

Chapter 2

Managing Water Scarcity in Southern Africa: Policy and Strategies

J. P. Msangi

Abstract This chapter reviews Southern Africa region's efforts to combat water scarcity including enacted water policies, agreements and strategies (such as inter-basin water transfers) put in place to guide the Member States in combating the challenges arising from water scarcity that is affecting a large portion of the region. Unequal distribution and rainfall variability and unreliability compounds an already bad situation because while in other parts of the region there is seasonal water abundance, in other parts there is perpetual deficit. The regional organ (SADC) was formed with the primary objective of integration and cooperation among member countries with water considered as a critical factor to the integrated and cooperative socio-economic development of the region. The coordinated, sustainable and integrated development and management of the region's water resources is expected to contribute to the region's goal of attaining an integrated regional economy built on the basis of balance, equity and mutual benefit for all member states. Water management particularly supports the SADC objectives of poverty reduction, food security, energy security and industrial development, as well as being an instrument to promote peace and cooperation amongst the partners.

Keywords Rainfall variability • Integrated water resource management • Trans-boundary watercourse systems • Inter-basin water transfers • Legal and non legal water instruments • SADC water protocol • SADC regional water policy • SADC regional water strategy

Among the many things I learnt as a president, was the centrality of water in the social, political and economic affairs of the country, the continent and the world
(Nelson Mandela, World Summit on Sustainable Development, 2002).

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Introduction

Southern Africa is synonymous with Southern Africa Development Community (SADC) which is formed by 15 sovereign states (12 continental states and three island states); they include Angola, Democratic Republic of the Congo, Botswana, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. The regional grouping was formed in 1980 by nine continental member states as the Southern Africa Development Co-ordination Conference (SADCC). It was then transformed into the Southern African Development Community in 1992, seeking to integrate the economies of the region to consolidate regional co-operation and development.

In general, water is a finite and a scarce resource in many parts of Southern Africa region. While in other parts of the region there is seasonal water abundance, in other parts there is perpetual deficit. Rainfall is widespread in the northwest region encompassing the Democratic Republic of Congo (DRC) and scarce in the southwest parts that include Namibia and North Western Cape Province of South Africa. The total annual rainfall ranges from less than 100 mm in the Kalahari and Namib Deserts to over 2000 mm in the north and central tropical regions of Angola and the DRC.

Water scarcity is a recognized norm in a large part of Southern Africa region. The region has very arid conditions in the south-centre and south west of the continent, and is subjected to high climatic variability and highly unreliable rainfall regime which worsens the region's vulnerability to recurring droughts. The region has unevenly distributed water resources (both temporal and spatial). This unevenness extends to both surface and groundwater resources. The bulk of the regional water resources are found in 15 trans-boundary water courses (Appendix 2.1). In 1991–1992 the region experienced one of its debilitating droughts; this experience appears to have been instrumental in speeding up the implementation of regional integration and water resources management strategies (Fig. 2.1).

The continental SADC region covers some 9,271,061 km². The average population growth rate is estimated at 3 % and the density is estimated at 21.6 persons per km², with just over 30 % of the population in urban areas (SADC 2007). However these figures give a general picture, they need to be adjusted so that they reflect regional disparities and the impact of diseases and rural–urban migration. The region is endowed with an immense and wide variety of natural resources, including minerals, wildlife, forests and fisheries. Collectively, these natural resources form complex ecosystems which support a rich biological diversity which could ensure food security. However water, a key natural resource sustaining the bio-diversity varies significantly in the region, geographically and seasonally. By mid-2000, the region had a population estimate of 240 million people and was expected to double in 25 years; this would definitely create additional demand on the already stressed water situation which, by mid-2000, far exceeded supply. Thus solutions were discussed and proposed and follow ups are

