



Guidelines for Strengthening River Basin Organisations

ENVIRONMENTAL MANAGEMENT



The Guidelines on Strengthening River Basin Organisations were formulated through an all inclusive consultative process. Many thanks go to representatives of Member States who have been very supportive to this process especially through their participation in the Annual RBO Workshop series. The financial support provided by the American Government through USAID to the formulation process is greatly appreciated. Further thanks goes to our regional consultants for the guidance they provided to the SADC Secretariat's Directorate of Infrastructure and Services - Water Division. Last but not the least, all could not have been achieved without the technical and financial support from the German and UK Governments through GTZ.



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One of the goals of the SADC Treaty is the "achievement of sustainable utilisation of natural resources and effective protection of the environment".

In the context of river basin organizations, the importance of environmental management is reflected in the 2000 SADC Protocol on Shared Watercourses, which seeks to "advance sustainable, equitable and reasonable utilisation" and to "promote co-ordinated and integrated environmentally sound development and management of shared watercourses". These objectives are given further substance in the SADC Regional Water Policy (textbox 1)

The purpose of this guideline is to establish a set of procedures that can assist river basin organisations (RBOs) with the implementation of environmental management. The guideline was designed to help practitioners assimilate, evaluate, and implement the ever increasing amount of evidence on best practices. It is not intended to be exhaustive or prescriptive. Rather, the guideline was developed in the perspective of providing well balanced information on strategic options and procedures available to RBOs for strengthening their human and institutional capacities.

Textbox 1: SADC Regional Water Policy

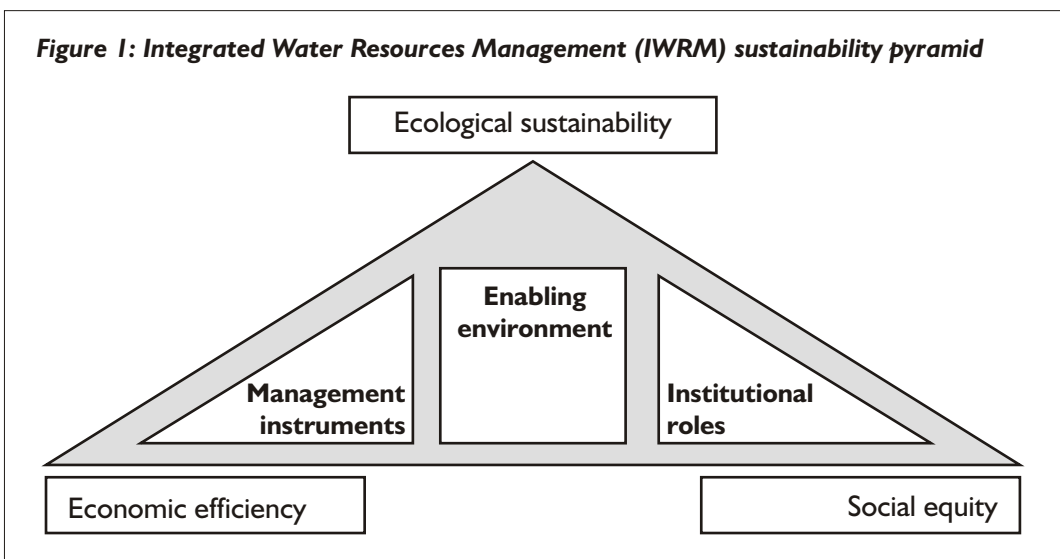
- a. The environment is recognised as a resource base and a legitimate user of water in the SADC region and Member States shall adopt all necessary strategies and actions to ensure that the environment is sustained.
- b. Member States should, in their mechanisms for allocating water resources among many users, allocate sufficient water to maintain ecosystem integrity and biodiversity including marine and estuarine life.
- c. SADC should harmonise and uphold common minimum standards of water quality in shared watercourses.
- d. Member States shall not import pollutants into the region for disposal which can affect watercourses.
- e. Environmental Impact Assessments (EIAs) should be a mandatory requirement for development initiatives in the watercourses, and Member States are encouraged to undertake Strategic Environmental Assessments (SEAs) where feasible.
- f. Member States are individually and collectively responsible for the control of alien invasive species with the ultimate aim of total eradication of those which are non-economical.





Integrated Environmental Management is guided by a number of principles. The more prominent are expressed below.

Sustainability	Needs of the present generation is met without compromising the ability of future generations to meet their own needs.
Precaution	Appropriate measures are taken to prevent, eliminate, reduce, or control harm to the ecosystem, even without conclusive proof of a causal relation between an act and its expected effects.
Integration	All elements of the environment are linked and interrelated, and decisions must take into account potential effects on all components of the natural environment and on all people in the environment.
Participation	Stakeholders should be given an opportunity to take part in decision-making that affects their well-being and livelihoods (refer to SADC Guideline on Stakeholder Participation).



