



Local Governments and IWRM in the SADC Region

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Executive Summary

This document describes and analyses the status of the participation of local governments in Integrated Water Resources Management (IWRM) in the region of the Southern African Development Community (SADC). It contains a summary compilation of four river basin reports – looking into the situation of the Zambezi, Limpopo, Incomati, and Orange basin – and four reports referring to the countries sharing the Limpopo basin (Botswana, Mozambique, South Africa and Zimbabwe). All of these reports have been produced by the SADC partners of the LoGo Water project¹.

The document provides an overview of the water resources situation in the SADC region and how these resources are currently being used and managed at regional, national and local level. It also brings together a number of case examples of local government activities linked to Integrated Water Resources Management (IWRM) within certain SADC countries.

The document concludes that there is currently only a limited IWRM involvement of local government in the SADC region. IWRM institutions such as catchment agencies and river basin commissions are not sufficiently accessible to local governments that want to get involved. Local governments themselves are often preoccupied with reaching water and sanitation targets within their local boundaries and therefore IWRM issues fall easily off their agenda.

The reasons for this are manifold. An overall observation is that there is no well established concept on how local governments can and should take part in IWRM. Also, coordination between local governments and IWRM institutions and a common vision of all main actors in IWRM are still lacking. Improved institutional frameworks, an increased allocation of finances, better data management, intensive awareness-raising and targeted training on relevant management approaches and tools are required to address this missing link between capacities, needs and potentials at local level and the decision making in higher government spheres.

¹ LoGo Water – Towards effective involvement of Local Government in Integrated Water Resources Management (IWRM) in river basins of the Southern African Development Community (SADC) region (January 2005 to March 2008). Funded by the European Commission, Directorate-General Research, under the Sixth Framework Programme. Contract number 003717

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LIST OF ABBREVIATIONS

AfDB	-	African Development Bank
ALG	-	Associated Local Governments
AMCOW	-	African Ministers Council on Water
ARA	-	Regional Water Administration (Mozambique)
BOTT	-	Build, operate, Train and Transfer
CC	-	Catchment Council (Zimbabwe)
CMA's	-	Catchment Management Agencies (South Africa)
DGS	-	Department of Geological Survey
DNA	-	National Directorate of Water
DWA	-	Department of Water Affairs
DWAF	-	Department of Water Affairs
ECA	-	Economic Commission for Africa
ESA	-	External Support Agency
EU	-	European Union
GEF	-	Global Environment Fund
GWP-SA	-	Global Water Partnership for Southern Africa
IWRM	-	Integrated Water Resources Management
JIBS	-	Joint Incomati Basin Study
LHWP	-	Lesotho Highlands Water Project
MAR	-	Mean Annual Runoff
NDPs	-	National Development Plan
NPs	-	National Partnerships
NWA	-	National Water Act (South Africa)
NWC	-	National Water Council (Mozambique)
p.a	-	per annum
RBMU	-	River Basin Management Units (Mozambique)
RDC	-	Rural District Council
RSAPs	-	Regional Strategic Action Plan
SADC	-	Southern African Development Community
SCC	-	Sub Catchment Council (Zimbabwe)
UNDP	-	United Nations Development Programme
VDC	-	Village Development Committees (Botswana)
WASH	-	Water, Sanitation and Hygiene
WPC	-	Water Point Committee (Zimbabwe)
WUA	-	Water Users Association
ZACPRO	-	Zambezi Action Program
ZAMCOM	-	Zambezi Water Commission

1. INTRODUCTION

1.1. About the LoGo Water project

LoGo Water² is a research project aiming to improve the capacity of local governments to implement IWRM and thus contribute to the achievement of water-related Millennium Development Goals (MDGs). The project focuses specifically on the Southern Africa Development Community (SADC) region, and particularly on the countries of the Limpopo river basin. It involves eight associated local governments from this basin in South Africa, Botswana, Zimbabwe and Mozambique³. In addition, the research draws lessons learnt from experiences in several countries in the European Union (EU) and their potential relevance in the African context.

Specific activities of the LoGo Water project include:

1. Reviewing existing knowledge and experience on the role of local governments in water resources management, especially in SADC countries and the EU;
2. Identifying an effective role for local government in IWRM in SADC countries;
3. Supporting the implementation of local government actions contributing to IWRM in SADC countries through the development of an implementation strategy.

The project is carried out collaboratively by a consortium of African and European research institutes, resource centres and local governments⁴. Further information can be found at www.iclei-europe.org/logowater.

This report aims to contribute to the first activity listed above and gives an overview of the involvement and engagement of local government in IWRM in the SADC region. The report is divided into six sections consisting of an introduction, perspectives of water resources management in the region, country case studies of local governments and IWRM in the region, basin case studies of local governments and IWRM at the river basin scale, a discussion on the case studies and their findings and finally some conclusions.

² LoGo Water: Towards effective involvement of local government in Integrated Water Resources Management (IWRM) in river basins of the Southern African Development Community (SADC) region, EC Contract 003717

³ The associated local governments are: Selebi-Phikwe Town Council and Serowe/Palapye District Council in Botswana; the Municipality of Chokwé and the Municipality of Xai-Xai in Mozambique; Makhado Local Municipality and Tshwane Metropolitan Council in South Africa and Beitbridge Rural District Council and the City of Bulawayo in Zimbabwe.

⁴ The partners are ICLEI - Local Governments for Sustainability, European Secretariat, Germany; Centre for Ecology and Hydrology (CEH), United Kingdom; The Oxford University Centre for the Environment (OUCE), United Kingdom; Foundation for a New Water Culture (FNCA), Spain; IRC International Water and Sanitation Centre, The Netherlands; ICLEI - Local Governments for Sustainability, Africa Secretariat, South Africa; Institute for Natural Resources (INR), South Africa; Institute for Water and Sanitation Development (IWSN) Zimbabwe; IUCN - The World Conservation Union, Mozambique, and the Kalahari Conservation Society (KCS), Botswana.

1.2. About SADC

The Southern African Development Community (SADC) has been in existence since 1980, when it was formed as a loose alliance of nine majority-ruled States in Southern Africa known as the Southern African Development Coordination Conference (SADCC), with the main aim of coordinating development projects in order to lessen economic dependence on the then apartheid South Africa. The founding Member States are: Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe. SADCC was transformed into a Development Community (SADC) in 1992. SADC headquarters are in Gaborone, Botswana and the community now has 15 members states.

In 2004 SADC had a GDP of approximately USD296.4 billion and an annual economic growth rate of 3.2% p.a. (ECA, 2006). The region is home to over 160 m people of whom about 30% live in urban areas. Per capita water availability is estimated at around 5016m³/cap/yr. Agriculture is the major water user even though irrigation potential is not fully utilized (ECA, 2006).

SADC covers an area of approximately 7 million square kilometres ranging from desert, through temperate, savannah and equatorial climates. Average annual precipitation ranges from 100 to 2000 mm/a. 75% of the SADC region is classified as arid to semi-arid. Mean annual runoff is 650 cu.km in 16 main river basins of which 85% are shared (ECA, 2006).

1.3. Definitions

Integrated Water Resources Management (IWRM)

In the Southern Africa region we recognise now more than ever the limited nature of the water resource of the region and the need to manage it effectively. Many country-specific, bilateral and region-wide initiatives have been launched since the drought of 1992, such as the creation of the SADC Water Division in Gaborone, the signing of the Protocol on Shared Water Resources, the active presence of the Global Water

Box 1: Integrated Water Resources Management

1. Considers the hydrological cycle in its entirety; downstream and upstream interests are taken into account (basin-wide, also across national borders), as well as surface and groundwater sources, and, most importantly, rainfall;
2. Considers the full range of sectoral interests; allocation decisions entail a process whereby all relevant objectives and constraints of society are considered, and, if necessary, priority-setting is made by weighing the objectives in an informed and transparent manner. Integrated management implies, among other things, close co-ordination between institutions that are often sectorally defined, the involvement of stakeholders in decision-making, and taking into account those stakeholders without a voice (such as the environment);
3. Considers future needs as legitimate claims to the water resource, such as future generations.