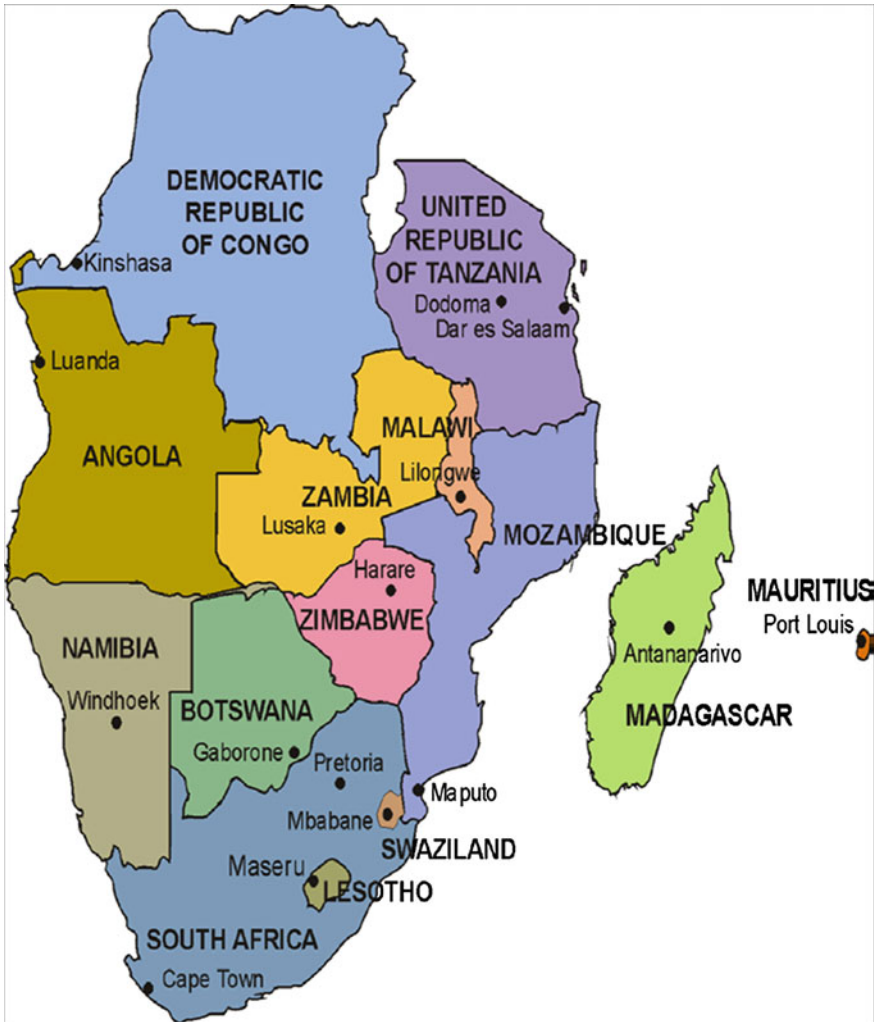


Fig. 2.1 Southern Africa states (Seychelles not shown on the map) *Source* Malzbender, D., & Earle, A. (n.d.). Water resources of the SADC: Demands, dependencies and governance responses

currently being pursued with the help of sympathetic donors as well as by the regional group own established interventions.

The regional organ (SADC) was formed with the primary objective of integration and cooperation among member countries with water considered as a critical factor to the integrated and cooperative socio-economic development of the region. As such, the coordinated, sustainable and integrated development and management of the region’s water resources is expected to contribute to the



Fig. 2.2 SADC secretariat headquarters in Gaborone, Botswana. *source* Malzbender, D., & Earle, A. (n.d.). Water resources of the SADC: Demands, dependencies and governance responses

region's goal of attaining an integrated regional economy built on the basis of balance, equity and mutual benefit for all member states. Water management particularly supports the SADC objectives of poverty reduction, food security, energy security and industrial development, as well as being an instrument to promote peace and cooperation amongst the partners (Fig. 2.2).

SADC's water resources are an important component in realizing sustainable economic and social development of the region. Besides meeting the basic needs of water supplies for domestic and industrial requirements, sanitation and waste management for large population as well as sustaining a rich diversity of natural ecosystems, the region's water resources are critical for increasing food security through better management of rain-fed and irrigated agriculture, aquaculture, and livestock production; and improving access and availability of cheap energy through hydropower.

The foregoing facts led to increasing focus on a strategy to develop and manage the region's scarce water resources and in particular the management of trans-boundary watercourse systems. The critical importance of water to regional integration and economic development was recognized and appreciated by all partners so that the SADC Secretariat was charged with the responsibility of coming up with interventions and management mechanisms and in taking a lead in steering the process. Subsequently, the SADC Water Sector was established in August 1996 renamed the SADC Water Division (SADCWD). The vision of the Water Division is to attain sustainable, integrated planning, development, utilization and

management of water resources that contribute to the attainment of SADC's overall objectives of an integrated regional economy on the basis of balance, equity and mutual benefit for all Member States.

Interventions

This section of the chapter constitutes a snap shot on water policy and strategies that bear witness to endeavors undertaken towards the management of water scarcity including governance and financial issues which have a bearing on sustainability. Policies and strategies provide the framework and guidance to support the implementation of best management practices and suitable interventions. Since the foundation of SADCC in 1980 (now known as SADC), member states have been concerned with management of water resources and sustainability issues. At the inception of SADC each country signed a legally binding treaty through which all member countries agreed to coordinate, harmonize and rationalize their policies and strategies for sustainable development in all areas.

To address the issue of managing water scarcity, the variability, distribution disparity as well as the trans-boundary natural occurrence, the SADC formulated several interventions to address the issues in a comprehensive manner. Several legal and non legal water instruments that were formulated and ratified by all members include:-

- (i) The SADC Protocol on Shared Watercourses which was adopted 1995 and revised 2000 (Appendix 2.2) was framed to set the rules for the joint management of regional water resources. The overall objective of this Protocol is to foster closer cooperation for judicious, sustainable and coordinated management, protection and utilization of shared watercourses and to advance the SADC agenda of regional integration and poverty alleviation. The Protocol is the SADC legal instrument under which bilateral and multilateral agreements between Watercourse States may be developed. It fosters the development of cooperation at the River Basin level and promotes the concept of Integrated Water Resources Management (IWRM). The IWRM is the fundamental approach that has been adopted by SADC recognizing that water is cross-cutting in nature, both across political boundaries and across sectors.
- (ii) The SADC Regional Water Policy (RWP) of 2005 was developed to further the implementation of the Protocol and to provide the framework for sustainable, integrated and coordinated development, utilization, protection and control of national and trans-boundary water resources regionally. Furthermore, it provides the context and intent for water resources management, representing the aspirations and interests of member states (Appendix 2.3).

