

UNEP Collaborating Centre on Water and Environment



A Structure for the Monitoring of Processes Leading Towards IWRM

Concepts & Issues Paper No. 3



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A Structure for the Monitoring of Processes Leading Towards Integrated Water Resources Management

1 Background

This paper is an attempt to provide a structure for monitoring of integrated water resources management (IWRM) progress and to offer a framework for developing indicators. The paper presents the background, the purpose and a possible structure for monitoring of IWRM taking into account the needs from the national, regional and global levels¹.

No standard monitoring mechanism for IWRM as yet exists. Whilst a monitoring system for measuring progress in achieving the United Nation's Millennium Development Goals (MDGs) on water supply and sanitation has been established by the UN Joint Monitoring Programme (JMP), similar mechanisms are yet to be developed for monitoring of progress towards IWRM.

There is a need for comparable approaches to monitoring. In the present situation, with many actors on the scene, it is important to use an easily understood, standard monitoring methodology yielding comparable results. This may be an elusive goal because of different social cultures and different interpretations of concepts. It is, thus imperative to bring forward concepts, issues and available methodologies in order to inspire the monitoring agencies and possibly bring more uniformity into the monitoring of the processes towards IWRM.

At present, several monitoring efforts have been made by different actors to assess the degree of achievement towards agreed goals on IWRM². Most of these activities have provided valuable experience in monitoring IWRM planning processes, but methodologies are different and few have gone the step further to evaluate outcomes of the processes.

There are a number of topics that have to be considered in the design of a monitoring exercise. It is necessary to consider and define, among others, the purpose of the monitoring and the exact subject, the appropriate indicators for different stages of planning and implementation of IWRM and the use of the results and their presentation. Further, there will be methodological issues to be considered along with timing and the

¹ This paper draws on methodologies for monitoring IWRM processes developed within the "UNEP IWRM 2005 Program" (UNEP Collaborating Center for Water & Environment (UCC-Water)) It also brings in the typology of indicators described in the UNEP/GPA report on "Ecosystem-based management – markers for assessing progress" and the experiences obtained through a close collaboration with the Global Water Partnership (GWP) in conducting their global IWRM surveys, as well as the work by the GWP Technical Committee on IWRM indicators.

² Global Water Partnership (GWP) and Japan Water Forum (JWF) have conducted global surveys, and regional intergovernmental bodies such as Southern African Development Community (SADC) and Economic Commission of West African States (ECOWAS) have monitored activities within their respective regions with support from UNEP. In Eastern Europe, Caucasus and Central Asia (EECCA), a monitoring of transition towards IWRM has been made under the umbrella of the EU Water Initiative, and for the Arabic countries the Centre for Environment and Development for the Arab and European Region (CEDARE) has reported on progress in IWRM. Reporting of global progress in IWRM is also an issue of interest for the World Water Assessment Programme (WWAP).

question of who should do the monitoring and who should bear the cost. Important methodological issues are presented in Annex 4, while key preparatory steps are briefly described in Annex 5.

2 Purpose of the monitoring

There is broad consensus that IWRM approaches and practices can greatly assist countries and regions in their pursuit of efficient, equitable and environmentally sustainable water resources management. This consensus was confirmed at the UN World Summit on Sustainable Development (WSSD) in Johannesburg 2002. The participating countries agreed to “develop integrated water resources management and water efficiency plans by 2005, with support to developing countries”³. A direct link between IWRM and the Millennium Development Goals ((MDGs) that were also a result of the WSSD) exists through MDG No. 7, Target 9: “To integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources”, and it has been proposed to add an overall indicator for progress in water resources management to this target. Moreover, IWRM provides a firm basis for harmonizing the different demands on water resources that will be required to achieve the eight Millennium Development Goals (see Annex 6), as noted by the Global Water Partnership⁴. Although sound water management (IWRM) will not by itself achieve the goals, such management will greatly assist national efforts towards the MDGs. The purpose of the monitoring is related to the full reform process, comprising; 1) development of an IWRM and Water Efficiency plan; 2) implementation of the planned reforms and changes; and 3) the ultimate impact in terms of improvements in natural conditions and livelihoods.

Monitoring provides the status of a country’s IWRM planning and implementation processes. Repeated monitoring combined with evaluation is instrumental in measuring and assessing the progress, identifying constraints to the progress, deriving lessons and at all times identifying the most efficient way forward. The monitoring provides information on how resources are spent, how outputs are produced, and provide administrators, managers, politicians and donors with the justification for expenditure.

In the regional or basin wide context, monitoring of the IWRM and Water Efficiency Plans will provide accountability towards neighbouring countries sharing water resources and development processes. Due to the fact that more than 50% of the freshwater resources are shared between two or more countries – nations have an obligation towards their neighbours in terms of managing water resources rationally and in a sustainable manner (assisted by the concepts of IWRM). In many cases there are trans-boundary or sub-regional agreements, which translate these obligations into legal responsibilities.

In the global context, monitoring of the IWRM and Water Efficiency plans will provide accountability towards the implementation of Agenda 21⁵ and the agreed WSSD goals and targets supporting the achievement of several of the MDGs.

³ WSSD, Plan of Implementation, section IV, Para 24.

(www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf)

⁴ GWP, Policy Brief 4: How IWRM will contribute to achieving the MDGs

(http://www.gwpforum.org/gwp/library/Policy_brief_4_MDGs.pdf)

⁵ Agenda 21, the Rio Declaration on Environment and Development was adopted at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, 1992.

3 Subject of the monitoring

There are three distinct and successive levels of development towards IWRM that can be monitored. These are monitoring of process, outcome and impact.

The subject of the monitoring here is the reform process towards IWRM that is being pursued by countries worldwide. The process may take its starting point in preparation of an outline/roadmap for the reform process to be followed by a detailed IWRM strategy or plan for the implementation of IWRM⁶. This is logically followed by managing the water resources according to IWRM principles. However, the process is cyclic and some parts may be more advanced than other parts. Also, not all countries may decide to follow the same process to implement IWRM principles. Thus, monitoring according to the “spirit” of the WSSD IWRM 2005 target may include actual IWRM outcomes produced, in addition to measuring steps of the planning process.

Process related outcomes can be defined at various milestones. Such outcomes of an IWRM reform can, for instance, include “proper stakeholder engagement”, “appropriate institutional capacity” in key management areas, creation of river basin management structures or “politically adopted key constituencies” and an “effective enabling environment” e.g. policies and legal framework.

The impacts are the “ultimate outcomes” of implementation of the IWRM reform process. Change of focus from monitoring the processes and the process related outcomes to assessing the actual impacts of IWRM, however, requires major changes in the perspective of the evaluators. The definition of the desirable impact of a given activity relates to the basic objectives and goals of the whole IWRM process. Thus, the impacts are defined in terms of goals that set specific targets and time-frames for changes in natural and societal systems. These time-frames will typically be much longer than those set for processes/projects. In the perspective of final outcomes (natural or societal changes) the challenge is to attribute changes in a given society to a specific reform or change in management (here water resources development and management) since changes in nature and/or societies are usually the result of a web of forces acting simultaneously.