Source: Southern African Vision for Water (GWP)

Partnership, and the organization of the Round Table Initiative spearheaded by UNDP and SADC Water. The region has adopted a holistic approach to water resources management as highlighted in Box 1.

Local government

Several types of local governments can be identified in the SADC region. These include metropolitan areas such as Johannesburg, Maputo, etc., in which the population averages a million people, medium to small towns with a population of 200 000 to 500 000 people, municipalities and micro towns of around 100 000 people, rural district authorities, local authorities and traditional leadership.

There is no standard definition of a local authority in the region owing to the different national governance systems. For the purposes of the LoGo Water project a local government is taken to be any governance institution that has legally defined mandates and powers over an area of defined geographical extend. The project has focused much of its work on its Associated Local Governments (ALG) of Selebi Phikwe and Palapye town councils in Botswana, Chokwe Municipality and Xai Xai Municipality in Mozambique, Makado and Tshwane Municipality in South Africa, and Beitbridge Rural District Council (RDC) and Bulawayo City Council in Zimbabwe.

1.4. IWRM initiatives in SADC - overview

IWRM initiatives in SADC have traditionally started at a regional level and are still being promoted from a regional perspective.

Protocol on Shared Watercourse Systems in SADC

The proposal for a Protocol on Shared Watercourse Systems came about out of a realization by the regional leadership that cooperation in the utilization of shared water resources was necessary and that such cooperation needed a guiding framework. The protocol defines common terms and general principles for water management as well as prescribed procedures for negotiations and conflict resolution.

The SADC Water Division (SADC WD) is mandated to implement the Protocol on Shared Watercourse Systems. This protocol stipulates in its Preamble a clear commitment to a participative approach by relating to the Agenda 21 and the principles of community interests:

Recognising the relevant provisions of Agenda 21 of the United Nations Conference on Environment and Development, the concepts of environmentally sound management, sustainable development and equitable utilisation of shared watercourse systems in the SADC Region.

For the purpose of this protocol, the Member States undertake to respect and apply the existing rules of general or customary international law relating to the utilisation and management of the resources of shared watercourse systems and, in particular, to respect and abide by the principles of community interests in the equitable utilisation of those systems and related resources.

Regional capacity building initiatives

The main initiative on IWRM is led by the Global Water Partnership, Southern Africa (GWP-SA) based in Pretoria, South Africa. The secretariat co-ordinates IWRM initiatives through national partnerships (NPs). Among GWP-SA's main activities are the SADC Water Day, the Annual Water Research Symposium hosted together with the Water Research Fund for Southern Africa (WARFSA) and WaterNet, and national IWRM plans.

WaterNet is a capacity building IWRM initiative whose secretariat is based at the University of Zimbabwe, Civil Engineering Department in Zimbabwe. The network has more than 70 members most of whom are tertiary level training institutions. The flagship for WaterNet is the regional IWRM masters degree program offered at the University of Zimbabwe and University of Dar es Salaam with specializations being offered at other SADC institutions such as the Polytechnic of Namibia.

WARFSA is a regional initiative intended to build regional capacity in IWRM research. The initiative targets young and experienced researchers through sponsorship of research projects based in academic institutions such as universities and other institutions of higher education.

The Consultancy Fund for Southern Africa (CONFUND) is intended to complement the research efforts of WARFSA and the training through WaterNet by sponsoring small to medium scale IWRM institutions to hire consultants for their own projects.

Basinwide IWRM initiatives

Basinwide IWRM initiatives tend to be based on the major transboundary river basins in SADC. Such initiatives have been diverse in scope with some focusing on institutional arrangements, others on IWRM research yet others on economic development. Initiatives that focus specifically on groundwater basins are still in their infancy even though groundwater basins exist, for example, on the border area between Zimbabwe and Botswana. The main IWRM initiatives are on the Zambezi, Limpopo, Orange, Incomati, Okavango and the Pungwe rivers.

The basin wide IWRM initiatives have come about mainly because of the SADC policy on regional integration as reflected in the SADC Protocol on shared river courses as well as in response to global trends and local demands in water resources management. The financing of such initiatives has mainly been through external support agencies (ESAs).

The Zambezi basin is the largest in the SADC region. The Zambezi Watercourse Commission (ZAMCOM) agreement was signed in July 2005 in Kasane, Botswana, by ministers responsible for water from seven of the eight riparian states, namely Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania and Zimbabwe. The agreement signifies SADC strategies for poverty reduction through shared resources including water.

The Zambezi Commission is one of the goals set for the Zambezi Action Programme (ZACPRO 6), that seeks the participation of all riparian states in making decisions on the management of the river basin. The Commission also seeks to demonstrate that management of the basin should not be restricted just to the river and its immediate environment but to every aspect of development. (<http://www.sardc.net/editorial/sadctoday/v7-3-8-04/zambezi.htm>)

Through the ZACPRO 6 project, national steering committees have been established in the riparian countries of the Zambezi. Their main purpose is to advise national governments on the development of water resources in the basin.

Whilst IWRM initiatives in the Zambezi tend to be government led and institutionally focused, those in the Limpopo have mostly been research oriented. The Limpopo river basin commission has been on the cards for a long time now and currently its secretariat is hosted by the Department of Water Affairs (DWAF) in South Africa. Several research projects have been undertaken in the basin notably the Challenge Program sponsored by several external agencies including the Global Environment Fund (GEF). Among the Challenge Program projects is the Wetlands project with study sites in Zimbabwe, South Africa and Mozambique. INCRESAT together with WaterNet has taken the lead in studies on land and water management under the same program.

The Orange basin is the most economically advanced. Its flagship project is the Lesotho Highlands Water Project (LHWP) through which a series of dams were constructed to divert water from Lesotho to South Africa.

The Incomati basin is dominated by interbasin surface water transfer arrangements. Consequently, it is the most studied in terms of resource quantification. The Joint Incomati Basin Study (JIBS) was sponsored by the riparian countries to help estimate the available resources and hopefully minimise disagreements among the riparian states.

National level IWRM initiatives

IWRM initiatives at the national level tend to be guided by either the national governments or by the GWP-SA through its national partnerships. The national governments initiatives have previously focussed on water sector reform which included but was not limited to policy review and legislative reform. All the reforms in the region have been guided by the IWRM philosophy as defined in the Dublin Principles⁵ and follow-up GWP publications. Countries that have gone through water sector reform in SADC include Tanzania, Zambia, Swaziland, South Africa, Mozambique, Namibia and Zimbabwe. In these countries new water laws have been written and new water

⁵ Dublin Statement on Water and Sustainable Development, International Conference on Water and the Environment: Development Issues for the 21st Century, Dublin, Ireland (1992)

management institutions set-up. However the reforms are at different levels of completion and operations under the new systems are still embryonic such that the success of regional water sector reform cannot as yet be conclusively judged. What is clear, however, is that reform has tended to be nationalistic in outlook thus creating harmonization problems at the regional level.

Local level IWRM initiatives

Localised IWRM initiatives are usually led by NGOs and are generally in response to local situations. The local initiatives however, are unique in that they tend to involve the local communities more effectively in IWRM. One such project was carried out by the GWP National Partnership in Zimbabwe. The project developed an IWRM plan for a sub-catchment involving all stakeholders including traditional chiefs and the local council.

1.5. A comparison of SADC and European Union

Savenije and Zaag (2000) note that climatic differences stand out when comparing the regions of the European Union (EU) and the Southern African Development Community (SADC). Southern Africa has a distinct dry and wet season, and, more importantly, its climate is characterized by a high variation between relatively wet and dry years, a phenomenon much less pronounced in the EU. In addition overall evaporative capacity in the SADC region is considerably higher than in EU countries. In general, the SADC region is a water scarce area in comparison with Europe. For SADC countries water is key to sustainable development (IHE, 1994).

The concerns for the management of shared river basins have different trajectories in the EU and SADC countries. First of all is the historical fact that Africa inherited its international boundaries from the European scramble of the 19th century, and thus 'the concept of keeping river basins within territorial boundaries simply never entered the issue' (Heyns, 1995).