- (iii) A Regional Water Strategy (RWS) of 2006 was developed to provide the framework for the implementation of the Protocol and the Policy. It contains guidelines on how to realize the actions, responsibilities as outlined in the Regional Strategic Action Plan on Integrated Water Resources Development and Management (RSAP 1998).

The RSAP defined seven key areas of intervention:

1. Legal and regulatory framework;
2. Institutional strengthening;
3. Linkages with sustainable development policies;
4. Data collection, management and dissemination;
5. Awareness building, education and training;
6. Stakeholder participation;
7. Infrastructure development.

- (iv) The Regional Groundwater Management Program (GMP 1998). Recognizing that groundwater constitutes a major source of water for large tracts of land within the Southern Africa region, groundwater is one of the priority areas that were identified as needing great management strategies. The GMP was formulated to create an enabling environment for the joint management of shared aquifers by putting in place a framework and specific tools to enable effective resource management.

To facilitate the Protocol, a river basin approach was adopted by all partner states in the planning, development and management of water resources, particularly in shared watercourses. Five River Basin Organizations have been formed so far and through them, it is envisaged that the intent of the regional water policy will be implemented and result in much desired integrated management of all freshwater resources, including groundwater aquifers within their boundaries. This approach includes a holistic approach in the usage of both surface and ground water resources; the reuse of water; proper pollution management and the provision of environmental requirements.

Whereas the RWP and RWS are non-binding guideline documents (though adhered to by all member states as they reflect policy statements jointly agreed upon by all of them), the SADC Water Protocol is the legally binding instrument. The regional water program is defined in the Regional Strategic Action Plan on Integrated Water Resources Management and Development. First developed in 1998, implemented over 5 years 1999–2004 and reviewed in 2004 and revised in 2005 into a more focused RSAP2. RSAP 2, its strategic objectives are based in its mission and objective which include maintaining and sustaining an enabling environment for regional water resources development and management.

The goals of the strategic plan include providing a framework for sustainable, effective and efficient planning and management of shared watercourses at regional and related national levels. It includes promoting and supporting strategic infrastructure development for regional integration, socio-economic development and poverty alleviation as well as developing, promoting and facilitating best

practices regarding effective participation by various individual and institutional stakeholders in water resource development and management, including women, youth and other disadvantaged groups. The goals also include building and strengthening human and institutional capacity for sustainable management of water resources at basin, national and regional level.

The SADC Water Protocol on the other hand is the framework governing trans-boundary water resources management in the SADC region. The SADC Water Protocol does not regulate the specifics of basin management in the respective basins of the region. Instead it is a framework instrument that contains the accepted key elements of international water law and makes it mandatory for trans-boundary water resources management in the SADC; the elements include among others, equitable and reasonable utilization and the obligation to give prior notice of planned developments in any of the shared basins.

The SADC Water Protocol provides for basin-wide agreements to be concluded between riparian states, in which the management of the respective basin is regulated in more specific terms. The establishment of shared watercourse organizations is provided in article 5 (3) of the protocol. These are seen as instruments in the implementation of the SADC Water Protocol. Specific River Basin Agreements are negotiated and concluded by parties in shared watercourse for example ORASECOM, ZAMCOM and OKACOM which were agreed upon to oversee the development and management of the Orange-Sengu, Zambezi and Kunene River basins respectively. They all uphold the Principles and Provisions of the Protocol but contextualize them to specifics of the respective basins.

Additionally, the SADC Water Protocol established the institutional framework i.e. the SADC Water Sector Organs at the regional level for the implementation of the Protocol. The primary mandate of the SADC Water Sector Organs is to monitor the application of the SADC Protocol and to facilitate the harmonization of water law and policies between SADC Member States while the Member States each have the obligation to implement and enforce the Protocol in their respective countries. The Member States' national laws must ensure that obligations stemming from international agreements such as the SADC Protocol or basin-wide water management agreements are being met.

The SADC Regional Water Policy (RWP) highlights various opportunities for water management to achieve the SADC goal and objectives, as well as other recognized international and regional targets such as the Millennium Development Goals, the goals of the African Union on water through its formulated avenues such as NEPAD. The RWP document outlines broad political statements of intent. The policy framework for the RWP is supported by declarations endorsed by Member States including:-

- (a) The SADC's vision of a shared future, a future within a regional community;
- (b) The Southern African water vision of equity and sustainability in the utilization of its water resources for social and environmental justice, regional integration and economic benefit for present and future generations.