The environmental management functions of RBOs are determined by a unique combination of the international agreements established between the Member States, tenants of international water law, international best practices and the establishment agreements entered into by the watercourse states.

The preparation of these guidelines has incorporated inputs from various sources including *i)* the practices of selected RBOs, *ii)* the SADC and international water law framework as expressed in agreements and international conventions, *iii)* emerging law as expressed for example by the International

Law Association, *iv)* the policies and procedures of multi-lateral institutions such as the United Nations and *v)* the views of distinguished scholars.

The conceptual framework envisages that an RBO's environmental management programme is largely determined by instruments such as its own establishment treaty, agreements between the parties and international best practice and is guided by well established principles (figure 1). This framework provides a number of possible interventions that are elaborated in the following section.

Figure 2: Environmental management framework



RBOs aspiring to implement environmental management best practices should consider undertaking interventions in at least three strategic areas: *i*) Environmental policy, *ii*) Environmental Information Management System and *iii*) Environmental Management

Programme. For each of these strategic areas several interventions and methods are available; some of them are presented in the following tables. In addition RBOs should consider addressing several cross-cutting issues.

1. ENVIRONMENTAL POLICY

The purpose of developing specific environmental management policy is to prevent misunderstandings caused by different interpretations of the mission, purpose and functions of the RBO that may arise as the RBO goes about its work.

Possible interventions	Considerations and/or methods available
1.1 Develop an operational policy on environmental management	<p>There are general and implicit requirements in the SADC Water Protocol for cooperation in environmental management. An agreed operational policy will facilitate this.</p> <p>The SADC states have all made commitments as Parties to the Ramsar Convention and the Convention on Biological Diversity.</p>
1.2 Define how the IWRM principles will be addressed	<p>The international IWRM literature is quite general in nature and needs to be tailored to each RBO.</p> <p>The SADC states have undertaken to prepare national IWRM plans (Article 26 of the Johannesburg Plan of Implementation) and these need to be harmonised in the context of international river basins.</p>
1.3 Define how the precautionary principle and the ecological approach can be applied	<p>The precautionary principle is a high-level concept that has found its way into the Berlin Rules and is hence on the way to becoming customary international law. The ecological approach is required by the Convention on Biological Diversity. Both need to be concretised to the particular basin.</p>
1.4 Develop a policy on information management	<p>Environmental data and information management is one of the core functions of an RBO. Shared or jointly owned information, that is accepted by all the parties, can go a long way towards reducing the potential for misunderstanding arising from different data sets.</p>

Examples

- The Environmental Policy and Strategy for the Zambezi River Authority.
- The Lower Manyame sub-catchment in Zimbabwe is an example of IWRM at the sub-catchment and community level. (See GWP literature).

2. ENVIRONMENTAL MANAGEMENT INFORMATION SYSTEM (EMIS)

The parties to the RBO can only act cohesively if they come to conclusions based on a common EMIS that has been established according to agreed protocols of data observation, recording and processing. The EMIS should build on existing systems.

Possible interventions

Considerations and/or methods available

2.1 Develop and maintain a database on environmental data and information

The SADC Protocol, the UN Convention and the Berlin Rules require co-basin states to prevent, monitor and control pollution. This is impossible without objective, reliable and creditworthy data and information. This applies equally to the quantity of water.



TIP: Geographical Information Systems (GIS) and remote sensing are useful tools for capturing, collating and reporting, however, there are disparities in the capacities of SADC states to collect and process data.

2.2 Develop tools to produce relevant information

RBOs should develop shared hydrological models that can be used to explain the system functions and predict the impact of interventions in the basin.

A routine reporting system should be developed to publish data and information on important environmental management parameters, particularly in respect of water quality.



TIP: The credibility and objectivity of data and information should be assured through the adoption of international scientific standards and utilisation of accredited laboratories.

2.3 Develop an environmental flow requirement monitoring system

Environmental flows are a key instrument for ensuring the maintenance of the rivers' ecological health.



TIP: The DRIFT method has been developed in SADC to determine environmental flows.

2.4 Develop an environmental management monitoring and evaluation system

Develop specific protocols for monitoring and evaluating the impacts of developments on the ecosystems.

Examples

- The KOBWA has the objectives of establishing both an accredited laboratory and an environmental management system that is accredited ISO 14,000.
- The Joint Water Commission between South Africa and Lesotho has agreed to use the DRIFT method as the standard for environmental flow determination.
- The SADC HYCOS Programme monitors major river flows and provides standardised data processing methods.

3. ENVIRONMENTAL MANAGEMENT PROGRAMME

A basin-level perspective enables the integration of issues such as downstream and upstream, quantity and quality, surface water and groundwater, and land use and water resources.