Second, whereas at present in the EU water quality and co-ordination are the issues of greatest concern, the major concern in SADC is with water scarcity. Third, the consumption of water is very uneven: on average, the overall water consumption of EU citizens (the total national per capita consumption including all economic uses) is four times that of SADC citizens. Fourth, people in the EU and in the SADC region have, generally speaking, different views on water. Their appreciation of the resource and the values attributed to the various functions of the water developed and changed as a result of cultural, climatic and economic circumstances.

Despite these regional differences, the last few years have seen a remarkable convergence between the EU and SADC concerning the central role given to the river basin as the management unit of international waters. Consequently, European funds have found their way into regional water sector reform. Sadly, the impact of this development is that the European viewpoint, often at variance with regional imperatives, has dominated sector reform.

2. (INTEGRATED) WATER RESOURCES MANAGEMENT IN SADC

2.1. Water management in SADC – a historical perspective

It has generally been assumed that water management was not an issue in sub-Saharan Africa in general and southern Africa in particular. This is not the case. Water management during the pre-colonial era centered on water quality and environmental flows. This management system manifests itself in the taboos associated with non-hygienic use of water points and customs on water abstraction. For example, amongst the Shona people custom cooking pots were not allowed at the well as “it would cause the well to dry up” or sayings such as “stagnant water is dead”. The most potent water management tool was religion. Important water points everywhere were almost always declared holy sites only to be used after certain appeasement rituals were performed by the appropriate persons. The management of productive water, though not wide spread in the region, is however evident at selected sites, for example in the Nyanga mountains of eastern Zimbabwe where ancient irrigation drains are sited.

The colonization of Africa brought new water management systems which were usually tied to the systems in the colonizing country. Colonial water management was supply oriented in that big water schemes were developed mostly for productive purposes such as irrigation and hydropower generation. Good examples in SADC are the irrigation schemes in the Limpopo delta and the Kariba and Cabora Basa Dams for hydropower generation on the Zambezi. In the settler colonies of Rhodesia (now Zimbabwe) and South Africa numerous farm dams were developed with the result that South Africa and Zimbabwe have the highest impoundment ratio in SADC. However, water management was premised on racial prejudices that favoured a minority settler group at the expense of the majority indigenous populations.

Interestingly, local authorities, particularly urban settlements, enjoyed greater autonomy on water resources management than is the case currently. Most urban authorities owned, or had significant shares in, their water sources and also managed the water distribution and billing in their areas of jurisdiction. As much of southern Africa was under British influence, water management systems were fairly uniform in the region and typically British.

In the post-colonial era, water management has tended to take a nationalistic outlook with the result that several water management models have emerged. However a central feature of all the models is the more pronounced role of central government in water resources management. Equally profound has been the financing and agenda setting role of external technical partners.

2.2. Trends and overview

The last decade has seen the adoption of IWRM principles in Southern African water policies and strategies, both at country and regional level. Regional and continental organisations such as AMCOW (African Ministers’ Council on Water) and SADC have played an important role in this. Some of the major donors, such as the EU and the

African Development Bank (AfDB) are also making IWRM central in some of their programmes. This section analyses the major regional IWRM policy documents and donor programmes and how these reference decentralisation in general and the role of local government in particular.

Decentralisation is a common denominator in most of the water policies and strategy documents. Adeyemi (2004), reporting on the Pan-African Implementation and Partnership Conference on Water (PANAFOCN), states that in many African countries water policy reforms are underway, showing a strong trend towards decentralisation of water institutions. The need for this is echoed by the African Development Bank and the African Development Fund (2000), and SADC (2003) in reference to its Regional Strategic Action Plans (RSAPs) for IWRM in Southern Africa.

Reasons for this drive towards decentralisation include (based on Adeyemi, 2004):

- Rendering government more accountable to citizens; when responsibilities are brought to government entities closer to communities, accountability mechanisms will be tighter.
- Enhance community participation and community ownership over water management.
- More effective service provision; decentralised entities can better respond to local demands and hence provide more effective services.
- Provides an opportunity for more holistic and integrated approaches; at decentralised levels, there will be less compartmentalisation and development issues can be addressed in an integrated way.

In decentralisation, a distinction should be made between decentralisation of water resources management and decentralisation of WASH (Water, Sanitation and Hygiene) services provision. For example, the African Development Bank and the African Development Fund (2000) recommend that water resources development and regulatory functions are separated from WASH services delivery functions, also at decentralised level. Therefore, it is suggested that water resources management is decentralised to the level of hydrological boundaries, i.e. basins and sub-basins. These can be public agencies, private agencies or water users associations. Such decentralised bodies for water resources management should be autonomous and accountable. The region has indeed seen decentralisation of water resources management to (sub)-basin entities, for example in Zimbabwe and South Africa (Krugmann and Mwasambili, 2003).

Then also, responsibility for water services must be decentralised to the lowest appropriate level and spatial scale, often being the local government. In most countries in the region local authorities do have the final responsibility for water services delivery, although other entities may be the actual providers (Krugmann and Mwasambili, 2003).

Many of the policies also report on the limitations of decentralisation. Many local governments in the region are severely limited in providing water services in a decentralised way. Reasons include, amongst others, (Adeyemi, 2004; Krugman and Mwasambili, 2003):

- Insufficient capacity to deliver WASH services
- Inappropriate municipal budgeting and finance procedures
- Insufficient coordination and communications
- Little or no regulation of water service providers and lack of a regulatory framework

Therefore, local governments must be empowered and Adeyemi (2004) gives the following recommendations:

- Central governments must ensure that devolution of responsibilities goes hand-in-hand with devolution of budgets;
- International donors and development banks must increase support to local governments to build capacity and by direct financing to sub-sovereigns;
- Local government networks and NGOs must foster exchange of know-how among local governments to build their capacity; and
- Local private capital has to be mobilized, and thus local capital markets have to be developed.

Despite these various references, little guidance is given on specific measures aiming to enhance local government participation in IWRM processes.

It is also notable that most of the efforts in IWRM focus at the higher levels of scale, especially transboundary water management. Although there is a need for applying IWRM in transboundary water management, the links between these higher levels of scale and the role of local actors remain questionable. For example, the SADC protocol on shared water resources (SADC, 2000) does not make any reference to the role of local governments in transboundary water management. Likewise, improved WASH services and IWRM are two core elements of the EU Water Initiative, a major cooperation programme on water between the EU and the African Ministers Council on Water (AMCOW). Improved WASH services are also a key component of IWRM. Yet, the IWRM component mainly focuses on national IWRM policies and transboundary issues (EU Water Initiative, 2003; Working Group on IWRM, 2004), and not on the link between IWRM and improved WASH. In that respect, the role of local government is not elaborated either.

What is clear from the water sector reforms in the region is that the different regional policies and strategies make a case of decentralisation of water management. However there is also recognition that decentralised entities often face big challenges in carrying out their tasks. This is particularly so for local governments as no specific guidance is given on how local government can engage with IWRM, nor do IWRM policies clearly define a role for local government.

It should be noted also that the emergence of the new water governance framework for Southern Africa has resulted in a dispersal of regulatory power from the traditional nation state centre towards the sub-national and supra-national levels. There has also been a simultaneous decentralization of power across a broader range of institutional actors within the political ecology hierarchy. Such actors include various state, private sector and civil society actors whose operations interact and overlap both horizontally and

vertically within the hierarchy. Despite the apparent consensus among the various actors, the motives of each are under-pinned by a particular theory, paradigm or at least a set of assumptions concerning the need for intervention in the regional water sector. There are also multiple vested interests, some overt and others covert. Thus, what seems to be a common drive towards cooperation for the sake of good governance, broader water security and sustainable development is also riddled with self-interest.

2.3. Water resources and water use

The SADC region has a total land area close to 7 million sq. km of which 3% is humid (annual precipitation above 1500mm), 40% is moist sub-humid (precipitation is between 1200mm and 1500mm), 19% is dry sub-humid (precipitation is between 600mm and 1200mm/yr), 16% is semi-arid (400mm to 600mm/yr) and the remaining 75 is arid receiving less than 100mm/yr of rainfall. According to Chenje and Johnson (1996), the region has 16 main river basins with a total mean annual runoff (MAR) of some 650 cubic km (1750 cu. km including the Congo Basin). Close to 85% of this total is accounted for by shared river systems of which the major ones are the Zambezi (110 cu. km/yr), Rovuma (28 cu. km/yr), Orange (11.9 cu. km/yr), Okavango (11.7 cu. km/yr), Save (6.3 cu. km/yr), Limpopo (5.8 cu. km/yr), Cunene (5.6 cu. km/yr) and Inkomati (3.5 cu. km/yr).