- (c) The Protocol on shared watercourses in the region which strives to foster integration and closer cooperation for judicious, sustainable and coordinated management, protection and usage of shared watercourses.
- (d) The Dublin Principles of Integrated Water Resources Management (IWRM).

These four declarations together with principles and objectives from the Millennium Development Goals, World Summit on Sustainable Development, NEPAD and multi-lateral agreements between Watercourse States, were combined into twelve policy principles to strengthen the Regional Water Policy:-

- (i) Water is an instrument for peace, cooperation and regional integration;
- (ii) Effective public consultation and involvement of users;
- (iii) Focus on integrated and people-centred planning including fair compensation for affected parties;
- (iv) Further development of SADC water resources through the joint planning and construction of storage, in order to rectify historical imbalances and promote water supply for irrigation and poor communities;
- (v) Efficient use of water through demand management, conservation and re-use/recycling, and the efficient use of water in agriculture;
- (vi) Recognition of the environment as a resource base and a legitimate user of water;
- (vii) The protection of the environment through appropriate user charges and the enforcement of “the polluter pays” and “waster pays” principles, taking into account equity and social justice;
- (viii) Integration of water supply, sanitation and hygiene education programs;
- (ix) Capacity building to ensure that managers of water, waste and sanitation have the requisite knowledge and tools;
- (x) Ensuring that waste is safely managed at or as close as possible to the point of generation;
- (xi) Preventing the import (and export) of harmful waste across the national and regional boundaries;
- (xii) Gender mainstreaming and addressing HIV/AIDS in water resources management.

The IWRM is the common thread that links the elements of the regional policy. IWRM is characterized by methodologies for institutional development, capacity building, stakeholder participation, integrated planning, conflict resolution and environmental management. Guided by the revised SADC Protocol on shared water courses, the Policy encourages SADC member states to exploit opportunities for joint water resources development in shared water courses to amicably prevent and resolve water conflicts and consolidate regional cooperation in accordance with the principles enshrined in the SADC treaty.

The Water Policy emphasizes that water should be developed and managed to provide economic benefits, human dignity and social well-being. In addition to clean drinking water, Member States should seek to provide water for productive activities to alleviate poverty and balanced development. The policy also

emphasizes the fact that water is a vital resource for energy in industrial development as well as food security. Hence the policy commits Member States to the protection of human life, common property and the environment against the effects of water-related natural and human-induced disasters. The policy recognizes the role of SADC Secretariat and calls for the creation of an enabling institutional environment that enhances the participation of all stakeholders.

The objective of the SADC water division in the SADC secretariat is to ensure that water in Southern Africa becomes a sustainable resource through coordinated management, protection and equitable use of its shared waters. The division guides the harmonization of national policies and the implementation of activities by all stakeholders recognizing that water is a shared resource that cuts through both physical and political boundaries. The division takes cognizance of the fact that water development and management is not just a regional task but a national one as well involving all stakeholders.

Guided by the signed agreements and declarations, a variety of actions have been undertaken at the regional level as well as at the level of individual Member States and groupings with a shared water source. A range of agreements and regulatory measures and market-based mechanisms have been used. One good example of these is the permit system being implemented in South Africa where applications for water use in a specific catchment have to be sought beforehand. An application is considered and rated on the beneficial use it makes of the water on the basis of factors such as environmental sustainability, income and jobs generated and ability to contribute to addressing inequality in the country. Likewise, Zimbabwe has a system of Catchment Councils which allocate water use rights in accordance with environmentally defined water use standards. Such systems increasingly rely on the involvement of the water users themselves in managing water supplies (Matros 2009).

Yet another example of measures taken to ensure maintenance of water quality through using market based costs and incentives to curb pollution is that involving the implementation of a water use charge on a large scale where a user, such as a mine or factory discharges polluted water back into the system. The rate charged depends on the types and levels of pollutants the water user is discharging back into the water source. These charges are levied at the local level, with income being used to manage the catchment and improve the state of the environment along the principle of "polluter pays". These charges then form part of the operating costs of the enterprise concerned and as with any cost there is pressure placed to reduce it. Companies thus invest in water treatment or water re-use technologies to either reduce the volume of return flow they discharge or to clean it to acceptable standards (Matros 2009).

Another good example undertaken in South Africa involves a collaborative water purification project between Anglo Coal's Kleinkopje and Greenside collieries and Ingwe's South Witbank Colliery in South Africa. They had to pump out and treat 20,000 m³ a day to prevent acid mine drainage into the surrounding groundwater. The local municipality of Emalahleni was looking for an additional water supply of roughly that amount. A joint venture called Emalahleni Water

Reclamation Project was formed and over several years developed a treatment process which made the water safe for municipal use. The municipality has now been contracted to buy this treated mine water, by so doing mitigating its potential water scarcity and also providing an income stream for the coal companies (Matros 2009).