4 A framework for developing indicators for IWRM

A practical framework for developing indicators for monitoring of the IWRM process and its outcomes can be structured at four different levels or orders, with each order measuring progress at various stages of the IWRM planning cycle:

1st order: Measuring to what extent the basic conditions for IWRM development established

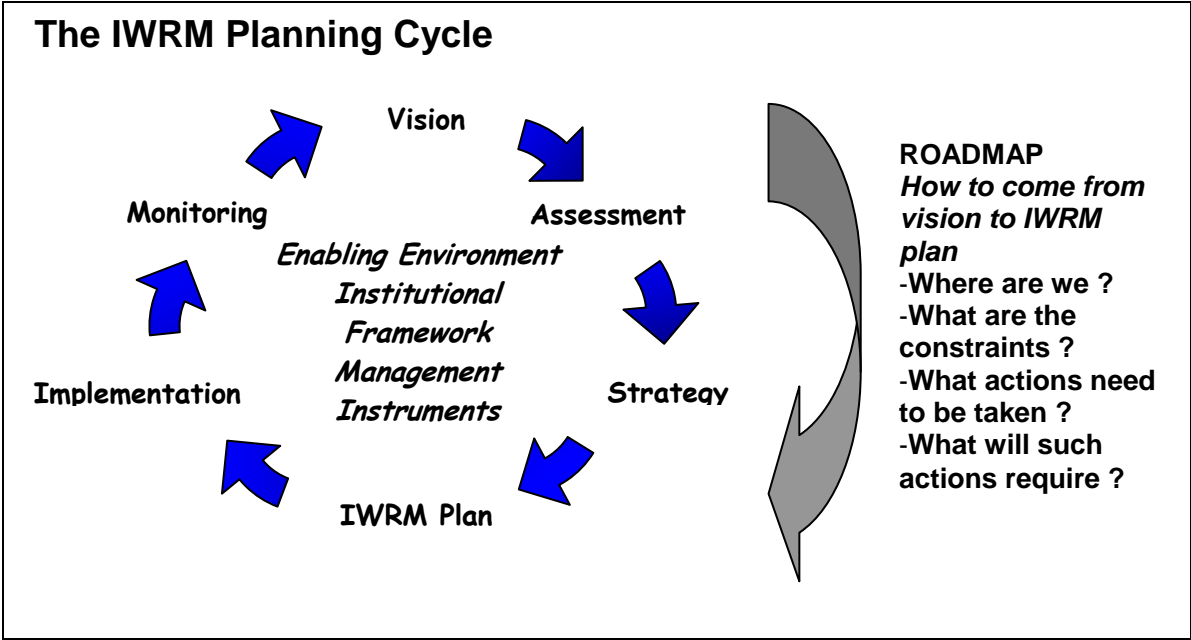
2nd order: Measuring to what extent WRM reform processes are taking effect

3rd order: Measuring to what extent key water issues have been mitigated

4th order: Measuring the sustainability of economic, environmental and equitable uses of water

⁶ E.g. according to the guidelines provided by GWP: TEC background paper No. 10 (www.gwpforum.org/gwp/library/TEC%2010.pdf) and “Catalyzing Change: a handbook for developing IWRM and water efficiency strategies” (www.gwpforum.org/gwp/library/Catalyzing_change-final.pdf)

As the IWRM process matures, focus will naturally move from the first order towards the last, but since the process is cyclic, continuous reconsiderations of some of the “early stage” aspects will be required:



Indicators for 1st order outcome – enabling conditions for IWRM. This group of indicators measures the enabling conditions that have been produced at the specified time of the monitoring. These conditions include such items as stakeholder awareness and participation, necessary funding in place, policies, legislation, regulations, standards and political will to implement action plans. They are the foundation of further progress and IWRM reforms, but can, in the worst case, remain as static documents and good intentions only. 1st order indicators are formulated, for instance as “water policy approved”, “regulations developed” etc. At this stage we are talking about “basic conditions for reform changes being established”.

| Examples of 1st order indicators – IWRM reforms initiated | |
|---|--|
| • Enabling environment | |
| Process | Outcomes |
| Stakeholder dialogue established Policy development progressing Law development progressing Studies on financing ongoing Donor dialogue established | Stakeholder engaged in policy and planning Financing assured New policies agreed by key stakeholders and adopted Legislation passed by parliament Principles and plans for investments and cost recovery established |
| • Institutional roles | |
| Process | Outcomes |
| Assessments on human resources development, Institutional structures ongoing Institutional development and capacity building strategies underway | Human resource assessments made Institutional reform plans prepared Capacity building plans developed |

| • Management instruments | |
|--|--|
| Process | Outcomes |
| Various stages in the IWRM planning cycle achieved (roadmaps, rapid assessment, strategy, plan, projects and programmes etc) | Action plans/strategies/roadmaps for development of the IWRM framework prepared Initiatives and frameworks for service delivery and infrastructure development Guidelines and best practices documented Knowledge/information exchange systems planned Assessment tools identified |

Indicators for 2nd order outcome – IWRM reform process takes effect. These indicators will be measures of the actual implementation of a reform process, where changes in the way the “water managers” at all levels deal with water are taking effect. Water resources agencies are starting to administrate according to new water resources and other agencies management principles (IWRM), new legislation and standards. Institutional capacity building is taking effect and staff in the water-related agencies are increasingly coordinating water use across the sectors and using IWRM management instruments. 2nd order indicators would typically be formulated as “allocation regulations enforced”, “water resources assessment capacity established”, “stakeholders empowered to participate in decisions” etc. At this stage we are talking about “concrete changes in management behaviour has taken place”.

| Examples of 2nd order indicators – stakeholders are changing behaviour | |
|---|---|
| • Enabling environment | |
| Process | Outcomes |
| Policies and legislation being reflected in institutional mandates and missions Legislation being furthered to enforcement powers and population | Agreed policies are embedded in institutions and organizations and implemented by the “water managers” Legislation and associated regulations are monitored and enforced Financing and cost recovery structures are functioning |
| • Institutional roles | |
| Process | Outcomes |
| Institutional structures changing Capacity building programmes ongoing | Basin based management is established and functioning at national and transboundary levels Cross-sectoral coordination mechanisms functional at national level Mechanisms for stakeholder involvement in decision processes functional Institutional responsibilities consolidated (e.g. planning, assessments, allocation, monitoring, enforcement) |
| • Management instruments | |
| Process | Outcomes |
| Capacity building programmes ongoing | Assessment tools available and used Infrastructure design and guidelines according to IWRM principles in place and enforced Water efficiency practices introduced Conflict resolution mechanisms established |

| | |
|--|---|
| | Pricing structures with incentives and disincentives introduced Information exchange systems operating |
|--|---|