With a present population of close to 150m people the annual average per capita water availability is 5,106 m³/cap/yr. However, this figure masks the distribution, occurrence and availability of water resources within individual countries and across regions. Considering a general water stress limit of 1,700 m³/cap/yr (Savenije and van der Zaag, 1997), it would appear as if there is no water stress in SADC. However, if water resources availability is considered on a country basis a different picture emerges. Five of the member states, namely Botswana, Malawi, Namibia, S. Africa and Zimbabwe can be described as water stressed. If projections are made to 2025 assuming the current population growth trends are maintained, the list will include Lesotho, Mauritius, Mozambique and Tanzania. Even more startling differentials are found within country boundaries. For example, Zimbabwe with a geographical area of about 390 000km² has six different physical regions and a rainfall range of 400 to 2000mm/year (ECA, 2006).

Water demand in the SADC region

Water demand estimates in SADC countries can be divided into domestic supply, industrial/mining, food production and environmental requirements. Often it is difficult to separate domestic supply from industrial needs especially in urban settings. As such these are often combined.

Industrial demand in SADC, though still dwarfed by agricultural needs, is set to increase and possibly surpass agricultural demand by 2025. This is so because all industrial processes are dependent on water and SADC is still industrializing. The majority of industrial activities are located in urban areas, which in some cases as in Zimbabwe are located away from water sources. Providing water for industrial processes in such areas is synonymous with increased costs of water provision, as water has to be transported from distant locations.

Domestic water is required for rural settings as well as urban settlements. It is anticipated that by the year 2025 about 56% of the population in SADC will be urbanized increasing the domestic demand in direct proportion to the population increase and standard of living, (ECA, 2006).

Agricultural demand will continue to dominate water consumption patterns for a considerable period to come. The demand for food increases in direct proportion to the population increase and dietary shifts. As the SADC population becomes more urbanized there will be a shift to European type cereals, e.g., wheat which require more water than traditional grains like sorghum. These food requirements will be met through local irrigation or through food imports. On average the demand for cereals is expected to grow by 37% between 2000 and 2025.

Non-consumptive uses also require attention. Hydropower generation is dependent on well regulated flows through electricity generators. The Kariba and Kahora Bassa schemes, with a combined capacity of 3,314 MW, are the largest in the region and supply electricity to Mozambique, South Africa, Zambia and Zimbabwe. The operation of such schemes needs to be balanced with other demands and needs, for example flooding in downstream Mozambique and irrigation/domestic demands in upstream countries. Tourism is a major foreign currency earner in the region and water based recreational facilities require attention in water management.

Estimates and future projections have been made on a country to country basis. These estimates show that much of the water in the SADC region is used for food production. In South Africa in 1996, agriculture accounted for 60% of all consumptive water uses whilst in Zimbabwe that proportion was even higher at 70%. Zambia is an exception. Domestic consumption accounted for 63% of all consumption with agriculture taking a paltry 26% (Chenje, 1996). Presently South Africa alone accounts for 50% of the water consumption in SADC (Barta, 2000). Table 1 summarizes the present water withdrawals in the SADC region.

Table 1: Water withdrawals in the SADC region, 2002 - 2004

COUNTRY	Irrigation & Livestock	Domestic	Industry	Per inhabitant	Total water withdrawal	Total withdrawal as % of actual renewable
	10 ⁶ m ³ /yr	10 ⁶ m ³ /yr	10 ⁶ m ³ /yr	m ³	10 ⁶ m ³ /yr	(%)
Angola	211	76	56	28	343	0.20
Botswana	80	79	35	112	194	1.60
DR. Congo	112	186	58	7	356	0.03
Lesotho	0.6	21	22	24	43.6	1.40
Malawi	810	148	47	88	1,005	5.80
Mauritius	491	214	20	594	725	26.00
Mozambique	550	70	15	36	635	0.3
S. Africa	7,836	3,904	756	284	12,496	25.00
Swaziland	1,006	24	12	998	1,043	23.00
Zambia	1,320	286	131	167	1,737	1.70
Zimbabwe	3,318	589	298	328	4,205	21.00
TOTAL	15,734.6	5,597	1,450	2,666	22,782.6	9.64

Source: FAO, 2005a.

3. LOCAL GOVERNMENTS AND WRM IN THE COUNTRIES SHARING THE LIMPOPO BASIN

3.1. Botswana

Botswana is a landlocked country located in Southern Africa, covering an area of approximately 582,000 km². It is situated between the latitudes 20 - 29° East and 18 – 27° South (Staudt, 2003). The population of Botswana is estimated at just under 1.7 million with a growth rate of 2.4% per annum (Republic of Botswana, 2001).

3.1.1. Overview of water resources

Botswana has a semi-arid climate with rainfall that is unevenly distributed, highly variable and unreliable. Botswana experiences extremely high evaporation rates which can be up to three or four times the rate of rainfall in most parts of the country (Staudt, 2003). This combined with the semi-arid climate and the variable rainfall means that there is a recurrent shortage of water.

Most major river systems in Botswana do not wholly originate within the country. For example, the Limpopo originates in South Africa; the Shashe River, which is a tributary to the Limpopo, receives tributary inflows from Zimbabwe. The Okavango receives all its waters from its two Angolan tributaries, the Cubango and Cuito. Similarly the Kwando/ Linyanti/ Chobe system receives its waters from Angola. The Makgadikgadi Pans are fed by the Nata River, which has most of its catchments in Zimbabwe.

The above makes all of Botswana's main river systems international in nature. Therefore, any developments of the water resources of these rivers are subject to international agreement.

Ground water is however very crucial to Botswana, and it serves 80% of the country's population at present. It is of vital importance to Botswana's economy and continued development and in most of the rural areas it may be the only available water resource that can be developed economically (Republic of Botswana, 2005). Despite the importance of ground water, aquifer recharge rates are very low over large parts of the country.

3.1.2. Water resources management and institutional framework

Four Acts make up the main laws directly concerned with water in Botswana. The Water Act (1968) is the base statute that contains the "common law" aspects of water, i.e., status of public water, inherent rights of individuals to the use of water, recording, granting, variation, and termination of formal rights to use or impound water or to discharge effluents into it, obligations of those taking water to use it properly and controlling pollution of public water (Republic of Botswana, 2005; Republic of Botswana, 2006). The Water Act is administered by the Department of Water Affairs.

The Borehole Act (1956) is the statute that keeps record of all boreholes drilled in Botswana. It specifies the records and samples that have to be kept and furnished to the Director of Department of Geological Surveys (DGS) by anyone sinking a deep borehole more than 15m below the surface or deepening an existing borehole.

The Waterworks Act (1962) provides for the constitution of water authorities in townships and other areas. Duties of the authority include rights to acquire existing waterworks, construct new works and curtail supplies in time of drought and other emergencies. They also deal with charges for water supplies, supplies to non-statutory areas, and the misuse and pollution of water.

The Water Utilities Corporation Act (1970) established the Water Utilities Corporation (WUC), which at present, is the appointed water authority for urban areas. WUC is a parastatal organisation specifically created for the purpose of supplying and distributing water within the Shashe Development and other areas.

The main legislation governing local governments is the Local Government (District Councils) Act of 1966 establishing and governing District Councils, the Townships Act of 1955 for urban councils governance, the Town and Country Planning Act of 1980 responsible for development planning and the Unified Local Government Service Act of 1973 (now Local Government Service Management Act) responsible for recruitment of staff for local governments. The Local Government District Councils Act enables district councils to provide water supplies outside any areas for which a water authority has been appointed under the Waterworks Act.

The Botswana local government system comprises four local authorities – Councils (district and urban), Land Boards, Tribal Administration (TA) and District Administrations (DA), but arrangements differ somewhat between rural and urban areas (Chenau-Repond et al, 2001).