Such win-win solutions are needed for sustainable outcomes to be reached. More of these types of innovative solutions to water scarcity through water quality improvement need to be encouraged throughout the region. Communities ought to be involved more in the management of water resources on which they depend. The solutions lie in collaborative partnerships between the private sector, communities, governments as well as other stakeholders including researchers/academicians and Non-governmental organizations. There are adequate legal and regulatory instruments that have been put in place both by the regional organ and the national governments and by-laws by local governments and individual communities to facilitate such undertakings.

Regional cooperation in water resources development and management is envisaged as an enhancement towards peaceful co-existence between Member States and strengthening of regional security as watercourse states are more likely to safeguard common or shared investments which yield mutual benefits to the participating parties. The Protocol on Shared Watercourses is seen as a formalization of the objectives and mechanisms for this cooperation which is being adapted into bi-lateral and multi-lateral agreements between watercourse states. The cooperation is seen as a promoter of an environment of collaboration and trust between countries; it is contributing towards peace in the region.

The SADC Protocol on Shared Watercourses and other Watercourse agreements provide an opportunity to clearly outline effective dispute resolution processes negotiated by Watercourse States before the conflict arises. Where attempts to prevent disputes have failed, the need for effective dispute resolution is recognized. This may involve coordinated planning and joint management, followed by alternative dispute resolution mechanisms (such as negotiation, conciliation and mediation) where there are disputes, escalating to arbitration, and only involving the SADC Tribunal (or other recognized international adjudication bodies) if other approaches are not institutionalized or do not work. The challenges to managing disputes and conflicts largely relate to the challenges outlined above for regional integration and cooperation in promoting trust and peaceful collaboration.

Challenges

Despite the significant progress made so far, there are several strategic challenges that require further work. The water scarcity rampant in some parts of the region and competing developmental requirements between member states may result in disputes and tension over water. Other challenges arise from a variety of facts including the fact that rainfall in the SADC region is highly variable, with the

resulting impact on reliability and disaster associated with droughts; the available water resources are unevenly distributed across the region and water availability and demand are not matched.

Yet another challenge emanates from the fact that there is widespread poverty in the region, with many people not having access to adequate water for basic human needs especially domestic and household purposes as well as water for productive use. The low levels of access to safe drinking water and adequate sanitation adversely impact the livelihoods, health and productivity of the poorest and most vulnerable members of society.

Amongst the key problems that make it difficult to provide people with water in the region is the uncoordinated planning of human settlements. A substantial number of the inhabitants live in the rural areas in the semi-arid south and southwest of the region, dominated by ephemeral rivers, which rely on ground water. Relocating the people is often met with resistance and stigma. There is also a general attachment to ancestral land as well as unwillingness to abandon places with graves and significant cultural sites amongst SADC communities. A good case in point involves the Topnaar community perched along the Kuiseb River in the middle of the Namib Desert who face acute water scarcity, yet they resist relocation (Msangi 2008).

The water infrastructure is unevenly developed across the region so that there is unequal allocation of water among sectors with some sectors like the urban areas being better off than rural areas. Inequality is also found within certain sectors such as urban areas where upmarket areas are better catered for than informal settlements. The global scenario is that the water infrastructure is generally inadequate and often not effectively operated and maintained, so it is unable to meet the growing demands for development and services.

More challenges arise from inadequate and inconsistent water resources information management among the individual states so that there are associated problems for cooperation and planning in shared watercourses. Similarly there is wide range of legal, policy and regulatory frameworks within the Member States making it difficult to establish linkages during enforcement at both national and regional levels, posing challenges for consistent implementation of regional initiatives.

Weak linkages between different sectors and weak information flow and inadequate institutional capacity arising from low levels of awareness, education and training hamper comprehensive and integrated development. Limited or lack of appreciation of the finite nature and economic value of water by some sections of the population and limited awareness and/or lack of effective stakeholder participation and involvement in decision making at a local, national and regional levels, particularly women, the youth, the disabled and the poor remain a great challenge to addressing water scarcity issues in the region.

Sometimes historic considerations of sovereignty by member states tend to limit integration both for the development and management of water resources and more broadly for economic integration. Also there is no universally accepted standard formula to estimate the value of water in the region, particular amongst Watercourse States. This makes it difficult for such Watercourse States to engage

in negotiation on sharing the resource, since consensus on the value of the resources is difficult to achieve. Lack of appreciation of the economic value of water and largely communal ownership of the resource in rural areas have an adverse impact on the effort and commitment to better allocate and manage the resource for optimal benefits both as an economic and social good.

Striking a balance between economic, social and environmental water resources allocation remains a challenge, due to the perception that efficiency is attained if priority is given to commercial economic uses. Closely related to this challenge are the inherent large inefficiencies of water conveyance and use in all countries in the region. Inefficient water use is not only unsustainable under a situation of water scarcity, but also imposes significant costs on the economies of the region. Thus a challenge to water management sector is to define and put in place measures that will improve water use efficiency across the region.