Possible interventions

Considerations and/or methods available

3.1 Conduct a Strategic environment Assessment (SEA) or alternatively Transboundary Diagnostic Assessment (TDA)

Prepare a "state of the basin" report that will provide a base-line against which future progress can be accessed.

Work towards developing a common understanding of the basin environmental system and the impact of altered flow regimes on the aquatic ecosystems.



TIP: Special programmes on wetlands and groundwater may be necessary as these are often overlooked.

3.2 Develop a basin-wide "IWRM" plan or Strategic Action Plan (SAP)

IWRM at the river basin level seeks improvements in existing and conventional approaches to water resources management leading towards the ultimate goal of sustainable development.

IWRM can effectively deliver a triple bottom line of economic efficiency, social equity and environmental sustainability.



TIP: Pollution and alien weeds are important elements.

3.3 Develop a risk management system with emergency plans and mitigation measures

In the short term, the management system should respond to floods, pollution events and dam safety incidents. Droughts require medium term responses.



TIP: Emergency preparedness usually has an environmental management dimension.

3.4 Conduct Environmental Impact Assessment (EIA)

As stated in the SADC Regional Water Policy, EIA should be a mandatory requirement for development initiatives in watercourses. RBOs should facilitate that process.

Examples

- ORASECOM and OKACOM have followed the Global Environmental Facility's guidelines for Transboundary Diagnostic Analysis (TDA) establishing and agreeing the baseline conditions in the basin.
- The Mekong River Commission developed its basin development plan (phase 1: 2000-2006) providing a common base-line understanding of the basin and its resources. Further phases will institutionalise participatory planning based on the first phase.
- The Action Plan on Flood Defense prepared by the International Commission for Protection of the Rhine is directed at management during extreme events.

The international paradigm provides a well developed framework for implementing integrated environmental management.

Nevertheless each RBO will have to tailor its programme to its mandate and the particular circumstances in its area of influence. The level of development, the desired ecological state and the ecological sensitivity of the aquatic environment are important determinants. This guideline is intended to assist RBOs with that process by providing some clarity on broad best practices in the field of environmental management. More importantly, the guideline gives a direction to that process, based on lessons learnt, with the objective of ensuring the formalisation of an environmental management programme. The interventions presented in the guideline are offered as indications of best practices rather than implying they are mandatory. Each RBO should decide which set of interventions is the most suited to its needs.

SADC RBOs originate in the water sector where the main questions relate to the quantity and quality of the water resources and of their development for the provision of

water services. This relatively narrow focus is reinforced by the institutional frameworks at national and regional level.

However integrated environmental management implies a far wider multi-disciplinary reach. Consequently, in implementing its environmental management programme the RBO should strive for a comprehensive approach through linkages with organisations in other sectors.

The SADC Water Division has important functions in environmental management and the RBO (itself mandated in part by the Protocol) should as far as possible act within the framework of SADC. The national environmental management systems are important building blocks for the RBO and repetition and duplication should be avoided.

The full scope of integrated environmental management at river basin level could be overwhelming for the emerging RBOs in SADC. Pilot projects and working groups with other RBOs in SADC can assist in adopting an evolutionary approach as human and financial resources increase.





Benchmarking is the process whereby one organisation is able to compare its performance with another organisation in similar circumstances. In order to benchmark, organisations must have a set of performance indicators that are evaluated according to a common methodology. Performance indicators also enable an organisation to assess its progress against its own goals and objectives.

Recently, the International Network of Basin Organisations (INBO) and its regional branch in Africa (ANBO) developed a set of performance indicators for African transboundary basins. The indicators are divided into two groups: *i*) the "**Governance Indicators**" to assess policy impacts, and *ii*) the "**Technical Indicators**" to assess programme outputs. The former are divided into eight themes: Political Process, Financing, Representation, Legal, Excellence, Functional Coordination, Effective Management and Information. Examples of governance indicators that can be used in RBOs include:

- National water legislation not only exists and is in line with regional legal Framework, but is practiced and enforced, including local levels for monitoring and compliance (water extraction, pollution);

- There is a planning process with sound consensual diagnostic, well-defined objectives, mutually beneficial goals and development priorities, all stated in a long term integrated basin management plan;
- There is an affordable information system to support the decisions of the basin organisations.

The technical indicators are structured into four categories representing the major risks encountered at a river basin level, being excessive exploitation of water resources, deterioration of water resources, deterioration in populations' living conditions and deterioration of the environment. Examples of technical indicators that can be used include:

- Regulated volumes compared to input flows;
- Proportion of agricultural land irrigated;
- Fish production by main group of species;
- Use of fertilizer per hectare of agricultural land;
- Coverage rate of river basin's urban population with access to basic sanitation;
- Surface area of wetlands.

Both governance and technical indicators are context dependent and need to be interpreted according to each basin unique institutional arrangements, hydrological conditions, stages of economic development and organisational capacities.

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