Councils (town and district), District Administrations (DAs) and Tribal Administrations (TAs) all fall under the Ministry of Local Government (MLG) on which they depend on for support to deliver services (Karlsson et al, 1994). Accordingly, the primary mandate of the Ministry of Local Government is to be responsible through applied management, for all the operations and activities of all of the local authorities, whether they be statutory in the case of city, town and district councils or delegated and “de-concentrated” local authorities such as District Administration and Tribal Administration.

Land Boards and Sub-Land Boards fall under the Ministry of Lands and Housing (MLH) but operate at district/sub-district level. In urban areas the Department of Lands also under the MLH deals with land issues.

Several government departments and District Councils undertake water resources development and management. Four ministries currently play major roles in different aspects of water development, resource management and service delivery (Republic of Botswana, 2005). These are: Ministry of Minerals, Energy and Water Resource

(MMEWR); Ministry of Local Government (MLG); Ministry of Environment, Wildlife and Tourism (MEWT) and Ministry of Agriculture (MOA).

The MMEWR has overall responsibility for policy formulation, planning, development and management in the water sector including service delivery (Republic of Botswana, 2005; Republic of Botswana, 2002).

The Department of Geological Survey (DGS) is within the MMEWR and is responsible for ground water investigations, protection and monitoring of ground water resources.

The Department of Water Affairs (DWA) is also within the MMEWR and its responsibilities include water supply in rural areas, surface water resource investigation, development and overall water resources planning. DWA is also responsible for protection of ground and surface water resources from pollution and aquatic weeds and administering the Water and related Acts. Water supply systems in the major villages are not only planned and constructed but also operated by DWA.

Water Utilities Corporation (WUC) is a special purpose parastatal under the MMEWR and is responsible for supply of water to the urban and mining centres and other areas that have been declared as water works areas.

District Councils under the MLG are responsible for the operation and maintenance of water schemes in medium and small rural villages (NDP 7). DWA constructs the schemes and hands them over to respective councils upon completion. District councils supply only about 15% of the nation's domestic, commercial, institutional and industrial water demands in human settlements. The key reasons for this continued institutional arrangement are: the geographically dispersed nature of this demand and the close links of the customers to the local authority that supplies their water services. This arrangement is mainly the only financially sustainable mechanism for water supplies to rural settlements and it is clear that the councils are struggling to keep up service levels. Councils supply some 450 to 500 rural villages. The Ministry of Local Government (MLG), through its Department of Local Government Development (DLGD), is aware of the challenges faced by the councils and are taking some preliminary steps to improve the situation.

The granting and administration of water rights is a duty of the Water Apportionment Board (WAB) that takes its powers from the Water Act 1968. For any use other than domestic purposes, water rights must be obtained and they may be granted subject to a variety of conditions, some of which may be standard conditions whilst others may be specific to particular circumstances. Conditions may be as to the quantity of water, nature of use, duration of right, etc and may be dependent upon the water resource, area or region concerned, etc. Granting of water rights will also be subject to the need to take account of any water required for domestic purposes and, depending on the environment concerned, for the environment (Republic Of Botswana, 2005).

3.1.3. Some case examples

Okavango Delta Management Plan, Botswana

A plan was developed with the goal of integrating resource management for the Okavango Delta that will ensure long term conservation and will provide the benefits for the present and future wellbeing of the people through sustainable use of natural resources. Among one of the principles was the active stakeholder participation in planning and implementation. The agencies involved are the line departments at the national level, district level stakeholders and private sector.

The Okavango Wetlands Committee was to comprise of:

- District Land Use Planning Unit (DPLUPU)
- The Project Coordinator for the NCSA
- NGO representatives
- Private Sector (HATAB)
- Research Institute (HOORC)
- Department of Tourism
- Department of Water Affairs
- CBOs/Co-opted members
- NGO representatives

The DLUPU prepares the districts integrated land use plans and advises the Land Board on land allocations and management.

The DLUPU is composed of:

- Council Economic Planner (chairman)
- District Officer Development
- District Officer Lands (secretary)
- Council Physical Planner
- Land Use Officer (MoA.)
- Regional and District Agricultural Officer (alternate chairman)
- Game Warden (DWNP)
- Land Board Secretary / LBTA

Kavango Delta in North West District of Botswana

The Kavango Delta falls under this district with land size of 109,130 square kilometres in size. It is estimated that there are some 25,000 people in the Kavango Delta with many of them heavily depending on the water and other resources associated with the Kavango. 56.7% of the District had been designated as communal land by the district land use plan. This land which is under customary tenure can be allocated to people for residential, arable, grazing, and residential purposes. About 6.4% of the district has been designated as commercial land which is leased out to individuals and groups who then have the de

jure leasehold rights over that land in exchange for a rental payment to the district land board. 3.3% as game reserve 17.5% as wildlife management areas and 16.2% considered as State Land, some of which has been allocated for use by the Ministry of Agriculture. The Wild Life Management Areas which used to be 4 were further rezoned into Controlled Hunting Areas with some of these areas zoned for community use. The North West District authorities' idea behind Community-Controlled Hunting Areas was that there would be better natural resource management and greater economic returns to local people if the units are controlled by a single institution such as a company or community trust.

The land boards have the power to allocate land for residential, arable, grazing, and business purposes, and it is the land boards who oversee the land use zoning and planning process in conjunction with the district councils.

The 'Every River has its People' project (ERP)

The ERP project is a good example of communicating project processes and information among stakeholders including the local community, local and traditional leadership, government and bi-lateral funders. The Project has been aimed at promoting community participation in decision making around the natural resources of the Okavango River Basin. It combines a broad spectrum of aspects from high-level policy issues to day-to-day livelihood issues, political and socio-economic aspects. At the technical perspective, thematic cross-cutting components of research, HIV&AIDS, gender etc. In addition the project incorporates local, national and transboundary international aspects. This gives the project a character that by and large deals with the majority of the aspects of IWRM in the Okavango Delta. The initiative is sponsored by the Swedish International Development Cooperation Agency (SIDA).

3.1.4. General conclusions

Botswana has not completely decentralized the management of its water resources but the idea of IWRM has caught on. At the moment IWRM initiatives are very much community based and supported by non-state actors.

Policy and institutional reform

Although the government has managed to delegate the provision of services to local government, this has not been accompanied by the resources or the authority as the local governments still rely heavily on the MLG for funding. Urban Councils, District Councils and land boards are wholly dependent on the government for their development funding and up to 95% of their recurrent budgets (Republic of Botswana, 2002). Also, the Minister for Local Government remains the ultimate decision making authority in the provision of services.

Implementation of IWRM by local governments

IWRM has recently begun to gain currency in Botswana through the GWP-SA, the Water Utilities Corporation and the Department of Water Affairs. At present, this is taking place at a national level and has not filtered down to a local level, e.g. local government.

The need for IWRM arises mainly from the realisation that Botswana is an arid country and thus will always suffer from water stress. Also, Botswana has reached a stage where most water sources have been utilised and the focus is turning to water demand management. Reuse of grey water is rising with most members of the public turning to grey water for watering their gardens and other uses that do not require high quality water.

The water sector in Botswana is currently under review with the National Water Master Plan Review (NWMPR). The National Water Master Plan (NWMP) was developed in 1990. It recommended among other things, a Water Resources Council as an overall coordinating body; a Water Resources Division for planning, pollution control and computing services; expand the mandate of the WUC to include supply of water to all major villages and peri-urban centres and for waste water treatment. The role of local governments in water supply and water resources management is not specified.

Capacity and resources

Although the council may make bye-laws regarding human health and safety, the penalties for breaching any bye-law are so low such that they do not act as a deterrent. Capacity varies from district to district, but overall the district councils are so grossly understaffed they struggle to cover their mandates.

The Directorate of Local Government Service Management, within the Ministry of Local Government (MLG) deals with manpower issues and trains the council staff. The training is seen to be generic in nature and not specific to the needs of the councils. When training is undertaken at District level it is seen to be uncoordinated (Republic of Botswana, 2005).

Participation and representation of local governments in IWRM

With regards to water resources management, planning, development and management takes place in the Ministry of Minerals, Energy and Water Resources through the Department of Water Affairs and the Water Utilities Corporation. The local governments do not play a direct role in the management of the resources and are represented on the Water Apportionment Board by the Ministry of Local Government. This makes them recipients rather than stakeholders or role players in water resources management.

