Indicators.
Implementing Integrated Water Resources Management at River Basin Level.

Cap-Net

UNDP

June 2008

Foreword.

Cap-Net has been working with river basin organisations (RBOs) at national and sub-national levels to assist in their development as effective managers of water. As part of a programme of capacity building support indicators have been developed that are based on the implementation of the integrated approach to the sustainable management of water resources. The indicators are presented as a minimum set and therefore do not completely measure the objectives described for good water resources management.
The indicators are being improved over time and have benefited from review by several RBOs and are now being tested on the ground.

Assumptions:

1. River basin organisations will take time to become fully effective as managers and regulators of the water resources in a basin, taking up all of the necessary management functions;
2. Managers of water resources primarily have a regulatory function but this is further elaborated with the following functions considered essential for effective management of the water resources in a river basin
    - Water resource allocation
    - Pollution control
    - Monitoring
    - Stakeholder participation
    - Economic and Financial management
    - Information management
    - Basin planning
3. The water resource management functions may not all be managed by one agency and may to some extent be decentralised within the basin.
4. All of the information associated with the above functions, used in an integrated fashion, is essential for effective water resources management within the basin.

Application:

5. At the moment, while being tested, the indicators are grouped by water management function.
6. The indicators may be used to
    a. Measure progress with integrated water resources management, and
    b. Identify weak areas of: regulation; institutional arrangements; management systems (financial and operational); capacity and authority and therefore to guide corrective action by the water management agency.
7. The indicators should be reported on a half yearly or annual basis.

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June 2008

ALL FEEDBACK ON THESE INDICATORS IS WELCOME AND SHOULD BE SENT TO paul.taylor@cap-net.org

Table 1 Minimum Indicator Set for Water Resources Management

Function	Water Management Objectives	Progress indicator	Unit/ definition
WATER ALLOCATION Allocating water to major water users and uses, maintaining minimum levels for social and environmental use while addressing equity and development needs of society.	Major water users are known and are managed through a licensing (or permit) system.	1. Number of surface and groundwater users licensed according to the regulations.	Number. Number of licenses issued. May be further subdivided by use.
	Water allocation is in line with sustainable use, economic efficiency and social equity principles.	2. Water allocation criteria include use efficiency, economic benefit and social goals.	Review. Examine allocation criteria for compliance with IWRM principles.
		3. % of time environmental and social reserve is maintained in major water courses.	%. Number of records from water resource monitoring stations with flows lower than the reserve divided by the total records x 100. A determination of the reserve is required.

Function	Water Management Objectives	Progress indicator	Unit/ definition
POLLUTION CONTROL Managing pollution using polluter pays principles and appropriate incentives to reduce most important pollution problems and minimise environmental and social impact.	The extent of the pollution problem is known and progress being measured.	4. % of surface water quality samples complying with water quality objectives.	%. Number of samples below set standard. Simplest approach is to base the determination on measurements of a few key water quality parameters.
		5. % of ground water quality samples complying with water quality objectives.	%. Number of samples below set standard. Simplest approach is to base the determination on measurements of a few key water quality parameters.
	Major polluters are known and are managed through a licensing (or permit) system.	6. Number of polluters licensed according to the regulations.	Number. Number of licenses issued.

Function	Water Management Objectives	Progress indicator	Unit/ definition
MONITORING Implement effective monitoring systems that provide essential management information and identify and respond to infringements of laws, regulations and permits.	The water allocation system is effective and permits are being complied with.	7. Proportion of water allocation permit holders complying with permit conditions.	%. From monitoring visits the number not complying with conditions divided by the total number of visits.
	The Pollution control system is effective and permits are being complied with.	8. Proportion of water pollution permit holders complying with permit conditions.	%. From monitoring visits the number not complying with conditions divided by the total number of visits.
	Knowledge of water resource availability is a basis for management.	9. Number of water resource monitoring stations producing reliable data.	Number. Number of stations with reliable data records.
		10. Total water storage capacity.	M^3. The water storage capacity in artificial storage structures above a minimum size (say 5,000 M^3).
		11. % groundwater monitoring stations with declining water levels.	%. Comparison of water levels over a 5 year period.

Function	Water Management Objectives	Progress indicator	Unit/ definition
BASIN PLANNING Prepare and regularly update the Basin Plan incorporating stakeholder views on development and management priorities for the basin, and using it to inform the annual work plans of the RBO.	Basin planning synthesises technical and social priorities for the basin and acts as a basis for action and accountability to the stakeholders.	12. Water management activities driven by Basin plan.	Review. Examine the link between the basin plan and current water management activities.
		13. Stakeholder priorities reflected in the basin plan.	Review. Examine the basin plan for stakeholder consultation and content.

Function	Water Management Objectives	Progress indicator	Unit/ definition
ECONOMIC AND FINANCIAL MANAGEMENT Applying economic and financial tools for cost recovery and behaviour change to support the goals of equitable access and sustainable benefits to society from water use.	Water use efficiency improving through use of economic and financial instruments.	14. Charges and fees for water allocation favour the poor and efficient water use.	Review. Examine for the application of economic and financial tools in water allocation.
		15. % revenue received.	%. Total revenue divided by the total amount billed.
	Pollution reducing through use of economic and financial instruments.	16. Pollution charges give incentive to reduce pollution.	Review. Examine for the application of economic and financial tools in water pollution.
		17. % revenue received.	%. Total revenue divided by the total amount billed.

Function	Water Management Objectives	Progress indicator	Unit/ definition
INFORMATION MANAGEMENT Provide essential data necessary to make informed and transparent decisions for development and sustainable management of water resources in the basin.	Essential information is processed and packaged at the right level for specific managers and stakeholders to support transparent decision making and to gain commitment and political support for the decisions made.	18. Data base is established in formats compatible with other river basin organisations.	Review. Data base is transferable across basins in the country and for transboundary systems.
		19. Water management information is available to managers and other stakeholders as required.	Review. Examine availability of basin data and reports on water resource management indicators.

Function	Water Management Objectives	Progress indicator	Unit/ definition
STAKEHOLDER PARTICIPATION Implement stakeholder participation as a basis for decision making that takes into account the best interests of society and the environment in the development and use of water resources in the basin.	Effective cooperation between government agencies with responsibilities for water management or water use in the basin.	20. Number of meetings of Government agencies with water interests to consult and collaborate on water management.	Number. Number of formal or ad hoc meetings at interagency level.
	Stakeholder participation is institutionalised in the management of the river basin.	21. Formal stakeholder structures established with clear roles and responsibilities in water resources management.	Review. Examine basin water management structure for stakeholder organisations and allocated management roles.
		22. Basin stakeholders (male and female) represented in decision making bodies at all levels.	Number. Representatives from stakeholders serving in government water management structures.