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Policy issues: State of the environment

**REVIEW OF THE WATER POLICY AND STRATEGY OF THE UNITED NATIONS
ENVIRONMENT PROGRAMME: KEY POLICY ISSUES AND OPTIONS**

**MEASURES FOR STRENGTHENING THE FRESHWATER COMPONENT OF THE WATER
POLICY AND STRATEGY**

Note by the Executive Director

The present note contains the information on measures for strengthening the freshwater component of the water policy and strategy of the United Nations Environment Programme, as referred to in document UNEP/GC.22/2/Add.3. The text of the present note has been reproduced without formal editing.

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I. BACKGROUND

1. A major follow-up activity to the nineteenth session of the UNEP Governing Council was the development of a comprehensive UNEP freshwater strategy. This strategy document was directed to identifying the responsibilities of UNEP vis-à-vis freshwater resources within the context of sustainable development, and was meant to provide the basis for UNEP work in this area over the medium term. That document entitled "Freshwater strategy of the United Nations Environment Programme, following the special session of the United Nations for the purpose of an overall review and appraisal of the implementation of Agenda 21" (UNEP/HLC/2/4), focused on the elements of a longer-term action programme for addressing the management and sustainable use of transboundary freshwater resources. The document noted that UNEP had a major role to play in the areas of, first, freshwater assessments (including freshwater, coastal and marine waters); second, integrated water resource management, including protection of human-valued ecosystems; third, protection of water quality; and, fourth, water-related dispute avoidance and resolution. A summary of the strategy was also distributed to the Commission on Sustainable Development at its sixth session in April 1998.

2. The recent international focus on the Environmental (as well as social and economic) aspects of the water crises as well as the water – related aspects of the WSSD outcomes and the adoption of the water policy and strategy have provided compelling reasons for significantly strengthening the Freshwater component of the Water Policy. The suggested framework for action, to be integrated in the freshwater component of the water policy will be an important UNEP response to the follow-up envisaged in the context of the WSSD. That UNEP freshwater strategy is a major post WSSD response and submitted to the Council for its consideration. It is proposed that the Governing Council endorse the suggested actions as the basis for strengthening the freshwater component of the water policy and strategy.

II. ENVIRONMENTAL ASPECTS OF FRESHWATER RESOURCES

3. The so-called "environmental aspects" of freshwater resources touch virtually all human and ecosystem freshwater needs. In view of its limited financial and manpower resources, however, UNEP cannot effectively address all these aspects at the same time. Thus, UNEP will target its freshwater activities in a proactive manner during the coming biennium, consistent with the strategic options of the water policy. To this end, it is proposed that the freshwater component of the water policy for the 2004-2005 biennium focus on the complementary issues of, first, freshwater assessments and, second, integrated freshwater resource management.

4. It is also noted that the environmental aspects of freshwater resources include both water quantity and water quality issues. Water quantity refers to the absolute quantity of available freshwater (including floods and droughts), while the water quality refers to the quality or pollution status of these resources. These two aspects can vary significantly in their impacts, both in regard to their location and to their timing.

5. To this end, UNEP freshwater assessment activities for the 2004-2005 biennium are defined in the broadest context, to include not only determining the pollution state of rivers, lakes and groundwater resources, but also attempting to identify the underlying reasons why these resources are polluted, and what this means within the broader context of social and economic development. UNEP will also attempt to provide an element of early warning in regard to emerging water-related issues and problems.

6. As the logical follow-up to its GEMS/Water as well as its assessment activities, UNEP activities in integrated water management will focus on assisting Governments, upon request, to address the water-related problems identified in its assessment activities. Given its available resources and comparative advantages, it is felt that UNEP freshwater-related activities will likely make the greatest difference in these two major areas. Thus, the overall approach is characterised as a complementary process of, first, identifying water-related environmental problems (namely, where they occur; how serious they are; what their causes are); and, second, assisting Governments, particularly of developing countries and countries

with economies in transition, in adequately addressing them (namely, determining what can be done about them, who should do it and how it should be done).

III. LINGERING CHALLENGES

A. Need for accurate information

7. Before Governments can address water-related environmental problems, they must have accurate information: they need to know precisely what the problem is, where it is occurring, how serious it is, and what is causing it. Such information is necessary as the basis for determining cost-effective and lasting solutions to water-related problems. Many Governments view freshwater assessments simply as a process of collecting and analysing water-quality data and information for the purpose of state-of-the-environment reports. This is, in fact, one particular goal of UNEP freshwater assessment activities, and it will continue to assess water-quality conditions on a global and regional basis. The goal is to provide better quantitative pictures of current water-quality conditions and trends in water quality and water uses, and to facilitate the identification of emerging issues and future priorities.