There is an overall shortage of human as well as financial resources to fully meet the standards laid out in the regional and national water policies and laws which is a constrain in the effective practical implementation and enforcement of protocol and policy laid down by the regional body. While the relevant laws and regulatory mechanisms are in place, responsible institutions are not adequately manned (SADC 2007). This calls for investments in capacity building at the various water management levels including at the formal water management institutions (national governments) as well as within civil society and community levels. This is a long-term challenge which has been recognized and included in the regional Water Policy document.

Appendix 2.1: River Basin Organizations

The International Commission for the Congo-Oubangui-Sangha Basin (CICOS) is a relatively new RBO and was only created in 1999. Member states of CICOS are Cameroon, Central African Republic, Democratic Republic of Congo and the Republic of Congo. The main objective of CICOS is to improve cooperation amongst the member states, through improved communication using the Congo River and its tributaries. In recent years attention has been on large hydropower projects that use the large quantities of water from the Congo River.

Pangani Basin Water Board

The Pangani River Basin is shared by Kenya and Tanzania and covers about 42 000 km². The two countries established the Pangani Basin Water Board (PBWB) and the Pangani Basin Water Office (PBWO) in July 1991 to jointly manage the water resources in the basin. The PBWO reports to the PBWB.

The board's task is to advise the basin water officer on all matters concerning the apportionment of water supplies; the determination, diminution or modification of water rights; measures to be taken in case of drought; and priorities to be given to different water uses in the basin.

Permanent Okavango River Basin Water Commission

The three Okavango Basin states Angola, Botswana and Namibia signed an agreement in 1994 that formed the Permanent Okavango River Basin Commission (OKACOM). The Agreement commits the member states to promote coordinated and environmentally sustainable regional water resources development, while addressing the legitimate social and economic needs of each of the riparian states. The three countries recognize the implications that developments upstream of the river can have on the resource downstream. Most of the river is currently undeveloped and is recognized as one of the few "near pristine" rivers in the world.

Inkomati Tripartite Permanent Technical Committee

The Tripartite Permanent Technical Committee (TPTC) is collaboration between three SADC member states namely, South Africa, Mozambique and Swaziland. The cooperation on the joint management of the Inkomati Basin started in 1992, when South Africa and Swaziland signed the Komati Accord. In 2002 Mozambique joined the Accord and TPTC was founded as one of the first RBOs in southern Africa. One of the main objectives of TPTC is to manage the water flow of the Inkomati River and Maputo River, particularly during times of drought and flood.

Lake Tanganyika Authority

Lake Tanganyika is Africa's oldest and deepest lake, and contains almost 17 % of the world's available freshwater. Millions of people depend on the lake for water, food, and transportation. The Lake Tanganyika Authority (LTA) was established in December 2008 by the governments of Burundi, Democratic Republic of Congo, Tanzania, and Zambia. Its management structure includes the Conference of Ministers, the Management Committee and the Secretariat. The LTA promotes regional cooperation required for socio-economic development and sustainable management of the natural resources in the Lake Tanganyika basin. Furthermore, the LTA coordinates the implementation of the Convention on the Sustainable

Management of Lake Tanganyika. The LTA also coordinates and oversees the implementation of the Regional Integrated Management Program which focuses on establishment of sustainable fisheries, catchment management, pollution control, climate change adaptations, and monitoring programs.

Zambezi Water Course Commission

The agreement to establish the Zambezi Watercourse Commission (ZAMCOM) was signed in 2004 by Zambia, Angola, Namibia, Zimbabwe, Botswana, Malawi, Tanzania and Mozambique. Zambia is yet to sign as the country is still consulting its stakeholders. Currently, seven of the eight countries have signed the protocol, but only four out of the seven have ratified it, with Zambia, Malawi, Tanzania and Zimbabwe still outstanding. The Commission will only come into force when six out of eight countries ratify the Agreement. Meanwhile an interim Secretariat has been established and a draft document prepared to guide the process of operation.

Ruvuma Joint Water Commission

The Governments of the Republic of Mozambique and the United Republic of Tanzania have very recently established the Ruvuma Joint Water Commission with the principal objective of ensuring sustainable development and equitable utilization of common water resources of Ruvuma River basin. The Ruvuma River forms the boundary between Mozambique and Tanzania for a length of 650 km from the coast and has a total length of about 760 km. The entire area of Ruvuma River basin is about 152,200 km² of which 65.39 % are in Mozambique, 34.30 % are in Tanzania, and 0.31 % is in Malawi (SADC 2008).

In 2010a, b, SADC released guidelines for strengthening river basin organizations, a series of four guidelines designed to assist practitioners in making decision, based on best practices from River Basin Organizations (RBOs) in the region. Guidelines were developed in the following areas:

- Stakeholder Participation;
- Environmental Management;
- Funding and Financing; and
- Establishment and Development.

The goal of the Stakeholder Participation Guideline is to establish a set of procedures that can assist RBOs implement participatory processes. The importance of active stakeholder involvement and the mechanisms for stakeholder involvement within the Regional Indicative Strategic Development Plan (RISDP) and the SADC Regional Water Policy are highlighted within this guideline. Four strategic areas for implementing participatory processes are presented:

(i) participatory framework, (ii) communication and outreach, (iii) stakeholder consultation, and (iv) collaboration with stakeholders. Additional details on these strategic areas are outlined in the box below.