Indicators for 3rd order outcomes – key water issues are mitigated. IWRM is implemented with the direct goal of addressing the root causes of key water resources issues relevant to and identified by the country itself. These could for instance be, conflicting water demands, devastating floods and droughts, polluted streams, excessive groundwater abstraction, sedimentation of reservoirs etc. The 3rd order indicators would then measure the progress towards addressing the causes of these key issues and the associated reduction in negative impacts. Efficiency in addressing the key issues has several presumptions. Among these are; the process must operate within a system of good governance (transparency, accountability, openness, communication, inclusiveness etc.), and the IWRM framework must be consistent with the hydrologic, social, economic, geographic and cultural context and be coherent and harmonized. At this stage we are talking about “changes in management and behaviour has produced positive changes in nature and society”

| |
|--|
| <p>Examples of 3rd order indicators – key issues are mitigated</p> <ul style="list-style-type: none"> Appropriate infrastructure in place and operational Water shortages occurs less frequently Biological oxygen demand in river water reduced Ecosystem health and productivity maintained Groundwater levels stabilized Rate of deforestation reduced Land use changes environmentally balanced Sediment deposition controlled Wetland encroachment reduced Irrigation efficiency improved Economic benefits achieved from optimized allocation policies Livelihoods improved for the poor Achievement of the water related Millennium Development Goals |
|--|

Indicators for 4th order outcomes – sustainable balance of economic, environmental and equitable uses of water obtained

Ultimately, the final goal of implementation of IWRM reforms will be “economically and environmentally sustainable as well as equitable development”, which requires a dynamic equilibrium among both social and environmental qualities. While the 3rd order indicators examine the degree to which the primary goals have been achieved, another set of indicators (4th order) will add the dimension of a sustained balance. In practice, the development of this order of indicators requires thorough insight in economic, environmental and social development factors in order to isolate the effect at this level of the IWRM reform efforts. Examples will appear as experience is gained with application of this four level approach to monitoring.

The suggested framework of four orders of indicators provides both process, process related outcome (1st and 2nd order) and impact monitoring (3rd and 4th order). The results can be used for advocacy and communication (creating political will, public support and soliciting funds) at national, regional and global levels. Monitoring results give information on where a country, a basin, a programme or a project is at any given time (and over time) relative to targets, envisaged outcomes and desired impacts. The

results of such monitoring are descriptive. Monitoring should be combined with evaluation, which is the analysis of why or why not the envisaged achievements are made. Evaluation seeks to address causality. Monitoring and Evaluation (M&E) provides lessons and learning opportunities and can be used to exchange knowledge and lessons learned. A strong monitoring and evaluation system helps ensure that an IWRM strategy meets its main objective of fostering positive change, and also that the strategy can adapt to evolving needs and conditions.

5 Reporting and monitoring IWRM in the worldwide context

At the 13th session of the Commission on Sustainable Development (CSD) in 2005, UN-Water was requested to establish a formal framework for monitoring of the Johannesburg 2005 target, and a UN-Water Task Force was established to develop a set of indicators for national reporting on the target to CSD

Before a formal monitoring system is finally developed, there is a need to establish a set of “reporting categories” on IWRM for the countries’ reporting to the CSD 16th session in 2008. While further discussion of IWRM indicators is needed, the following monitoring categories for national reporting are recommended:

1. Development of national IWRM 2005 Plans
2. Implementation of national IWRM Plans
3. Development and implementation of Water Efficiency Plans by 2005
4. Support to developing countries for National IWRM and Water Efficiency Plans

These categories relate directly to the IWRM 2005 Target as expressed in Article 26 from WSSD, Plan of Implementation, Johannesburg, September 2002. (see Annex 7)

A set of questions related to the four categories has been developed based on UNEP and GWP experience on monitoring IWRM, and in accordance with the format of the guidance template for country reporting prepared for CSD 13th session (see Annex 1).

The UNEP International Questionnaire on National IWRM Implementation and the GWP/TEC note “A Starting Point...” are found in Annex 2 and 3 respectively.

6 List of resource materials

- UNEP/GPA (2006). Ecosystem-based management: Markers for assessing progress. UNEP/GPA, The Hague
- GWP. Sharing knowledge for equitable, efficient and sustainable water resources management. IWRM ToolBox. Global Water Partnership, Stockholm
- GWP (2004) ...Integrated Water Resources Management (IWRM) and Water Efficiency Plans by 2005 – Why, what and how? TEC Background Papers No.10. Torkil Jønch–Clausen. Global Water Partnership, Stockholm
- GWP (2004). Catalyzing Change: a handbook for developing integrated water resources management (IWRM) and water efficiency strategies. Global Water Partnership, Stockholm
- UN Millennium Project and SIWI (2005) UN Millennium Project Task Force on Water and Sanitation, Final Report, Abridged Edition. New York, UN Millennium Project and Stockholm International Water Institute, Stockholm
- Kusek, J. and Rist, R. (2004) Ten steps to a results-based monitoring and evaluation system, World Bank, Washington DC.
- Towards Meeting the WSSD IWRM 2005 Target in the Southern African Sub-Region – February 2005
- Regional Synthesis and Country Reports – West African Conference on IWRM Action Plans – October 2003
- UN. 2005. Guidelines for National Reporting to the Fourteenth Session of the Commission on Sustainable Development
(www.un.org/esa/sustdev/natlinfo/csd14_guidelines/guidelines_en.doc)

Annex 1- Monitoring categories and guidance for reporting

Development of Integrated Water Resources Management and Water Efficiency Plans by 2005, with support to developing countries

Please indicate the stages of Integrated Water Resources Management IWRM and Water Efficiency (see JPoI article 26 for the list of key characteristics) development/implementation in your country, by responding to the questions below:

1. Has your country developed and approved national/federal IWRM Plan or its equivalent?
 Yes No

If **yes**, please give the name of IWRM Plan or its equivalent and the year of approval:

Name:

Year of approval:

- a) How was the IWRM Plan or its equivalent developed?

- Multi-stakeholder consultations undertaken;
 Training or workshops undertaken;
 On the basis of inter-ministerial consultations;
 By one ministry responsible.

- b) Do you have a national body designated to implement and/or monitor your country's IWRM Plan (or its equivalent)?

Yes No

Please give the year it has started:

Please also give the name and composition of such a body:

Is this body cross/sectoral or ministerial?

..... Yes No

- c) Do you have basin organizations designated to implement and/or monitor at river basin plans (or its equivalent)?

Yes No

Please give the year it has started:

Please also give the names and composition of such bodies:

- d) Does a framework law on water resources exist?

Yes No

- e) Does a framework for stakeholder/civil society participation exist?