B. UNEP water assessment activities

8. UNEP is currently engaged in several water-related assessment activities. As previously noted, UNEP was requested to assist countries in identifying the environmental problems of freshwater, including enhancing their capacity to collect, interpret and disseminate information related to the environmental aspects of water-management decisions. To this end, UNEP is currently involved, *inter alia*, in: the Global International Waters Assessment; has recently reviewed its GEMS/Water quality assessment programme water component of the Global Environment Monitoring System; and regional assessments of the impacts of land-based activities in support of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, including that of the Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), and groundwater vulnerability assessments. These taken together, the nerve centre of UNEP's water assessment continuum.

C. Social and economic aspects of water assessments

9. Social and economic activities have a profound effect on both the quantity and quality of freshwater resources. In response to that effect, UNEP will work to refine its considerable assessment capabilities, not only to provide snapshots of the state of freshwater resources, but also information on the root social and economic causes of water-related problems. It will work to develop and test methodologies and tools for addressing the social and economic dimensions of integrated freshwater resources, particularly as they relate to the environmental aspects of sustainable development. Such elements are implicitly included in UNEP activities for the integrated freshwater management for the environmentally sound management of inland waters. UNEP will work to refine its water-related assessment process, to include identification and examination of the scientific, technical and, in particular social and economic factors (and failures) that constitute the basic causes of the identified water-quality problems.

10. For a given freshwater basin, effective integrated water resource management is based on examination of a number of factors, including the successes and failures of existing Government policies and institutions relating to the supply and use of freshwater resources. At present, however, there is a need to strengthen practical guidance on the best way to examine these elements, particularly within the context of national and sectoral development plans and goals. Effective implementation of sustainable water-related development also requires that existing institutions and institutional structures be assessed in an appropriate manner. In the light of recent developments, more practical guidelines are also needed for examining the existence - or lack - of appropriate linkages between the many national government agencies responsible for various aspects of the management and use of freshwater resources. The same is true for legal and economic frameworks as they relate to sustainable freshwater resources.

11. On a practical level, however, it is not sufficiently clear what type of economic instruments work most appropriately, and under what conditions, in developing countries and economies in transition. Thus, special attention must be given to enhancing the ability of developing countries to use such innovative economic and policy instruments. To this end, UNEP will work to develop practical methodologies and tools for such assessments, as well as to assist Governments in using economic and policy instruments within the context of sustainable freshwater resources (including at the local level). The overriding goal is to ensure that UNEP assessment activities not only provide information necessary for assessing the state of freshwater resources, but also help identify the social and economic factors that determine how humans use these resources.

D. Rapid river basin assessments

12. In addition to the comprehensive water-related assessments indicated above, there also is a need for rapid river basin assessments, as a means of providing a prompt, if less comprehensive, overview of the state of freshwater resources, as well as their implications for other environmental and social and economic components. In cooperation with the other organizations, UNEP has initiated promising activities in the development of rapid river basin assessment methodologies. Such efforts will be used as a springboard for further efforts during the 2004-2005 biennium. Recognizing that the environmental aspects of some water problems may require accurate information within a relatively short period of time, UNEP will pay greater attention during the 2004-2005 biennium to the development and testing of rapid river basin assessment tools and methodologies.

E. Services of aquatic ecosystems of value to humans

13. Lakes, rivers, wetlands and other aquatic ecosystems perform a variety of services of value to humans, including water regulation and supply, nutrient cycling, waste treatment and climate regulation. These represent fundamental services that nature provides to humans, free of charge. The ecological services provided by wetlands, for example, are estimated to average about \$15,000 per hectare per year. The average estimated value for rivers and lakes is \$8,500 per hectare per year. Thus, the sustainable management of these aquatic ecosystems and the services they perform is in humanity's economic interest and a key contributor to sustainable development, including poverty reduction. Existing data and information suggest, however, that many aquatic ecosystems are being degraded at an alarming rate, and the situation will likely worsen in the future. As a follow-up to initial efforts in this area, therefore, UNEP will seek to provide information and data relevant to aquatic ecosystem management, including developing a clearer understanding of the water needs of aquatic ecosystems, as well as their human-valued functions. In addition, although aquatic biodiversity is recognized by many scientists as one of the most sensitive indicators of freshwater ecosystem degradation, it is difficult to use such information in the context of water resource management. UNEP will work to address this deficiency by undertaking relevant scientific assessments and studies and developing policy guidance based on them.