Local governments are accountable directly to the Minister of Local Government, and indirectly through elections to the public. In practice though they report to their parent Ministry.

In Botswana, the Water Act, though not very explicit, provides the framework for stakeholder participation in water resources management. Besides the Water Act, there are

other important policies, guidelines, planning and regulatory frameworks that are quite relevant for stakeholder participation in water management. Under the Settlement Policy of Botswana, there is provision for the establishment of Committees to spearhead development e.g. the Village Development Committees (VDCs) which, among other responsibilities, decide on location of water facilities. As part of elaboration of National Development Plans (NDPs) – water committees are now being formed for both urban areas (major population concentrations) as well as in the villages where there has been a clear attempt to enhance participation, ownership, and accountability for water resource utilisation. However, it is important to note that although most of the participatory avenues have been decided upon, not much has happened in actually institutionalising this participation as well as building the necessary capacity to make it work.

3.2. South Africa

South Africa is currently classified by the International Water Management Institute (IWMI) as approaching a situation of absolute water scarcity. The government estimates that the country will reach the limits of economically usable, land-based fresh water resources in the first half of this century.

Divided into nine provinces, the country supports a variety of economic activities ranging from agriculture and forestry through to mining, manufacturing and tourism. Accordingly, the five major water-using sectors in the country are agriculture, industry, urban, afforestation, and the natural environment. Irrigation agriculture represents 54% of the total water demand in South Africa and is mainly consumptive use. Both the industrial (including mining) and the afforestation sectors use eight per cent of the total surface water respectively. Approximately 77% of the population of 45,5 million have access to safe water (DBSA, 1998). The urban and domestic water use estimate is associated with major metropolitan areas and does not include rural domestic supplies (Basson, 1997; DWAF, 1986; Crafford et al., 2001; King, 2002).

3.2.1. Overview of water resources

South Africa has a total surface area of 1,2 million km². The total surface water available in South Africa averages 49,200 mm³ per annum, including about 4,800 mm³ of water originating from Lesotho, and approximately 700 mm³ originating from Swaziland. The total currently available yield is 13,911 mm³, which could be increased by 5,600 mm³ through development of additional surface water schemes. Precipitation is highly seasonal across most of the country and annual rainfall on average are just over the world average (about 500 mm per annum).

3.2.2. Water resources management and institutional framework

South Africa completely reformed its water law after the democratic elections held in 1994. Two main goals shall be pursued: water for all and water forever. The national government acknowledges the overall responsibility for and authority over the nation's water resources and their use including international water matters. The Bill Of Rights, Constitution of South Africa, in Section 27 (1) (b) states that "Everyone has the right to

have access to sufficient water”. Importantly, the new water laws that have been promulgated in South Africa within the past 10 years have moved away from a riparian rights system, to water being a public good managed by government for the equitable benefit of the country’s people. The reforms have also directed the decentralisation of water resources management from the national to the local level. This means that while national government will perform the role of law and policy maker, local government will be required to implement water management with the assistance of regional catchment management agencies (CMA’s).

The management of water resources in South Africa is governed by the National Water Act, No 36 of 1998 (NWA) and the Water Services Act, No 108 of 1997 (WSAct). The Constitution allocates the management of water resources to National Government under the NWA, and the management of water and sanitation services for all citizens to municipalities via the WSAct.

The White Paper on Local Government established the principle of co-operative governance and devolution by giving local government status as one of three equal spheres (alongside national and provincial) rather than a subsidiary tier. At the same time it was clear that ultimately local government, rather than national or provincial, was to be tasked with the responsibility of providing basic services to communities.

The Municipality Structures Act (MSA) focuses on the structures for local government and the allocation of functions between different types of municipalities. It distinguishes between metropolitan municipalities, district municipalities and local municipalities.

District and local governance structures are tasked by the Water Services Act with a very specific aspect of Water Resource Management – that of water supply. The NWA clearly invites them to participate in the wider sphere of IWRM. Little attention is currently given to the broader aspects of WRM due to the urgency to meet domestic water needs and to address the backlog of then apartheid regime inequities. The current absence of planning within the broader holistic framework provided by the NWA and more recently, the National Water Resources Strategy (2002) will work at cross-purposes to the very principles and intentions of these new policies - namely sustainability and equity. It is argued that that the aim of IWRM, which includes water supply, is confounded by the mismatch between administrative and natural/catchment boundaries. The tasks of local government are often conflated with those of wider stakeholder platforms specifically constituted for IWRM - the catchments management fora / committees and ultimately the CMA. A scenario of ‘planning in a vacuum’ will likely continue without clear initiative to align and reconcile these conflations and mismatches. This implies that water supply and water management will remain delinked.

In South Africa, each of the 19 water management areas has a CMA in charge of water resource management. The sub-catchments within these areas are represented by catchments management fora comprising representatives of stakeholder fora or water user associations. These fora are expected to make representations to the CMA for sectoral water allocations, including water demands for rural communities. The district and local

municipalities are expected to participate in the water management supply side as Water Services Authorities and Water Service Providers.

3.2.3. Some case examples

Sand River Catchments

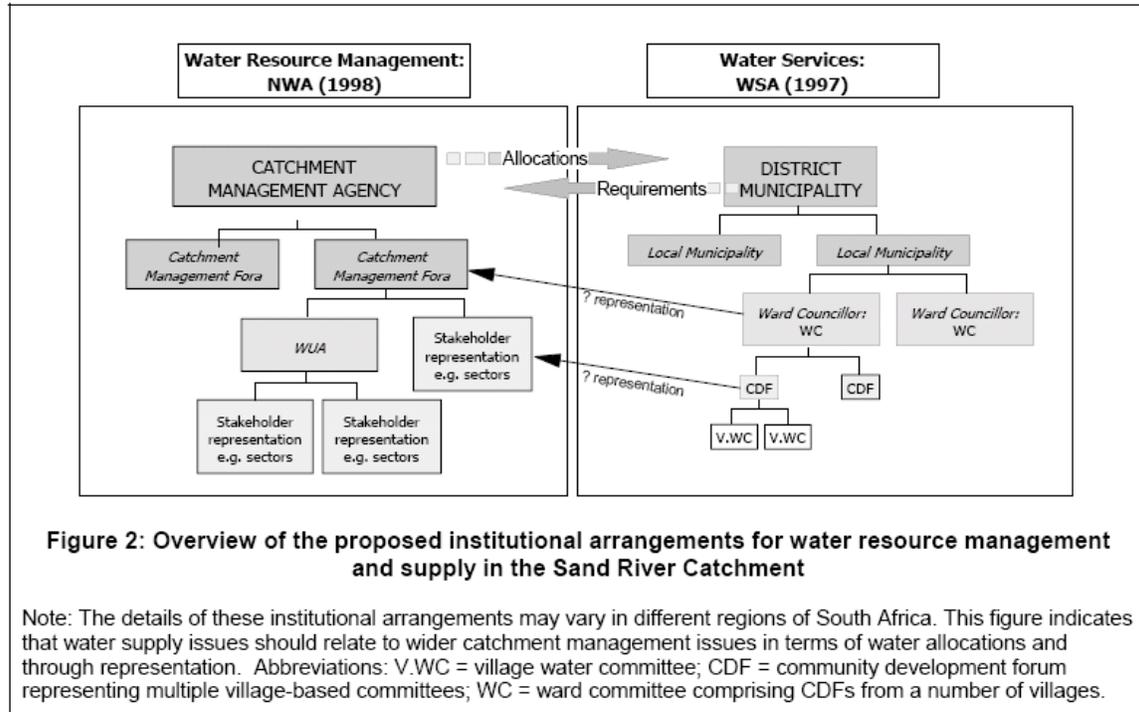
Bohlabela district municipality represents the water services authority that functions to allocate water to the local municipalities, who acts as water service providers. The ward councillors make representations to the local municipalities regarding water demands for their villages of jurisdiction and communicate water supply constraints. They rely on inputs from the village water committees. Local municipalities articulate these needs through their water services development plans.

Table 2: The sub-goals of the Bohlabela District Municipality water services development plans that relate water services to Integrated Water Resources Management.