Yes No

- f) How is your IWRM Plan (or its equivalent) being implemented? Please give specific actions/activities undertaken for this purpose, like e.g. IWRM implementation in pilot basins. :

- g) Is a portfolio of investment projects/projects aiming at development of service delivery identifies as a part of the IWRM plan

Yes No

- h) Is the implementation of IWRM Plan (or its equivalent) being monitored?
 Monitored on a regular basis Not monitored on a regular basis

Has the implementation of IWRM Plan (or its equivalent) been evaluated?
 Has been evaluated Has not yet been evaluated

Countries which are already implementing IWRM please skip questions # 2-5

2. Has your country already developed an IWRM Plan, but not yet formally approved it?
 Yes, an IWRM Plan has been developed, waiting for a formal approval;
 An IWRM Plan is under development.
 If your country is in the process of developing an IWRM Plan, have there been:
 Multi-stakeholder consultations;
 Training or workshops undertaken;
 National coordination body established or designated?

 No, an IWRM Plan has not yet been developed but is under consideration.
3. If your country does not have an IWRM planning process (or its equivalent) in place, do you have any of the following components that could contribute to an IWRM Plan (please check all that apply):
 Poverty Reduction Strategy (PRS)
 National Development Plan
 National Environmental Action Plan
 Other – please specify:
4. Click here if no action has been taken regarding IWRM Plan or its equivalent
5. If your country has developed a PRS but not IWRM Plan,

 Does the PRS incorporate and integrate environmental, economic and social aspects of water resources management?
 Yes No
6. If your country has developed both an IWRM Plan and a PRS, is the IWRM Plan linked to the PRS?
 Yes No
7. Does your PRS or IWRM Plan target the Millennium Development Goals (MDGs)?
 Yes No

Comments:

8. Has your country Developed and approved a national/federal Water Efficiency Plan or its equivalent?
 Yes No

If yes, please give the name of the Water Efficiency Plan or its equivalent and the year of approval:

Name:

Year of approval:

- i) How was the Water Efficiency Plan or its equivalent developed?
 Multi-stakeholder consultations undertaken;
 Training or workshops undertaken;
 On the basis of inter-ministerial consultations;

- By one ministry responsible.
- j) Do you have a national body designated to implement and/or monitor your country's Water Efficiency Plan (or its equivalent)?
 Yes No

Please give the year it has started:

Please also give the name and composition of such a body:

- k) How is your Water Efficiency Plan (or its equivalent) being implemented? Please give specific actions/activities undertaken for this purpose:
- l) Is the implementation of Water Efficiency Plan (or its equivalent) being monitored?
 Monitored on a regular basis Not monitored on a regular basis

Has the implementation of Water Efficiency Plan (or its equivalent) been evaluated?
 Has been evaluated Has not yet been evaluated

Countries which are already implementing Water Efficiency Plans or similar please skip questions # 9-11

9. Has your country already developed a Water Efficiency Plan but not yet formally approved it?
 Yes, a Water Efficiency Plan has been developed, waiting for a formal approval;
 A Water Efficiency Plan is under development.

If your country is in the process of developing an Water Efficiency Plan , have there been:

- Multi-stakeholder consultations;
 Training or workshops undertaken;
 National coordination body established or designated?

No, a Water Efficiency Plan has not yet been developed but is under consideration.

10. If your country does not have an Water Efficiency planning process (or its equivalent) in place, do you have any of the following components that could contribute to a Water Efficiency Plan (please check all that apply):
 IWRM Plan that integrates Water Efficiency
 Water sector plans
 Other – please specify:

11. Click here if no action has been taken regarding Water Efficiency Plans or its equivalent

Comments:

12. If your country has developed and approved or are in the process of developing an IWRM Plan or its equivalent?

How was the IWRM Plan or its equivalent developed?

- through national funded activities?
 through assistance from donors or IFI's?
 through both national and donor funded activities?
 others?

13. If your country has developed and approved or are in the process of developing a Water Efficiency Plan or its equivalent?

How was the Water Efficiency Plan or its equivalent developed?

- through national funded activities?
 through assistance from donors or IFI's?
 through both national and donor funded activities?
 others?.

14. If your country is considering developing an IWRM plan Water Efficiency Plan, how will this be funded?

- through national funded activities?
- through assistance from donors or IFI's?
- through both national and donor funded activities?
- others?.

Where possible, please provide either an electronic copy of your IWRM Plan, or equivalent, Water Efficiency Plan or equivalent or a Web link to these

Annex 2 - UNEP Questionnaire

**GUIDE AND QUESTIONNAIRE
for Country Reports on IWRM**

Prepared by

DHI Water and Environment in cooperation with UNEP Collaborating Centre

IMPORTANT NOTE:

**The report and the answers to the questionnaires shall be returned by e-mail to XX day/month
200X at the latest
E-mail : XX**

For information please contact XX

Guide and Questionnaire for the Preparation of Country Reports on IWRM

Annotated list of contents for each country report

Geographic context. A brief description of the country and its geography and climate.

Social and economic context. A brief overview of key economic and demographic indicators.

Water resources situation in the country (approx. 2 pages). The text will bring forward the following points:

- Availability of the water resources and trends;
- Actual water demands and trends in domestic water supply, agriculture, industry, others;
- Key water resources issues and priorities - demand versus availability
- Major threats to the water resources (e.g. pollution, erosion-sedimentation, siltation of reservoirs, decrease of groundwater levels, salinity intrusion);
- Water related risks (e.g. floods, water borne diseases);
- Key challenges with respect to water resources management at the national level

Actual state of the IWRM process (approx. 2 pages on "Where is the country with respect to IWRM?")

Note: Concerning IWRM, the countries are at very different stages of progress (and use different approaches). It is important that this section accurately reflects the level of progress in the country. The narrative text will be supplemented by factual data (see the questionnaire)

Future perspectives and the need to continue the process (approx. 1-2 pages)

This section comprises a description of the next steps already planned or envisaged in the future and the means to mobilise for that. What are (or will be) the main obstacles: Sensitising the decision-makers? National capacity? Equipment? Technical support? Financial support?

Constraints, opportunities and perspectives (approx. 1 page)

This section will bring forward the strong and weak points of the country with respect to IWRM and the future perspectives. The situation should be presented in an objective manner.

Factual Questionnaire

The following questionnaire should be returned to xxxxxx at the same time as the country report.

Questionnaire

Note: It is possible to respond to most of the questions by ticking off the corresponding boxes. If you do not know the answer or if you do not have an opinion about the matter, do not tick off the boxes in question nor should you give narrative answers. This will be interpreted as "information not available" or "cannot be answered" according to the type of question. As IWRM is a complex subject, it will perhaps be necessary to add clarifying comments. Insert your comments at the designated space or in a separate sheet, referring to the number of the question to which such comments are related.