V. KEY ISSUES AND AREAS IN STRENGTHENING THE WATER POLICY AND STRATEGY

A. Integrated freshwater management

14. Governments, United Nations agencies and other relevant organizations have repeatedly identified integrated water resource management (IWRM) as the most effective approach to addressing sustainable water use. UNEP has considerable experience in this area, based in part on the integrated management approach embodied in its then programme for the environmentally sound management of inland waters. This integrated approach to freshwater management and use considers the scientific and technical aspects, as well as the social and economic factors, that determine how humans use their water resources. An integrated approach to water resource management was subsequently adopted by Governments in chapter 18 of Agenda 21.

B. Assessments and management linkages

15. As noted elsewhere, at its fifth special session the UNEP Governing Council requested the Executive Director to facilitate the provision of advice and assistance to States, on request, on strengthening integrated river basin management. In addition, UNEP water-related assessment activities are designed in part to provide needed data and information that can be used by decision-makers on a practical level to design and implement sustainable water-management and water-use policies and programmes. In fact, UNEP has assisted Governments in the past to develop comprehensive management action plans, particularly for transboundary river basins. In the 2004-2005 biennium, UNEP will continue its efforts to enhance the ability of Governments to undertake policy development and implementation in regard to the environmental aspects of integrated water management.

C. Drainage basin emphasis

16. Viewed from a hydrological perspective, the world may be described as a vast ocean whose surface is broken by a large number of freshwater drainage basins which drain to the oceans. In fact, river basins represent the fundamental freshwater management unit, and UNEP will continue to assist Governments, upon request, in developing freshwater management plans applied at the river basin scale, including for transboundary river basins. Sustainable freshwater management programmes for urban or agricultural areas, for example, must be developed in the light of their relevance to the water requirements within the entire drainage basin. Management programmes that focus only on specific water-related components of a drainage basin can easily result in fragmented policy development and implementation activities within the basin. Accordingly, UNEP will continue to promote a comprehensive drainage-basin approach in addressing the issue of sustainable freshwater resources. It will also endeavour to refine its integrated management approach, so as to factor in the impacts of specific types of water management practices on freshwater resources within the context of the entire drainage basin.

D. International/Regional co-operation and agreements

17. Many countries share one or more freshwater systems - rivers or lakes. In fact, it is estimated that there are more than 300 transboundary river basins, as well as numerous groundwater aquifers that are shared by two or more countries. This sharing can take the form of an upstream-downstream relationship, with a river flowing from one country to another. Alternatively, it can be a common river or lake serving as a national boundary between two or more countries.

18. UNEP will continue to promote international cooperation within the context of its integrated river basin management activities, including facilitating global and regional multilateral agreements for internationally shared freshwaters. It will also continue to refine its capabilities to serve, if requested by Governments, as a neutral "broker" assisting countries in ensuring the equitable access to, and use of, these freshwater resources.

19. UNEP experience with its activities has also demonstrated that international cooperation in the integrated management and use of transboundary waters can be hindered by many obstacles, including inadequate funding, inadequate institutional or legal structures, and inadequate understanding of common problems. To this end, UNEP has initiated an evaluation of the effectiveness of existing international instruments or agreements designed to facilitate cooperation between countries regarding shared international water resources. The publication of the Atlas of Freshwater Agreements serves this purpose. It is the intention of the publication to examine these agreements within the context of their regional settings, as well as contrasting experiences across regions. It is hoped that this exercise will provide valuable insight into the future development of effective international instruments for water resources.

E. Regional Cooperation; Freshwater, Coastal and Marine Environment

20. Each of the major components of the Water Policy and Strategy, notably assessing and managing global water resources as well as coordinating/mobilising partnerships and actions all have a special regional

character in terms of the focus of implementation. The GEO reports provide regional environment outlook information; the Global International Waters Assessment cover 66 regions where issues related to specific water-bodies, contaminants, and integrated land and water management are addressed; the Atlas of International Freshwater Agreements recently published by UNEP and its partners accords a particular attention to regional water agreements; the new GEMS/Water Quality Assessment Programme promotes co-operation with national institutions; the GPA/LBA is being implemented in the regions with particular emphasis on the development of national programmes of action, regional implementation/processes, including regional protocols; the regional seas programme currently covers 15 regions the UNEP Regional offices support the above mentioned actions and processes and most importantly facilitate regional inter-governmental dialogue.

