

UN World Water Assessment Programme

1. Background

The recognition of need for quantitative assessment of the world's freshwater resources has a long history starting with the Mar del Plata Action Plan of the 1977 UN Conference on Water. Following through the Rio Earth Summit in 1992 to the recent (1998-2000) World Water Vision exercises, the need for a quantitative assessment of the world's water resources has been reinforced like never before. UNCED called for a significant strengthening of, and capacity building in water resources assessment. A global picture of the state of freshwater resources and potential problems is essential to protect society from emerging threats, and for policy makers to make an informed choice. Driven by these needs the UN Commission on Sustainable Development in its 1998 decision on Strategic Approaches to Freshwater Management recognized "the need for periodic assessments ... for a global picture of the state of freshwater resources and potential problems". The 19th Special Session of the UN General Assembly (UN-GA) concluded that water will become a major limiting factor in socio-economic development and the seriousness of the situation calls for the highest priority to be given to the freshwater problems. The UN-GA resolution recognized the "urgent need ... to strengthen the capability of Governments and international institutions ... to facilitate the integrated assessment ... of water resources". Furthermore, this need has been well emphasized in the recent initiative of the UN-ACC/SWR to initiate a project on freshwater resources assessment leading to a biennial reporting in the form of a World Water Development Report (WWDR).

The World Conference on Science (WCS) in its Science Agenda – Framework for Action emphasized that "national, regional and global environmental research programmes should be strengthened" and that areas that "require special attention include the freshwater issue and the hydrological cycle, climate variations and change, ..., coastal areas, polar regions, biodiversity, desertification, deforestation, biogeochemical cycles and natural hazards. The Declaration also emphasizes that "a better understanding and safeguarding of the planet's natural resource base, biodiversity and life support systems must be increased" in order "to move towards sustainable development strategies through the integration of economic, social, cultural and environmental dimensions".

The World Water Vision project has come a long way to raise awareness, to involve stakeholders and to promote a participatory approach for Integrated Water Resources Management at the global scale. To carry out actions to achieve specific water related goals could best be achieved through a quantitative assessment of the resource. It is important to monitor and evaluate the freshwater status of the world; in order to identify possible areas of water crises and water related conflicts, derive sustainable policies and technical advice from a scientific standpoint. The key is cooperation and in building incentives for cooperation. Joint data gathering assessments, joint diagnoses, joint creating of alternatives and joint implementation are central to such efforts. The UN system is well positioned to create incentives for cooperation. The World Water Assessment Programme, is seen as the joint coordinated initiative of the UN system and as the major follow up action to the World Water Vision exercise.

2. Objectives

The overall objective of the Programme is to contribute to build global security - food, environment, economic, social and political security through an integrated comprehensive freshwater assessment (Fig. 1).

The specific objectives within the assessment programme are:

1. to monitor and assess the performance of freshwater resources availability and use from national to global scales;
2. to provide advice to Member States, and participating countries, and act on water related policy and technical issues at national, regional and global levels;

3. to provide well-compiled water related information to the public;
4. to scope and specify threatened areas of possible water scarcity, and to design implementation mechanism of schemes for the optimal utilisation of the resource to ensure sustainable development.

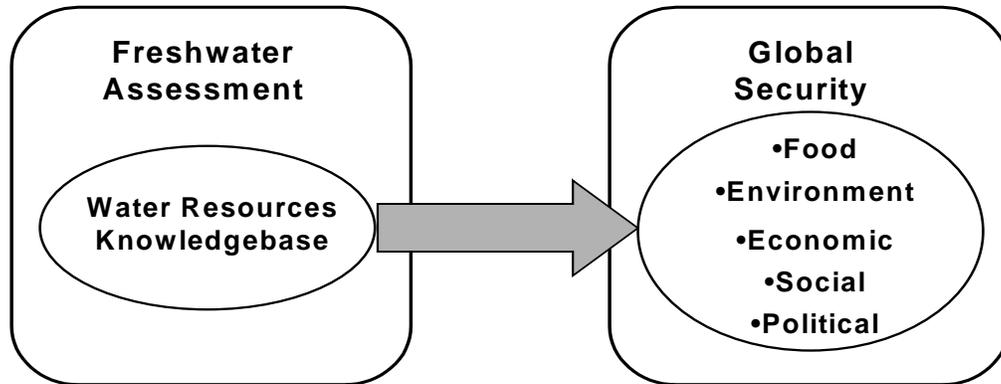


Figure 1. Freshwater Assessment in the context of Global Security

In order to achieve these specific objectives the following major activities are planned:

1. to develop comprehensive databases and a meta-database as well as establish knowledge management systems to facilitate the assessment and dissemination of information;
2. develop a global water resources assessment model, linked to socio-economic models;
3. develop specific water indicators to relate water resources and its socio-economic implications;
4. to publish a biennial World Water Development Report.

3. Procedure

This quantitative assessment of global freshwater situation provides the unique opportunity to bring together the otherwise highly fragmented water sector to a common platform through the joint coordinated effort of the UN system . The Expert Group Meeting (EGM) held at the UN in New York (January 2000; refer to Annex I) pointed out, (a) a lack of reliable and comparable data, (b) need for field investigations, (c) need for methodological research, and (d) the need for a more global picture of water resources for sustainable development centered on basic human needs, among others.