You may want to consult Annex A for a glossary which could be of helpful during preparation of answers to the questionnaire.

| | |
|---|---|
| 1. National water policy | |
| 1.1 | Does the country have a water policy? |
| 1.1a | Existing <input type="checkbox"/> Give the date of publishing: _____ Give the title(s) of the document(s) : |
| 1.1b | In progress <input type="checkbox"/> Give the expected date of finalisation: |
| 1.1c | Foreseen <input type="checkbox"/> Give the expected period for preparation: |
| 1.1d | Not foreseen for the time being <input type="checkbox"/> |
| 1.1e | Is the policy and the law/regulations harmonised? Yes: <input type="checkbox"/> No: <input type="checkbox"/> Partly: <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring to the number of the question: | |

| | |
|------------|---|
| 1.2 | What does the water policy cover? |
| 1.2a | Water resources management only <input type="checkbox"/> Water resources management, water supply and other uses <input type="checkbox"/> |
| 1.2b | If a water policy document exists, does it explicitly state IWRM (or IWRM principles) as a basis for water resources management in the country? Yes: <input type="checkbox"/> No: <input type="checkbox"/> Partly: <input type="checkbox"/> |
| 1.2c | Does the water policy define IWRM? Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| 1.2d | If Yes (1.2c) write definition, if necessary in an annexed document referring to the number of the question. |
| 1.2e | Does the water policy specify the role of the private sector in water resources management? Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| 1.2f | If Yes (1.2e) describe the role as specified, if necessary in an annexed document referring to the number of the question. |
| 1.2g | Does the water policy include the "polluter pays" principle (those causing pollution pay the cost of monitoring and treatment)? Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| 1.2h | Does the water policy include the "user pays" principle (water users pay the cost of management and provision of water)? Yes: <input type="checkbox"/> No: <input type="checkbox"/> |

Insert your possible comments here or give them in an annexed document referring to the number of the question:

2. National water legislation

| | | | |
|------------|--|------------------------------|-----------------------------|
| 2.1 | What is the situation of ownership of water in your country? | | |
| 2.1a | Is water a common good (i.e. it belongs to everyone)? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.1b | Is water the property of the State? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.1c | Is water a private property? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.1d | Is ownership variable according to the type or location of the water body? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

If Yes (2.1d) explain here or in an annexed document referring to the number of the question:

Insert your possible comments here or give them in an annexed document referring to the number of the question.

| | | | |
|------------|--|---|--------------------------------------|
| 2.2 | Does the country have one or more specific water laws, or a water code? | | |
| 2.2a | Existing: <input type="checkbox"/> | Give the date of publishing: | Give the title(s) of the documents : |
| 2.2b | In progress: <input type="checkbox"/> | Give the expected date for finalisation: | |
| 2.2c | Foreseen: <input type="checkbox"/> | Give the expected period for preparation: | |
| 2.2d | Not foreseen for the time being <input type="checkbox"/> | | |

Insert your possible comments here or give them in an annexed document referring to the number of the question:

| | | | |
|------------|--|------------------------------|-----------------------------|
| 2.3 | Does the water legislation include obligations to take into account the following principles? | | |
| 2.3a | Public hearings | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3b | Participation of the stakeholders in the water management | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3c | Management by river basin | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3d | Management at the lowest appropriate level ¹ | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

¹ The water problems should be managed at the lowest appropriate level. I.e. at the level, where the local competences and the capacities make solution to the problems possible and where decision makers are affected by the solutions

| | | | |
|---|--|------------------------------|-----------------------------|
| 2.3e | Financial contribution by the users towards the management of water resources | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3f | The “polluter pays” (those causing pollution pay the cost of monitoring and treatment) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3g | The “user pays” (water users pay the cost of management and provision of water) | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3h | The particular role of women in water management | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3i | Separation between resource management and water service provision | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3j | Water use efficiency | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 2.3k | Private sector involvement | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | |

| | | | |
|---|---|--|---|
| 2.4 | Regulations supporting the water law | | |
| 2.4a | How many regulations are required by the water law? | Give the titles and other details of regulations in an annex | |
| 2.4b | Among the regulations foreseen, how many have been adopted? If possible mark “adopted” on the list given in an annex | | |
| 2.4c | Are the regulations effective? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> Partly: <input type="checkbox"/> |
| 2.4d | If “No” or “Partly” for which reason? (tick one or more of the following possible reasons) | | |
| 2.4e | Regulations insufficiently known by the users: | <input type="checkbox"/> | |
| 2.4f | Regulations insufficiently known by those who shall enforce them: | <input type="checkbox"/> | |
| 2.4g | Regulations too complicated to be operational | <input type="checkbox"/> | |
| 2.4h | Regulations contradict each other: | <input type="checkbox"/> | |
| 2.4i | Regulations conflicts with customary law or cultural traditions of certain users: | <input type="checkbox"/> | |
| 2.4j | Sanctions are not applied in cases of non-compliance: | <input type="checkbox"/> | |
| 2.4k | Monitoring capacity inadequate | <input type="checkbox"/> | |
| 2.4l | Institutional enforcement capacity inadequate | <input type="checkbox"/> | |
| 2.4m | Other reasons (explain which): | | |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | |

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| 2.5 | Is the water law harmonised with other national legislation? |
|------------|---|

| | | | | |
|---|--|-------------------------------|------------------------------|----------------------------------|
| 2.5a | Environmental legislation | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> | Partly: <input type="checkbox"/> |
| 2.5b | Land-use legislation | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> | Partly: <input type="checkbox"/> |
| 2.5c | Agriculture legislation | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> | Partly: <input type="checkbox"/> |
| 2.5d | Health legislation | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> | Partly: <input type="checkbox"/> |
| 2.5e | Other legislation (describe): | | | |
| 2.5f | If relevant, list key areas of conflict between the water law and other legislation: | | | |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | | |

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| 2.6 | Is the national legal framework harmonised with the international agreements which the country endorses? | | |
| 2.6a | Yes: <input type="checkbox"/> | No <input type="checkbox"/> | Partly: <input type="checkbox"/> |
| 2.6b | List the water related agreements signed by the country and, if possible, mark those which have been integrated in the national legal framework. | | |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | |

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| 2.7 | Does the legal framework include an obligation to elaborate/maintain an IWRM Action Plan/strategy/process? | |
| 2.7a | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring the number of the question. | | |

| | |
|---|---|
| 3. Institutional framework for the water sector | |
| 3.1 | Provide the organisation chart(s) for the Institution(s) responsible for water resources management (attach in a separate document or in electronic format) |
| 3.2 | Water resources management responsibility If the water resources management responsibility is undertaken by a sector institution (e.g. Ministry of Agriculture, Energy, Environment) are there plans to move the responsibility away from the particular sector institution and place it in a cross-sectoral institution. |
| 3.2a | Yes: <input type="checkbox"/> No: <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | |

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| 3.3 | Institutions in the management framework Which institutions are in place being part of a framework for IWRM? | | |
| 3.3a | Is there a national body where cross-sectoral coordination at the overall level can take place? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| | If Yes, give its name: date of establishment frequency of meetings | | |

| | | | |
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| 3.3b | Is there a platform where interaction with stakeholders at the national level can take place? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| | If Yes, give its name: date of first meeting frequency of meetings | | |

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| 3.3c | Are there platforms for interaction with stakeholders at the regional/provincial level? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| | Are they operational (holding meetings and influencing decisions)? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |

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| 3.3d | Are there bodies for participation of the users at the local level | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| | Are they operational (holding meetings and influencing decisions)? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |

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|------|--|-------------------------------|------------------------------|
| 3.3e | Are there bodies for river basin management? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| | If Yes, give number of basin bodies organisational structure key functions | | |

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| 3.3f | Other institutions (explain) |
|------|------------------------------|

Insert your possible comments here or give them in an annexed document referring to the number of the question.