21. The Governing Council should provide all possible support for the promotion of co-operation on regional and sub-regional agreements/strategies/programmes for the protection and sustainable management of shared watercourses/bodies/lakes. Similarly there is an increasing need for legal and technical assistance for the protection and environmentally sound management of regional and sub-regional water courses/bodies/lakes.

F. Integrated freshwater-coastal area management

22. Freshwater does not stop flowing at river mouths - it enters coastal waters. While recognizing the drainage basin as the fundamental freshwater management unit, consideration should also be given to the need to design integrated water management plans that encompass the management needs of both the freshwater and coastal areas.

23. UNEP has been a pioneer in addressing integrated coastal area and river basin management, as a logical follow-up to its work in integrated river basin management and integrated coastal zone management. Some other United Nations agencies, most notably the United Nations Development Programme (UNDP), are also considering this integrated approach to freshwater and coastal area management. UNEP has developed conceptual guidelines to enable Governments simultaneously to address the sustainable management and use of coastal waters and the river basins that drain into them.

24. UNEP is undertaking practical demonstrations to show that the identified guidelines and principles can, in fact, provide an effective policy development and implementation tool for Governments, particularly those constituting the regional seas programmes. The application of these guidelines to the integrated management of the freshwater resources of small island developing States also will be explored. Thus, UNEP will continue promoting the implementation of demonstration projects that illustrate the practical use of these guidelines, through existing regional seas programmes, particularly those encompassing developing countries, and also the small island developing States.

G. Sustainable groundwater resources

25. As emphasized in UNEP's GEO reports, groundwater often represents a hidden asset. Unfortunately, this critical asset suffers all too often from its hidden nature, from the syndrome "out of sight, out of mind". In fact, more than half the world's population receives its drinking water supply from groundwater sources, especially for arid and semi-arid regions. Groundwater aquifers (the equivalent of river basins) have specific physical boundaries and hydrologic characteristics, and are implicitly included within the context of integrated river basin management. They are also very sensitive to human impacts, however, given their location beneath the land surface, the manner in which water is supplied to them via specific "recharge zones", the typically very slow movement of the water contained in them, and the long period required for flushing pollutants from them.

26. Accordingly, in strengthening the water policy it is anticipated that UNEP will initiative activities specifically addressed to the sustainable management and use of these valuable freshwater resources. UNEP already works with collaborative partners on such issues, within the context of the assessment component of the water policy. UNEP will intensify its efforts during the 2004-2005 biennium to provide practical

information on the environmental aspects of managing and using groundwater resources in a sustainable manner.

H. Best Practices

27. Efforts are being made by the Global Programme of Action to Protect the Marine Environment from Land-based Activities (GPA/LBA), Global International Waters Project (GIWA), Global Environmental Monitoring System/Water Quality Assessment Programme (GEMS/Water/Water Quality Assessment Programme), UNEP Collaborating Centre on Water and Environment (UCC), International Environment Technology Centre (IETC), Dams and Development Project (DDP) and the Regional Seas Programmes to promote the exchange and dissemination of information on sound policy responses and cost-effective technologies, and experiences and lessons learned at the subregional, regional and global levels in the environmentally sustainable management and use of freshwater resources. In furtherance of the same goal, partnerships are being strengthened with bodies such as the Water Supply and Sanitation Collaborative Council, the World Water Council, the Global Water Partnership, and regional institutions and networks, as a means of drawing on the range of available expertise in identifying best practice responses to freshwater-related environmental issues at all levels.

I. Technology Development And Transfer

28. Both the General Assembly and the UNEP Governing Council have adopted decisions/resolutions calling for the strengthening of regional and international co-operation for technological transfer, as well as for the financing of integrated water resources programmes and projects. UNEP provides assistance in the identification and assessment of appropriate technologies and their effectiveness in many regions of the world.

J. Economic Instruments

29. The economic valuation of water resources, particularly in regard to water-related environmental issues, is another major area in which UNEP can use its experience. UNEP has, in previous years, already convened a number of workshops to highlight the economic consequences of environmentally unsustainable water use.