The Stakeholder Participation Guideline outlines four strategic areas for implementing participatory processes:-

- Under participatory framework, the guidelines recommend defining the context of participation, identifying and classifying the stakeholder groups, developing a participatory strategy and creating an enabling environment. The Stakeholder Roadmap, developed within the Orange-Senqu River basin is an example of a strategy for stakeholder involvement.
- The strategic area of communication and outreach discusses the importance of information sharing to ensure that stakeholders are informed on a range of issues. The possible interventions proposed under this area include: sensitizing the broader public; providing in depth analysis of the core issues; providing first hand exposure to the RBO activities through involving the public in activities; reaching out to marginalized groups and younger audiences; and providing updates and specific information on RBO initiatives through a website. The River Awareness Kit (RAK) approach is provided as an example of a tool for communication and outreach within an RBO.
- Stakeholder consultation focuses on the two-way flow of information with stakeholders. The potential interventions presented include: obtaining contextual information through questionnaires and surveys; gathering input on RBO activities through interviews; and gaining inputs on priorities and preferences through focus groups and public consultation sessions. The Basin Wide Forum established by the Okavango Commission is an example of a stakeholder consultation initiative.
- The collaboration with stakeholders' strategic area focuses on how to act on the information provided by the stakeholders. The possible interventions outlined in the guidelines include developing joint plans, formalizing the institutional framework for stakeholder engagement, and developing the capacity of stakeholders. The Komati Joint Operation Form is a mechanism for stakeholder involvement within the Komati River basin.

The Environmental Management Guideline outlines the critical importance of environmental management within SADC, as outlined in the 2000 SADC Protocol on Shared Watercourses and the SADC Regional Water Policy. The Environmental Management Guideline introduces the key principles of environmental management: sustainability, precaution, integration and participation. The guidelines are presented in three strategic areas: (i) environmental policy, (ii) environmental information management systems, and (iii) environmental management programs.

The purpose of the Funding and financing Guideline is to establish a set of procedures that can assist RBOs become financial sustainable. The different types of RBOs and range of mandates are reviewed and examples of financial strategies

for different RBOs are presented. The three strategic areas presented in the Funding and Financing Guideline includes the following:-

- (i) Financial planning,
- (ii) Revenue streams,
- (iii) Financial management. Six case studies from RBOs from around the world are reviewed to gain insight into how the guidelines translate into practice.

The goal of the Establishment and Development Guideline is to propose procedures to assist Governments in establishing institutions to manage trans-boundary watercourses. Institutional arrangements provide the foundation to develop human and financial capabilities to ensure sustainable socio-economic development and environmental protection of natural resources.

Appendix 2.2: The Revised Protocol on Shared Water Courses in SADC

Water has played a unifying role in the SADC region, leading to regional cooperation. The Revised Protocol on Shared Watercourses in SADC (Revised Protocol) was the first binding agreement amongst SADC member states, which illustrates the important role water plays within the region. The Original Protocol was drafted in 1995 to be aligned with the Helsinki Rules. It was revised and signed in 2000 and came into force in 2003. The revised Protocol defines a watercourse as “a system of surface waters and ground waters constituting a unity whole normally flowing into a common terminus such as sea, lake or aquifer.” A watercourse state is a state “in whose territory part of the watercourse is situated”.

The Revised Protocol stresses the importance of taking a basin-wide approach to water management rather than emphasizing the principle of territorial sovereignty. It outlines specific objectives, including the improvement of cooperation to promote the sustainable and coordinated management, protection, and utilization of trans-boundary watercourses and promoting the SADC Agenda of Regional Integration and Poverty Alleviation. The Revised Protocol provides the flexibility for countries to enter into specific basin-wide agreements, which is the approach promoted under the Watercourses Convention. The agreement allows for planned measures, such as environmental protection, management of shared watercourses, prevention and mitigation of harmful conditions and emergency situations (ORASECOM 2007).

The revised protocol on shared water courses in SADC provides the context for the RWP and it states that the over-arching goals are designed to be put into practice by the RWS. Important inputs to the RWS are the SADC Vision for Water, Life and Environment and the Regional Framework for action (RFFA). These led to the development of National Framework for Action, i.e. the National IWRM Plans (SADC 2007).

The over-arching strategies within the RWP are:-

- Regional Cooperation in Water Resources Management;
- Water for Development and Poverty Alleviation;
- Water for Environmental Sustainability;
- Security for Water-Related Disasters;
- Water Resources Information and Management;
- Water Resources Development and Management;
- Regional Water Resources Institutional Framework;
- Stakeholder Participation and Capacity Development; and
- Accessing Funding and Resources.