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| 3.4 | Institutional Capacity at the national/central level | | | | |
| | The questions below try to establish how far the country has come towards a realistically attainable institutional capacity for water resources management based on IWRM principles. Imagine a 5 year goal of establishing the management functions below and associated competences. The goal has to be consistent with a realistic water resources management budget and staffing considering the usual or immediately foreseen national budget priorities. | | | | |
| | For each of the functions below, give your assessment of the national/central level capacity using the following scale: 0 = function not established, 1 = function has many large gaps in quality and coverage, 2 = function has some gaps in quality and coverage, 3 = function operates at the realistic goal level. | | | | |
| 3.4a | Policy formulation | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4b | Drafting of laws and associated regulations | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4c | Recovery of cost of water resources management | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4d | Collecting water resources information and operating databases | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4e | Preparation of water resources assessments | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4f | Preparation of environmental assessments | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4g | Preparation of socio-economic assessments | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4h | Monitoring of water availability | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4i | Monitoring of ambient water quality | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4j | Monitoring of aquatic ecosystems | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4k | Monitoring of pollution loads | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4l | Monitoring of water use | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4m | Planning resource use, protection and conservation | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4n | Facilitating water demand management | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4o | Water allocation | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4p | Conflict mediation | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.4q | Cooperation on internationally shared watercourses | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | | | |

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| 3.5 | Institutional constraints (apart from human resources) at the national/central level | | | | |
| | Give your assessment of the severity of major negative factors constraining the water resources management institution(s). Use the following scale: 0 = not relevant, 1 = not severe, 2 = severe, 3 = very severe | | | | |
| 3.5a | Lack of Good Governance (transparency, accountability, integrative, communication, participation) | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.5b | Institutional framework poorly suited to address the key water resources management issues (e.g. mix of regulatory and service provider functions) | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.5c | Institutional mandate poorly defined | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.5d | Responsibilities poorly described for departments/sections | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |

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| 3.5e | Inadequate equipment (laboratory, monitoring equipment, etc.) | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.5f | Inadequate budget | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.5g | Inadequate logistics (e.g. transport) | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.5h | Inadequate office facilities | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |

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| 3.6 | Human resources | | | | |
| | Development of the water resources management functions requires staff with competences at levels corresponding to the technical complexity of the functions. The questions below address the staff capability compared to the realistic goal level of the functions (ref 3.4) | | | | |
| | Assess the human resource situation in the national/central water resources management institution(s) in relation to the IWRM functions under 3.4a – 3.4q. Use the following scale: 0 = not at all, 1: to some degree, 2: to a reasonable degree. 3: fully | | | | |
| 3.6a | Is the number of staff adequate for handling the IWRM functions at goal level as outlined above? | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.6b | Is the staff sufficiently qualified for to handle the IWRM functions at goal level as outlined above? | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.6c | Is the staff motivated to handle the water resources management based on IWRM principles? | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 3.6d | Estimate the number of senior managers in the water sector that are familiar with IWRM principles. Less than 5 <input type="checkbox"/> 5 - 10 <input type="checkbox"/> 10 – 20 <input type="checkbox"/> More than 20 <input type="checkbox"/> | | | | |
| 3.6e | Are there specific IWRM training activities in your country (if Yes, list them here or in a separate annex referring to the number of the question | Yes: <input type="checkbox"/> | | No: <input type="checkbox"/> | |
| | List of IWRM training activities: | | | | |
| Insert your possible comments or give them in an annexed document recalling the number of the question. | | | | | |

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| 4. Processes and Milestones leading towards IWRM | |
| 4.1 | Status of Action Plan/strategy for implementation of an IWRM Framework (enabling environment, institutional roles and management instruments) |
| 4.1a | Not foreseen for the time being <input type="checkbox"/> |
| 4.1b | Under preparation <input type="checkbox"/> Since when : month year Expected to be finalised by : month year |
| 4.1c | Existing <input type="checkbox"/> Approved by Date of approval: month year |
| 4.1d | Existing and under implementation <input type="checkbox"/> Agency in charge of implementation Date of start of implementation : month year |

Insert your possible comments here or give them in an annexed document referring to the number of the question.

| | | | |
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| 4.2 | If an Action Plan exists (confirmed in 4.1c or 4.1d) | | |
| 4.2a | Which government and non-government agencies were involved in preparing the plan? Specify : | | |
| 4.2b | Is there a portfolio of projects to implement the IWRM Action Plan? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.2c | Is there a programme for capacity building included in the IWRM Action Plan? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.2d | If Yes, is it a recurrent programme? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.2e | Does the action plan have mechanisms for monitoring of implementation? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.2f | If Yes, which agency is responsible for monitoring? | | |
| 4.2g | Is there a strategy for financing of the Action Plan implementation? | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | |

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| 4.3 | IWRM in other Plans | | |
| Is IWRM itself or the principles that form the basis for IWRM parts of official documents (policies, plans or strategies) from other sectors that use water or relate to water | | | |
| 4.3a | Does IWRM appear in a Poverty Reduction Strategy Paper | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.3b | If Yes, provide date and title of document month year title | | |
| 4.3c | Does IWRM appear in a National Development Strategy to achieve the MDGs | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.3d | If Yes, provide date and title of document month year title | | |
| 4.3e | Does IWRM appear in an Agricultural Development Plan | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.3f | If Yes, provide date and title of document month year title | | |
| 4.3g | Does IWRM appear in an Energy Development Plan | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.3h | If Yes, provide date and title of document month year title | | |
| 4.3i | Does IWRM appear in a National Environmental Action Plan | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |

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| 4.3j | If Yes, provide date and title of document month year title | | |
| 4.3k | Does IWRM appear in other national plans development plans | Yes: <input type="checkbox"/> | No: <input type="checkbox"/> |
| 4.3l | If Yes, provide date(s) and title(s) of document month year title month year title month year title | | |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | |

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| 4.4 | Awareness on IWRM | | | | |
| | Is IWRM and the inherent concepts known and understood by the major operators in the water sector and sectors relating to water (e.g. agriculture/irrigation, hydropower, health, environment, water supply and sanitation). Use the following scale: 0 = not at all, 1 = to some degree, 2 = to a reasonable degree, 3 = fully | | | | |
| 4.4a | High level decision makers | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 4.4b | Professionals in agencies responsible for water resources management | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 4.4c | Professionals in agencies within water use and water related sectors | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 4.4d | Major water users (incl. industries) | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 4.4e | Consultants | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| 4.4f | Non-government organisations (NGOs) in the water sector | 0: <input type="checkbox"/> | 1: <input type="checkbox"/> | 2: <input type="checkbox"/> | 3: <input type="checkbox"/> |
| Insert your possible comments here or give them in an annexed document referring to the number of the question. | | | | | |

| 5 Narrative descriptions of process towards IWRM | |
|---|---|
| 5.1 | <p>Describe in your own words your assessment of the extent to which your country has achieved the target of the Johannesburg Plan of Implementation on IWRM: “.....to develop integrated water resources management and efficiency plans by 2005”</p> <p>If the above plans have been prepared, describe in your own words your assessment of the process of plan preparation, especially in terms of participation, time frames and quality</p> <p>If the above plans have been prepared, describe in your own words your assessment of the extent to which these plans are implemented in practice, as well as constraints to implementation</p> |

6. References – Bibliography

Information should be supported by references to documents quoted (water policies, laws, regulations, projects etc.) as well as all other relevant documents: Technical analyses, other country reports etc.