K. Dialogue On Dams For Development

30. The construction of DAMS continues to play an important role in water supply, energy, irrigation, flood control and navigation. At the same time, concerns continue to be expressed based on safety, economic, social or ecological considerations. In November 2001, the World Commission on Dams concluded a landmark two-year study on the sustainability of large dams. Based on the requests by Governments and stakeholders to assume responsibility for the follow-up in terms of promoting intergovernmental dialogue on improving decision-making, planning and management of dams and their alternatives based on the World Commission on Dams (WCD), core values and strategic priorities, UNEP established the DAMS and Development Project (DDP).

L. Emergencies

31. UNEP provides early warning and vulnerability assessments on emerging water and environmental issues, and on threats with global and regional significance such as floods and El-Nino. UNEP assists countries in anticipating, preparing for, and responding to the water-related dimensions of environmental emergencies, including in this context, conducting post-disaster and post-conflict environmental assessments. There are increasing concerns about the severity of the consequences of climate change on the World's Water Resources. Islands are seen as amongst the most threatened by climate change, through flooding of coastal areas by rising sea levels.

M. Public awareness and education

32. Human activities are generally at the core of all significant freshwater management and use problems. UNEP has found, however, that many people around the world have little or no appreciation of their role in causing these problems, particularly those who live far from water bodies. In addition, while other people may acknowledge that their activities can have a minor impact on water quality, they typically do not understand or appreciate the potentially substantial cumulative impact of a multitude of such "minor" impacts. While UNEP has been relatively successful in developing and disseminating information on coastal and marine water-related issues, the same cannot be said for freshwater issues.

33. To correct this situation, UNEP will embark on an extensive programme of public education and awareness activities focusing on the role of the natural environment in supporting human existence and well-being, and the linkages between human life and the protection and sustainable use of freshwater resources. Preventing water-related problems typically costs less than correcting them. Thus, a particular goal will be to demonstrate that ignoring such issues now can result in a much higher price tag to correct them in the future. To this end, UNEP will give particular attention, first, to highlighting major freshwater issues and problems; second, identifying the role of the public in causing or accentuating these problems; and third, to identifying the role of the public in helping to solve them. It is hoped that such activities will also help bring freshwater resource issues to the top of national and international political agendas.

VI. COLLABORATION, COOPERATION AND PARTNERSHIPS

34. At its sixth session, the Commission on Sustainable Development called upon UNEP to make an effective contribution to the work of the Commission, including enhanced collaboration with other members of the ACC Subcommittee on Water Resources, by providing policy, technical and scientific advice on environmental aspects of the sustainable development of freshwater resources. To this end, UNEP supports inter-agency collaboration in addressing significant freshwater issues. UNEP has established the Environmental Management Group within the context of the GC21/21 International Environmental Governance. UNEP also served on the post WSSD working group set up by the UN Secretary-General to develop proposals on the WEHAB (Water, Energy, Health, Agriculture and Biodiversity) Initiative which was a major contribution to the WSSD. UNEP serves on the United Nations Millennium Project Task Force on Water and Sanitation mandated to identify strategies for the achievement of the Millennium Development goals of halving the proportion of people without access to safe drinking water and adequate sanitation. UNEP has given the lead agency responsibility for the World Water Day observance and actively participates in the preparations of the World Water Forum.

35. In facilitating the integrated management of freshwater resources, UNEP has traditionally sought the cooperation and assistance of regional organizations that adequately represented the interests of all the major water users and uses within a drainage basin. Greater efforts will be made to enhance regional implementation of the water strategy.

36. Accordingly, UNEP facilitates cooperation, collaboration and partnerships in the area of freshwater resources, with the dual goal of gaining valuable insight and experience regarding specific water-related activities, as well as helping partners to refine their own water practices so as to ensure sustainable water supplies and water use. The GPA /LBA Co-ordination office in the Hague (Netherlands), the Regional Seas Secretariats/Units in all the regions, the Global International Waters Projects in Kalmar, (Sweden), the new GEMS Water Programme in Canada, the International Environmental Technology Centre (IETC) in Japan, and the UNEP Collaborating Centre for Water and Environment in Denmark provide strategic support for nurturing these partnerships. They also promote close collaboration with other United Nations entities and intergovernmental organizations, non-governmental organizations related private sector parties, the Global Water Partnership, the World Water Council, the International Geosphere-Biosphere Programme (IGBP), Wetlands International and the World Conservation Union (IUCN), World Water Forum and others.