Sustainable water services sub-goals	Details
Provision of basic water services (include free basic water)	Provide access to free basic water to all by 2008
Provision of basic sanitation services	Ensure that all communities have access to basic sanitation by 2010
Higher levels of water services	Higher levels will be demand driven as and when the customers can afford the service levels
	Higher levels will be demand driven where it does not exist yet and existing services must lead to cost recovery by 2007
Higher levels of sanitation services	Provide access to free basic water to all by 2008

Integrated water resource management sub-goals	Details
Water resource protection	Support the Kruger to Canyons initiative, which will protect the Blyde major source
	Promote cross boarder co-operation with EDM to ensure protection of the Sabie/Sand source
	Improve sanitation to protect groundwater
Water resource conservation	The Kruger to Canyons project will promote conservation of the Blyde source
	Promote better forest management
Demand management	Control demand by installing water meters
	Reduce illegal connections
	Promote household water waste reduction

Note: As suggested in the paper, the latter sub-goals reflect neither the catchment orientation to WRM that is required in the Act nor realistic activities linked to each of the sub-goals (BLM, 2003)



Source: Pollard S; du Toit Derick

Securing Water to Enhance Local Livelihoods (SWELL)

AWARD (Association for Water and Rural Development) has developed and tested a new approach in Utah village that is looking very promising. The approach is a participatory and identifies opportunities for improving and/or developing water sources and improving management at household and village level. It also looks at opportunities for how water can help to improve livelihood strategies, with a focus on the poorer people in the village. This approach to village level planning brings the various stakeholders involved with the village together to focus on livelihoods and water from their various perspectives. This group then makes a team, which facilitates villagers to consider what the village history, and experience of water is, and the multiple ways in which people source and use water as a village and as households. The methodology is named the Securing Water to Enhance Local Livelihoods (SWELL) approach. The next step is develop it to become part of ward-level planning and so part of the Integrated Development Plans of local government. This project has been funded by the UK Department for International Development (DFID), Care Lesotho and AWARD. More information is available from the offices of these organisations.

The Tshwane municipality

A study visit and interviews with council personal in the Tshwane Municipality established the following facts:

- There is no regional/catchment forum (CMA). This is a major institutional gap and the following issues related to this were raised:
 - There is no forum within which inter-municipal issues can be addressed. These include up/downstream pollution, catchment management, and the roles and

- responsibilities for water resources e.g. groundwater, as well as enforcement. The Municipality is only responsible for those points in the rivers just before and after abstraction. Water quality in rivers in general is currently “nobody’s” responsibility
- DWAF are neither driving the establishment of these forums, nor are they providing suitable guidance/support in the absence of the CMAs’.
 - There is skepticism about the way in which CMA’s will operate and whether the level at which they operate will be ‘too big’ and that the problems of local catchments will be left out.
 - It is not clear how the Municipality will be represented in the CMA (how many seats, for which departments, etc).
- Considerable concern about the lack of support and guidance from provincial and national Ministries, particularly DWAF and DEAT.

Makhado Municipality

The Makhado local municipality are contracted by the District Municipality (WSA) to act as the Water Services Provider (WSP) for their area. This role is however currently undertaken without a Service Contract between the two municipalities which complicates issues of accountability. It also affects the ability of the local municipality to implement IWRM in local government. In the case of Makhado, the South African government meets the financial requirements for the local government to perform its role because the District Municipality pays Makhado for water sold. There is however poor recovery of charges for water use and the income does not account for high maintenance costs arising from ageing infrastructure and other factors such as vandalism. There is also no agreement with the neighbouring local municipality regarding the management and use of water from a water scheme which benefits both municipalities but where the resource and primary infrastructure is located in the neighbouring municipality. The ageing infrastructure is currently leading to high water losses, which is significant in an area which has experienced severe droughts in recent years. The consequence of this scenario is that water continues to be wasted and so the principle of efficient resource use is not being achieved.

3.2.4. General conclusions

There is water sector reform going on in South Africa and this is affecting the operations of local governments one way or the other. However the institutional framework for participation and implementation of IWRM by local governments is not yet fully developed. In addition parallel IWRM initiatives are occurring at the local level but these may not have direct links with the local governments in the project area.

Policy and institutional reform

The new local government structures have been faced with many challenges, including amalgamation of old administrations, establishment of completely new municipalities, transformation to become ‘developmental’ local government, challenges related to implementation of the new local government legislation (requiring new systems, structures, procedures and new planning and service delivery requirements) as well as

service provision challenges in terms of addressing rural areas and parts of the former homelands (De le Harpe, 2003).

Implementation of IWRM by local governments

In terms of water resources, local government's primary focus is (that which they are mandated to undertake) delivery of water services (including sanitation). Due to institutional reforms the implementation of IWRM by local governments has been transitional in that the local governments had to be setup first before they could assume their roles and responsibilities in IWRM. During the formative years of the local governments, DWAF had to assume all local government responsibilities regarding IWRM.

In 1994 DWAF started the Community Water Supply and Sanitation Capital Programme and was mainly targeted at rural areas. During the interim phase, DWAF took up the role of project implementer and was willing and able to scale up its activities. In many senses this was a new role for those involved (the previous Department for Water Affairs had been involved primarily in water resources management) and in rural areas the Department proved keen and willing to work through NGOs and CBOs, of which the Mvula Trust (set up in 1994) was the major player. DWAF, in the search for a rapid and scaleable delivery mechanism, also worked closely with the private sector most notably through the BOTT programme (Build, Operate, Train and Transfer). The role of implementer was always a temporary measure, albeit an important one as new local government was transformed and found its feet.

As the 'final phase' of transforming local government took place, DWAF's role reverted from one of project implementer to 'custodian' of the sector. A role that includes enabling and supporting local government to fulfil its mandate and now sees it gently moving into a role of developmental regulation. This transitional phase has especially required coordination and collaboration between sector stakeholders, of which the principal players are DWAF, local government and the national Department of Provincial and Local Government (DPLG), but which includes other parties such as the South African Local Government Association (SALGA), departments of health, housing and education at various levels (especially on sanitation), and NGOs, CBOs and the private sector. The National Treasury (who are strongly committed to decentralization) and external donors, of which the EU is the largest, are also important stakeholders.

Capacity and resources

In various areas across the countries, particularly remote-rural areas, conflict between local government and their constituents has arisen due to accusations of non-delivery, issues of mal-administration and failure to live up to promises. This scenario is to be expected given that the pace of reform did not tally with that of capacity building. The result is that there are staff in positions, with clear mandates but with absolutely no clue on how to go about their work.

Unlike other SADC member states, South Africa has no major constraints on resource availability, its limitation is matching human capacity with stated national goals.

Participation and representation of local governments in IWRM

The Preamble of the National Water Act (1998) describes six fundamental recognitions. The environment is respected as a water user in its own right. In relation to stakeholder participation the sixth recognition stipulates: “Recognising the need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level so as to enable everyone to participate”. The Water Act describes the roles of various governmental, public, non-governmental and private stakeholders within water resource development and management. Some bodies (e.g. Water Users Association (WUA), in terms of members’ voting rights) find options to choose from, which are meant to enhance stakeholders’ self-determination and ownership. Chapter 7 of the Water Act provides for the definition, creation and powers of CMAs, the main organisational unit of the decentralised water authority structure. In 2001, 19 catchment management agencies had been created. Different to the Zimbabwean structure, where exactly one catchment area (Mzingwane) is related to the Limpopo River Basin, on the South African side all major tributaries have their own catchment management agencies, thus 5 different CMAs exist within the Limpopo River Basin from the South African perspective.

Chapter 8 of the Water Act proposes for the establishment of WUAs and defines the powers of a WUA, which is the main body for private and communal water consumers to meet, to analyse the situation, to make proposals to CMAs or other relevant governmental institutions and, to a certain degree, to manage their own water resource related affairs.