**Annex A
Glossary for the IWRM Survey Questionnaire**

There are many definitions for some terms and those given below aim to help in completing the questionnaire and should not be considered definitive.

| | |
|---------------|---|
| Policy | <ul style="list-style-type: none"> • A policy sets out the goals and the vision. • Water policy development gives an opportunity for setting national objectives for managing water resources and water services delivery within a framework of overall development goals. • A water policy that reflects the IWRM approach would seek to balance economic growth, social equity and environmental sustainability. |
| Strategy | <ul style="list-style-type: none"> • A strategy sets out what should be done to realize the policy goals and is based on future possibilities and is dynamic rather than static. • The process of creating an IWRM strategy is an opportunity to take a coherent, as opposed to an ad hoc, approach to improving the development, management and use water resources to further sustainable development goals. • Strategies should aim at institutionalizing changes that will promote more strategic and coordinated decision-making. |
| Plan | <ul style="list-style-type: none"> • A plan sets out how to achieve the strategy with concrete objectives, activities and related means. • A plan focuses on problem-solving. |
| Partnerships | <ul style="list-style-type: none"> • A means to enable organizations with differing skills, resources and priorities to leverage increased impact through working together than would be possible by working alone. |
| Participation | <ul style="list-style-type: none"> • Is the involvement of people in decision making processes relating to policies and actions undertaken by formal bodies. • Real participation takes place when stakeholders are part of the decision-making process. This can occur directly when local communities come together to make water supply, management and use choices. |
| Stakeholder | <ul style="list-style-type: none"> • A person or group of people who have a direct interest in an activity because its existence will |

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| | materially affect their lives. |
| Cross-cutting sectors | <ul style="list-style-type: none"> • In this context a cross-cutting sector refers to issues that affect several economic sectors, such as finance, social policy, environment etc. |
| Water code | <ul style="list-style-type: none"> • A systematically arranged and comprehensive collection of written laws. • Some codes are administrative and have the force of law even though they were created and adopted by regulatory agencies and are not actually statutes or laws. |
| Water law | <ul style="list-style-type: none"> • The required water laws cover inter alia ownership of water, permits to use (or pollute) it, the transferability of those permits, and customary entitlements. • Water laws underpin institutional mandates and regulatory norms for e.g. conservation, protection, priorities, and conflict management. • Specific water laws have been enacted in a considerable number of countries, but some still lack a water resources law per se. |
| Regulations | <ul style="list-style-type: none"> • Rules and administrative codes issued by governmental agencies at all levels, municipal, county, state and federal. Although they are not laws, regulations have the force of law, since they are adopted under authority granted by statutes, and often include penalties for violations. |
| By-laws | <ul style="list-style-type: none"> • The written rules for conduct of a corporation, association, partnership or any organization. • By-laws are in effect a contract among members and must be formally adopted and/or amended. |

Annex 3 - A starting point for developing a set of reporting categories for reporting on progress on national IWRM and water efficiency Plans

1. Processes for regularly bringing together key stakeholders from different sectors – government departments, water-using private sector, environmental representatives and others.
2. Processes by which stakeholders are kept informed and have some share in management decisions; measures to involve women and poor people.
3. Inventories of capacity building needs
4. Inventories of institutional capacities.
5. Financing secured for infrastructure investments, capacity-building, and institution-building; funding sources identified; agreement on ongoing operational financing
6. A baseline assessment of physical water resources by basin.
7. Information dissemination processes.
8. Links as appropriate established to national development plans, poverty reduction strategies, and trans-boundary, biodiversity and/or international accords.
9. Agreement on a road map of change, mileposts, and deadlines.
10. Monitoring and evaluation system established to track progress in the reform of water resources management.

Annex 4 - Methodological issues

There are several issues which need to be addressed in the design of the monitoring schemes. Among these are:

- **Ten Step approach.** Checking readiness (capacity to embark on M&E and political will to make use of results), selecting outcomes for M&E, identifying indicators, baseline data on indicators (where are we today ?), selecting results/targets, monitoring results/targets, evaluation, reporting findings, using findings, sustaining M&E system (10 Steps in Results Based Monitoring – WB Document – see list of references)
- **Objectivity versus subjectivity.** The formulation of questions and indicators has to encourage objectivity and indicators need to be precise and unambiguous, relevant, available at reasonable cost, easily verifiable preferably quantifiable, provide a good basis to assess performance/progress, and be amenable to independent validation
- **Data sources and quality.** The quality of monitoring data needs to be consistent with the purpose and use of the results. Before selection of indicators one should consider, data source, collection method, who does it, frequency, cost, who analyses and reports and who are the users of the reports. Data must be reliable, valid and timely.
- **Clear definitions.** The outcomes, outputs, indicators and the inherent concepts need to have clear and unambiguous definitions that do not leave the “observer” – or the “observed” in doubt
- **Harmonization.** Harmonization and coordination between different monitoring institutions is necessary - but also extremely difficult in different socio-economic and administrative contexts - in order to achieve comparable results and transfer lessons.
- **Legitimacy.** The monitoring and evaluation has to be made by organizations that are recognized for their integrity and professional capabilities and which are approved/selected by those countries which are subjected to the M&E.
- **Observer or proxy.** Direct observations or reliance on questionnaires filled in by proxies. Does the proxy’s fully understand the questionnaires and are they developed in an unambiguous way. Will a generic questionnaire apply to all countries or will it be considered less relevant by the respondents.
- **One observer or a participatory monitoring (and evaluation).** In a situation where a questionnaire needs to be filled out, this can possibly be done by a representative of the responsible organization or diversified group of people can discuss and answer each question. The evaluation is also a topic for discussion and interpretation, where there would be many advantages in a participatory approach.
- **Translation of monitoring results into progress and impact statements.** The monitoring results (where in the process are we?) seen in country context have to be translated through an evaluation into impact statements (why it happened?). This translation requires good knowledge of the context and insight into causal relationships.