Appendix 2.3: The Regional Water Policy and Strategy

The SADC Regional Water Policy and Strategy (RWPS) is designed to support the implementation of the SADC Protocol on Shared Watercourses as the key legal instrument for promoting regional cooperation regarding water related issues (SADC 2007). As outlined in the RWPS (2007), the implementation of the Protocol should be supported by the following key activities:

- Strengthening the SADC Water Division as the implementing organization responsible for promoting, coordinating and monitoring the Protocol;
- Negotiating bilateral and multilateral agreements between Watercourse States within the framework of the SADC Protocol, which include mechanisms for the peaceful resolution of disputes;
- Strengthening shared watercourse institutions to promote good governance and cooperation between Watercourse States;
- Strengthening the capacity of Member States to implement the Protocol through the harmonization of national laws and policies, national institutional development and training of personnel.

The Regional Water Policy and Strategy is to be implemented through a series of short-term water sector programs via the Regional Strategic Action Plan (RSAP).

RSAP 1 was implemented during the period 1999–2004 (SADC 2005), and had to establish an enabling environment for the integrated management of water resources in the region, so as to support of the achievement of other regional objectives. SADC implemented 31 of the 44 projects (see Table A.1) in the categories of:

- Legislation, Policy and Strategic Planning;
- Capacity Building and Training;
- Awareness Creation, Consultation and Public Participation;

Table A.1 Projects within the regional strategic action program 1 and 2

Cluster name	RSAP 2 Project Ref.	Project title (<i>project #</i>) RSAP 1	RSAP 2
Regional water resources planning and management	RWR 1	15 Expansion of SADC-HYCOS Project 18 Upgrade and modernize water monitoring systems for lake malawi 19 Rehabilitation of joint monitoring systems—Angola and Namibia	Consolidation and expansion of SADC-HYCOS
	RWR 2	14 Assessment of surface water resources	Standards assessment of surface water resources
	RWR 3	6 Groundwater management program in SADC	Groundwater management program in SADC
	RWR 4	12 Economic accounting of water use	Support of strategic and integrated water resources planning
	RWR 5	2 Regional guidelines for dam safety legislation and procedures	Dam safety, synchronization and emerging operations
Infrastructure development support	INF 1	13 Study for expanding private sector participation in water and sanitation services 27 Control and development of Lake Malawi and Shire River 28 Study of the navigability of the Zambezi and Shire Rivers 29 Stabilization of the course of the Songwe River 30 Lower orange river	Regional strategic water infrastructure program
	INF 2	5 Program on water supply and sanitation for SADC region	Implementation of the water supply and sanitation program for SADC

(continued)

Table A.1 (continued)

Cluster name	RSAP 2 Project Ref.	Project title (<i>project #</i>)	RSAP 2
Water governance	WG 1	8 Implementation program for SADC Protocol on shared watercourses 30 Lower orange river 31 Integrated basin management plan for the Okavango River 4 Consultative forum on water issues 20 Awareness-building for decision-makers 21 Involving the media in water issues 24 Promotion of stakeholder participation in water resources management 25 Feasibility study for creating fund to support NGO/CBO participation in water resources management activities 26 Program on means to empower women in water issues 1 Regional guidelines for review and formulation of national water legislation 9 Regional guidelines for water policy and review in member-states 10 Develop and implement national water sector strategies 11 Establish regional water sector policy and strategy 22 Human resources development program 17 Training in surveying, mapping and geographic information systems 23 WATERNET 7 WSCU capacity building project	RSAP 2 Implementation program for SADC protocol on shared watercourses Promotion of public participation in water resource development and management Promotion of implementation of regional water policy and strategy
Capacity building	CB 1	3 Capacity building for joint integrated basin management WARFSA	Skills training for water policymakers, managers and practitioners WATERNET Capacity building support to the SADC water division Strengthening river basin organizations Regional water research fund
Total no. of projects	15		

- Information Collection, Analysis, Management and Dissemination and Improved National and Trans-boundary River Basin Management, Planning and Co-ordination;
- Infrastructure Investment; and
- Stand alone—special priority areas.

Implementation of RSAP 1 clearly demonstrated that international cooperation is possible in the management of scarce resources. A good example is the revision and ratification of the Protocol on Shared Watercourses (1995–2003) which provides a framework to reach more detailed agreements (such as the Inco-Maputo Agreement). Another good example of international cooperation is the preparation of the Regional Water Policy. RSAP 1 furthermore showed that local communities can be mobilized and can have an impact on water resources planning.

RSAP 2 (2005–2010) The focus of the second phase was on water and development seated in projects and initiatives to be found in four strategic clusters (SADC 2005; 2006):

- Regional Water Resources Management, Planning and Development (assessment, monitoring, planning, operation);
- Infrastructure Development Support (Regional Strategic Water Infrastructure Development Program (RSWIDP); over 140 projects assessed—38 % in bulk water supply, dams, transfers, and hydropower);
- Water Governance (implementation of protocol, stakeholder participation, implementation of policy and strategy); and
- Capacity Building (skills training, academic IWRM training and research, support to WD, strengthening RBOs).

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