To address these issues, the scope of the Programme defined by the objectives are focused to: (1) develop a comprehensive scientifically credible global water resources knowledgebase through theoretical research and field investigations using state-of-the-art assessment and information management tools; and (2) apply this water resources knowledgebase to drive water related policy decisions for sustainable development, and ensure global, food, environmental, economic, social and political security.

The implementation of the objectives will be broadly carried out under the activities:(1) Development, and (2) Application.

The details of the Development activity are as following:

- Prepare a comprehensive geo-referenced freshwater database available on-line and open to the public through compilation and linkages with several sources - WMO, UNEP, FAO, WHO and others . as the first integrated component of the planned UN GIS.
- Develop a global freshwater assessment methodology by,

- (i) formulating indices to monitor water related social and environmental performance,
- (ii) developing global water resources assessment model, linked to socio-economic models, linked to GIS and database management systems, and
- (iii) testing of these developed methodologies through field research conducted using the relevant UN systems' projects and initiatives, and through various institutes.

The details of the **Application** activity are as following:

- Monitoring and evaluation of performance of freshwater resources globally.
- Provide quantitative support for water related decision making process from national to global levels.
- Provide advice to Member States, and act on water related policy and technical issues.
- Develop an indicators report for senior world leaders on these issues.

4. Products and Outcomes

The products and outcomes from the Programme will be:

1. Scientific methodology for comprehensive freshwater assessment - Global Freshwater Assessment Methodology.
2. Regular assessment of the state of the world's water resources and their use through a global cooperative network of UN agencies, national governments and the NGO community. Identify and diagnose the state of global freshwater – its quantity, quality and use, the organisational, socio-economic and environmental context of its management; and current problems, trends and emerging threats - The World Water Development Report published biennially.
3. On-line comprehensive freshwater related databases, newsletter, website, and library - Water Information Network.
4. Communicate with water related non-government groups, and use the water information network for capacity building and to raise awareness about water - Water Education and Training.

5. Structure

The World Freshwater Assessment Programme Coordination Unit (Secretariat) will be hosted by the Division of Water Sciences, UNESCO, Paris. The Assessment component of the Programme will be under the auspices of the UN-ACC/SWR (UN Administrative Coordination Committee/Subcommittee on Water Resources) mechanism. The structure of the Programme is shown in Fig. 2.



Figure 2 Structure of the world freshwater assessment programme

6. Activity List

The major activities are grouped as following:

1. GIS and Database Management
2. Assessment Methodology and Modeling
3. Communication

The details of each of these activities are described below.

GIS and Database Management

- (i) Workshop(s)
- (ii) Database design and design of data acquisition system, linkages with UN and other existing/available databases
- (iii) GIS linkages to database design and data acquisition system
- (iv) Setting up of GIS and database management facilities

Assessment Methodology and Modelling

- (i) Workshop(s)
- (ii) Establishment of global hydrologic assessment methodology
 - (a) Indicators to evaluate water related social, environmental, and economic performance
 - (b) Global hydrologic modelling
 - (c) Coupling of models - regional, national, and river basin
 - (d) Coupling of water models with socio-economic models
 - (e) Integration of models with GIS and database management systems
- (iii) Testing of modelling methodologies through field research
 - (a) Selection of research sites

Communication

- (i) World Water Development Report
- (ii) Website
- (iii) On-line library and open freshwater related databases
- (iv) Newsletter

7. Timetable

- Secretariat establishment, advisory meetings and technical workshops: June 2000 - December 2000;
- Definitions, data compilation, methodology, and prototype indicators developed: December 2000;
- Methodology introduced and tested in well selected regions: March 2001; methodology firmly established: June 2001;
- National, regional and international institutions, NGOs, private sector consulted regarding progress against Agenda 21 and the World Water Vision objectives: June 2001;
- Necessary databases established: September 2001;
- Draft report: October 2001;
- Demonstration World Water Development Report (WWDR) for Rio+10: January 2002;
- First issue of WWDR: January 2003;
- Final report distributed in official UN languages: December 2003;
- The timeline of major activities of the Programme for the period June 2000 to March 2003 is given in Table 1.

8. Cost

- Core budget for initial action will be delivered by Trust Fund to UNESCO by the Japanese Government in order to facilitate the establishment of Secretariat and basic structure of program, and finance the necessary activities.
- UN system continues to solicit other sources to be merged with initial support for operation.
- The provisional budget for the establishment, operation and maintenance for the period of three years starting June 2000 is given in Table 2 [Note: work in progress].

9. Abbreviations

CATHALAC	Latin American and the Caribbean Regional Centre for Humid Tropics Water Resources Management, Panama
IRTCEs	International Research and Training Centre on Erosion and Sedimentation, Beijing
IRTCUD	International Research and Training Centre on Urban Drainage
IHE	International Institute for Infrastructural, Hydraulic, and Environmental Engineering, Delft
MAB	Man and Biosphere programme of UNESCO
MOST	Management of Social Transformation programme of UNESCO
IGCP	International Geological Correlation Programme of UNESCO
IOC	International Oceanographic Commission of UNESCO
IHP	International Hydrological Programme of UNESCO
HELP	Hydrology for Environment, Life and Policy programme of IHP