Annex 5 - Preparing for monitoring and evaluation

Purpose and use of the results. The development of a monitoring and evaluation exercise takes its starting point in the concise definition of the process that needs to be monitored, the scope of the process, its estimated duration also describing the context in which the monitoring and evaluation will take place. Defining the purpose of the M&E, how the results should be used/reacted to and how accumulated knowledge should be disseminated are all parts of the preparation. Milestones in the process and suitable timing of M&E interventions will also have to be considered.

Institutional responsibilities. It is equally important to carefully consider the institutional aspects. These comprise the issues of which institution(s) that should be involved in the M&E exercise and who should lead the exercise. Issues of harmonization of approaches and achieving comparable results need to be dealt with early in the planning.

Cost considerations. The cost of the monitoring and evaluation exercise is also a significant factor. The questions of who pays the cost and who gets the benefit will have to be settled up front. Most projects are monitored to fairly straightforward progress levels and the cost of this is incorporated in the project budget. The more complex monitoring and evaluation of impacts/outcomes at different levels is often not given much attention, not least because it can become quite costly and requires specialized knowledge.

Indicators. The process description needs to be analyzed and if possible organized into a Logical Framework, greatly facilitating the conceptualizing of indicators. These have to be defined and described in an unambiguous manner and the methodologies for collecting and analyzing data on indicators need to be considered carefully along with baseline conditions. Questionnaires, identification of respondents, need for participatory monitoring and analyses all go into the preparatory work.

Annex 6 – Water and the MDGs¹

| Millennium Development Goal by 2015 | Contribution of Improved Water Resources Management and Access to Water Supply and Sanitation |
|--|---|
| <p>Poverty To halve the proportion of the world's people whose income is less than \$1/day</p> | <ul style="list-style-type: none"> • Water is a factor of production in agriculture, industry and other economic activities • Investments in water infrastructure/services is a catalyst for local/regional development • Reduced vulnerability to water-related hazards reduces risks in investments and production • Reduced ecosystems degradation makes livelihood systems of the poor more secure • Improved health increases productive capacities, reduces burden on those who care for the sick |
| <p>Hunger To halve the proportion of the world's people who suffer from hunger</p> | <ul style="list-style-type: none"> • Water is a direct input to irrigation for expanded grain production • Reliable water for subsistence agriculture, home gardens, livestock, tree crops • Sustainable production of fish, tree crops and other foods gathered in common property resources (also affects poverty when such goods are sold for income) • Reduced urban hunger due to cheaper food prices • Healthy people are better able to absorb the nutrients in food than those suffering from water-related diseases, particularly worms |
| <p>Primary Education To ensure that children everywhere complete a full course of primary schooling</p> | <ul style="list-style-type: none"> • Improved school attendance from improved health and reduced water-carrying burdens, especially for girls • Having separate sanitation facilities for girls and boys in schools increases girls' school attendance |
| <p>Gender Equality To ensure girls and boys have equal access to primary and secondary education</p> | <ul style="list-style-type: none"> • Community-based organizations for water management improve social capital of women • Reduced time, health, and care-giving burdens from improved water services give women more time for productive endeavors, adult education, empowerment activities, leisure • Water sources and sanitation facilities closer to home put women and girls at less risk for sexual harassment and assault while gathering water and searching for privacy • Higher rates of child survival are a precursor to the demographic transition toward lower fertility rates; having fewer children reduces women's reproductive responsibilities |
| <p>Child Mortality To reduce by two-thirds the death rate for children under five</p> | <ul style="list-style-type: none"> • Improved quantities and quality of domestic water and sanitation reduce main morbidity and mortality factor for young children • Improved nutrition and food security reduces susceptibility to diseases |
| <p>Maternal Mortality To reduce by three-fourths the rate of maternal mortality</p> | <ul style="list-style-type: none"> • Improved health and reduced labor burdens from water portage reduce mortality risks • Improved health and nutrition reduce susceptibility to anemia and other conditions that affect maternal mortality • Sufficient quantities of clean water for washing pre-and-post birth cut down on life-threatening infections • Higher rates of child survival are a precursor to the demographic transition toward lower fertility rates, and fewer pregnancies per woman reduce maternal mortality |
| <p>Major Disease To halve, halt and begun to reverse the spread of HIV, malaria, other major diseases</p> | <ul style="list-style-type: none"> • Better water management reduces mosquito habitats • Better water management reduces incidence of a range of other water-borne diseases • Improved health and nutrition reduce susceptibility to/severity of HIV/AIDS and other major diseases |
| <p>Environmental sustainability To stop the unsustainable exploitation of natural resources and to halve the proportion of people who are unable to reach or afford safe drinking water</p> | <ul style="list-style-type: none"> • Improved water management, including pollution control and water conservation is a key factor in maintaining ecosystems integrity • Development of integrated management within river basins creates situations where sustainable ecosystems management is possible and upstream-downstream effects are mitigated • Biodiversity conservation, combating desertification furthered by sound water management |

¹ GWP, Policy Brief 4: How IWRM will contribute to achieving the MDGs (http://www.gwpforum.org/gwp/library/Policy_brief_4_MDGs.pdf)

Annex 7- The target to “develop integrated water resources management and water efficiency plans by 2005”

In the WSSD Plan of Implementation¹ it is stated that: “Human activities are having an increasing impact on the integrity of ecosystems that provide essential resources and services for human well-being and economic activities. Managing the natural resources base in a sustainable and integrated manner is essential for sustainable development. In this regard, to reverse the current trend in natural resource degradation as soon as possible, it is necessary to implement strategies which should include targets adopted at the national and, where appropriate, regional levels to protect ecosystems and to achieve integrated management of land, water and living resources, while strengthening regional, national and local capacities. This would include actions at all levels as set out below²”:

Develop integrated water resources management and water efficiency plans by 2005, with support to developing countries, through actions at all levels to:

- (a) **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;
- (b) **Employ the full range of policy instruments**, including regulation, monitoring, voluntary measures, market and information-based tools, land-use management and cost recovery of water services, without cost recovery objectives becoming a barrier to access to safe water by poor people, and **adopt an integrated water basin approach**;
- (c) **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;
- (d) **Develop programmes** for mitigating the effects of extreme water-related events;
- (e) **Support the diffusion of technology and capacity -building** for non-conventional water resources and conservation technologies, to developing countries and regions facing water scarcity conditions or subject to drought and desertification, through technical and financial support and capacity -building;
- (f) **Support, where appropriate, efforts and programmes** for energy -efficient, sustainable and cost-effective desalination of seawater, water recycling and water harvesting from coastal fogs in developing countries, through such measures as technological, technical and financial assistance and other modalities;
- (g) **Facilitate the establishment of public -private partnerships** and other forms of partnership that give priority to the needs of the poor, within stable and transparent national regulatory frameworks provided by Governments, while respecting local

¹ Section IV, Para 24.

(www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf)

² Section IV, Para 26 defines some actions.

conditions, involving all concerned stakeholders, and monitoring the performance and improving accountability of public institutions and private companies.