Affairs and the Law of the Sea |
| USAID | United States Agency for International Development |
| WEDO | Women's Environment & Development Organisation |
| WET | Wastewater Emission Targets |
| WSP | Water and Sanitation Program |
| WSSCC | Water Supply and Sanitation Collaborative Council |
| WSSD | World Summit on Sustainable Development (Johannesburg, South Africa, August 2002) |
| WWDR | World Water Development Report |

ANNEX 2. BIBLIOGRAPHY

A Framework for Action on Water and Sanitation. WEHAB Working Group, prepared for WSSD, August 2002.

Report of the World Summit on Sustainable Development. United Nations, New York, 2002. (Document A/CONF.199/20)

Living with Risk : focus on disaster risk reduction. International Strategy for Disaster Reduction (ISDR), Geneva, 2002.

Water for People, Water for Life. The United Nations World Water Development Report. UNESCO and Berghahn Books, Spain, 2003.

The challenge of slums : Global Report on Human Settlements 2003. United Nations Human Settlements Programme. Earthscan, London, 2003.

Report of the Secretary General, Implementation of the UN Millenium Declaration. 58th session of the UN General Assembly, September 2003. (Document A/58/323)

Progress report on UNEP water policy and strategy. Prepared for the 22nd session of the UNEP Governing Council / GMEF meeting in Nairobi, February 2003. (Document UNEP/GC.22/INF/21)

Integrated Water Resource Management (IWRM) and Water Efficiency Plans by 2005 : Why, what and how? Global Water Partnership (GWP), 2003. Technical Committee (TEC) and GWP Resource Centre, Denmark, 2003.

Water supply and sanitation in the UNECE region : Achievements in water protection and water supply since Rio, trends and challenges. Prepared for the Regional Implementation Forum on Sustainable Development, Geneva, January 2004. (Document ECE/AC.25/2004/5/Add.1)

ANNEX 3. SELECTED TARGETS FROM THE WSSD PLAN OF IMPLEMENTATION LINKED TO ENVIRONMENTAL ASPECTS OF WATER

- Increase access to sanitation to improve human health and reduce infant and child mortality, prioritising water and sanitation in national sustainable development strategies and poverty reduction strategies. (Target II.7m)
- Halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water . . . and the proportion of people who do not have access to basic sanitation, which would include action . . . at all levels to: (a) Develop and implement efficient household sanitation systems; (b) Improve sanitation in public institutions, especially schools; (c) Promote safe hygiene practices; . . .(g) Integrate sanitation into water resources management strategies. (Target II.8)
- Encourage and promote the development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems . . . (Target III.15)
- Achieve, by 2020, that chemicals are used and produced in ways which minimise significant adverse effects on human health and the environment . . . (Target III.23)
- Intensify water pollution prevention to reduce health hazards and protect ecosystems by introducing technologies for affordable sanitation and industrial and domestic wastewater treatment, by mitigating the effects of groundwater contamination and by establishing, at the national level, monitoring systems and effective legal frameworks. (Target IV.25d)
- To develop national plans for integrated water resources management and water efficiency by 2005 . . . (Target IV.26)
- Develop and implement national/regional strategies, plans and programmes with regard to integrated river basin, watershed and groundwater management and introduce measures to improve the efficiency of water infrastructure to reduce losses and increase recycling of water. (Target IV.26a)
- Improve the efficient use of water resources and promote their allocation among competing uses in a way that gives priority to the satisfaction of basic human needs and balances the requirement of preserving or restoring ecosystems and their functions, in particular in fragile environments, with human domestic, industrial and agriculture needs, including safeguarding drinking water quality. (Target IV.26c)
- Develop programmes for mitigating the effects of extreme water-related events (Target IV.26d)
- Promote effective coordination among the various international and intergovernmental bodies and processes working on water-related issues . . . (Target IV.29)
- Encourage the application by 2010 of the ecosystem approach [within integrated coastal and ocean management] . . . (Target IV.30d)
- Maintain or restore [fisheries] stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015. (Target IV.31a)
- Develop and facilitate the use of diverse approaches and tools, including the ecosystem approach, . . . the establishment of marine protected areas, . . . proper coastal land use and watershed planning and the integration of marine and coastal areas management into key sectors. (Target IV.32c)
- Advance implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities . . . with particular emphasis during the period from 2002 to 2006 on municipal wastewater, the physical alteration and destruction of habitats, and nutrients . . . Strengthen the capacity of developing countries in the development of their national and regional programmes and mechanisms to mainstream the objectives of the Global Programme of Action and to manage the risks and impacts of ocean pollution. (Target IV.33 and IV.33b)
- Improve the scientific understanding and assessment of marine and coastal ecosystems as a fundamental basis for sound decision-making . . . (Target IV.36)
- Reduce the risks of flooding and drought in vulnerable countries by, inter alia, promoting wetland and watershed protection and restoration . . . (Target IV.37d)
- Develop and strengthen early warning systems and information networks in disaster management, consistent with the International Strategy for Disaster Reduction. (Target IV.37h)
- Promote programmes to enhance in a sustainable manner the productivity of land and the efficient use of water resources in agriculture, forestry, wetlands, artisanal fisheries and aquaculture, especially through indigenous and local community-based approaches. (Target IV.40d)
- . . . The achievement by 2010 of a significant reduction in the current rate of loss of biological diversity . . . (Target IV.43)
- Take immediate steps to make progress in the formulation and elaboration of national strategies for sustainable development and begin their implementation by 2005. . . Such strategies . . . could be formulated as poverty reduction strategies that integrate economic, social and environmental aspects of sustainable development. (Target X.162)