At the local the restructuring of local government has involved decentralisation of responsibilities for service delivery and development from national to local government. As from 2000 the responsibilities associated with the WSA role formally rests with local government. While roles and responsibilities in the water services sector have been transferred, the degree to which the WSA and WSP role is being performed by local government varies and is generally less advanced in the smaller Local Authorities (Category B and certain Category C municipalities) than the larger ones. A situation assessment in district municipalities cited several reasons for this (Moepe, 2005):

- Unclear institutional responsibility leading to unaccountability;
- DWAF still provides the water services provider function due to the state of flux in some municipalities;
- High unaccounted for water (UAW) coupled with low revenue collection (<15% of water produced generates revenue);
- Outdated bye-laws still in force.

3.3. Mozambique

Mozambique is situated on the eastern African coast with an area of 799 380 km² and a coastline of 2 770 km.

3.3.1. Overview of water resources

The rainfall distribution varies significantly in space and time. The northern part of the country is humid with mean annual rainfall as high as 2000 mm. The centre along the inland high lands of Chimanimani mountain range, mean annual rainfall is as high as 1 500 mm. Along the coast mean annual rainfall ranges between 800 to 1000 mm while in the southern inland areas of interior of Gaza and Inhambane provinces, mean annual rainfall is less than 500 mm.

The main river basins include Zambezi, Save, Limpopo and Inkomati. Out of 13 major river basins, 9 are of international scale, shared by two or more countries. Mean annual runoff at border generated from trans-boundary rivers is 116 km³ while the mean annual runoff generated from within the country is 100 km³ (DNA, 1999, 2004). Groundwater is influenced greatly by the geologic pattern in the country. The more productive aquifers occur in the southern region where sedimentary rock formations prevail. The poor aquifers occur along the centre and northern part of the country with crystalline rock complex from Palaeozoic and Pre-Cambrian era. The aquifers with moderate productivity occur along the Karoo complex but they are very limited in terms of geographic representation on a country scale.

Water availability per inhabitant in Mozambique is estimated at 5 556 m³/inh/year.

3.3.2. Water resources management and institutional framework

The institutional and legal frameworks governing water resources management are regulated by the Water Law of 1991 and the draft National Water Policy of 1995 both of which are premised on IWRM principles. The operations and mandates of LGs, on the other hand, are defined at the constitutional level. On the basis of the Mozambique Constitution, the country is organized administratively in provinces, districts, administrative posts and localities. The Constitution also states that these bodies are not exclusive and new levels of social organization can be created to allow for effective public participation in public life through freedom of association based on convergence of interest amongst participating citizens (c.f. Cunha 1998). The constitution further states, that participation in public life can be done through elected representative bodies (article 107 CRM). This provision is meant to provide a legal basis for the devolution of decision power at local level. Based on article 188 of the Constitution, the parliament has approved a legal framework for the establishment of local “autarquias” (law No. 2/97).

Local “autarquias” include municipalities and village assemblies that constitute the core substance of local governments. While municipalities are likened to cities and towns, villages prevail at the level of administrative posts (rural areas) as articulated in articles 1 and 2 (law 2/97).

Recognizing that water is a cross-sectoral issue calling for a great deal of inter-institutional coordination The National Water Council (NWC) was created, under the National Water Law. It corresponds to a consultative body for the Council of Ministers having as a major mandate to ensure effective inter-sectoral coordination in the use and management of water resources. Chaired by the Ministry of Housing and Public Works, the NWC integrates representatives from the ministries of Agriculture and Rural Development, Coordination of Environment Affairs, Mineral Resources, Energy, Health and the National Directorate of Water. The NWC has a Technical Committee lead by the National Directorate of Water responsible for preparing the processes to be submitted to the Council as well as proposal of recommendations and decisions to be taken. The Technical Committee is also responsible for the secretariat work related to reporting, agenda meetings preparations, follow up actions on key decisions and monitoring of implementation (DNA, 2005).

To ensure broader stakeholder participation in the overall planning and decision making around water resources management issues an Expanded Working Group (Grupo de Trabalho Alargado – GTA) was established.

With specific mandate to manage water resources, the National Directorate for Water (DNA) within the Ministry of Public Works and Housing (MOPH) has a central role in rural and urban water supply as well in the provision of sanitation services.

As a way of fostering decentralisation in the management of water resources, the Regional Water Administration (ARA) bodies were conceptualized in the water law.

3.3.3. Some case examples

Municipality of Chókwé

The Municipality of Chókwé is primarily dependent on ground water for fresh water supply. At present FIPAG has about 49% coverage in Chókwé Municipality but the supply system is in a growth over time. Local water resources are managed by the Catchment's Management Authority (ARA Sul) through its subsidiary body the Limpopo Basin Management Unit. This operates through a management committee that bring together all key riparian stakeholders within the Limpopo basin including the municipality itself.

There is growing recognition of the importance of water for human wellbeing. The recurrent impacts of droughts and floods are expanding the level of awareness at all levels regarding the need and importance of an adequate IWRM strategy.

The biggest constraint for effective IWRM however, remain the limited availability of resources both financial and in terms of technical expertise. Municipal officials also feel institutional frameworks need to re-think to improve effectiveness.

The municipality of Chókwé is fairly representative of urban settlements in Mozambique.

3.2.4. General conclusions

In Mozambique IWRM principles have found their way into water reform and have resulted in the reformulation of both water law and water policy. Water has been devolved to quasi government organisations setup specifically for water resources management in the regions but decentralization to local governments has not occurred.

Policy and institutional reform

The politics behind water management in Mozambique are guided by the National Water Policy (1995) that is still under final refinement.

Much has been said about the importance and urgent need for harmonization of the needs of the different sectors the overall context of development planning and management. However, the facts of the matter is that integration is not happening at the desired level and therefore, most of failures in development planning and management can be attributed to lack of integration.

Implementation of IWRM by local governments

As a result of recognized weak institutional functionality associated to limited financial resources, reduced technical expertise with staff compliment limited devolution of decision power for planning, decision making and implementation, the ability to effectively enforce the advocated policies and guiding principles is significantly reduced.

Capacity and resources

Without having actually resolved the existing capacity gaps in terms of skilled human resources, adequate finance and technical infrastructures associated with effective devolution of planning and decision power to local levels, any institutional or policy reform will simply result in the declaration of good intentions only.

Participation and representation of local governments in IWRM

Current structural composition of local governments does not facilitate significant uptake and implementation of IWRM principles at local level. The municipalities and rural community institutions are ill equipped with inadequate skilled human, financial and technical resources to effectively be engaged in integrated water resources management despite the increasing recognition of the important role they can play in this field.

Sectoral government departments such as DNA, INGCN, INAM, Agriculture, and Health through their specific branches at provincial and district levels take the lead in the overall process.

Mozambique's national water law is the Water Act which provides a sufficient mechanism for the involvement of stakeholders. The Act established the National Water Council (NWC). The NWC enables the convening of multisectoral stakeholders meetings concerning water resources management issues and where decisions taking all stakeholder interests and concerns are made. The NWC itself is an advisory body of Cabinet.

On the NWC sits the following: Ministry of Health, Ministry of Agriculture and Rural Development, Ministry of Environment, Ministry of Tourism, Ministry of Natural Resources and Energy, Ministry of Foreign Affairs, Ministry of Public Works and Housing and Ministry of Fisheries. There are no non-governmental representatives at this national level. Below the NWC, there is a Technical Committee (TC) which has the same representation as above (institutionally) but is represented at technical level (by National Directors) from the relevant ministries. The TC acts as advisors to NWC. To manage water resources in Mozambique, the country is divided into 5 regions. Each region is headed by a Regional Water Administration (RWA) which is the equivalent of Catchment Management Agencies (CMA) in the South African case and Catchment Councils (CC) in Zimbabwe. The RWA is really the “Management Council”, which is composed of stakeholders from both government and civil society (including the private sector). The chairperson of the Management Council will always be one of the private stakeholders (i.e. not a civil servant). The functions of the Management Council are:

- To propose and approve business plans for water development
- Check accounts of water users
- Collect fees

For the allocation of water to users under each RWA, there are River Basin Management Units (RBMU), under which there are also locally-based Water Committees. The Water Committees (WCs) do the actual management of water resources, assess water situations (droughts/floods) and collect fees at the local level. However, it is important to note that while this process is quite elaborate, the establishment of these units is actually not yet complete and their effectiveness cannot be objectively assessed at this stage.

3.4. Zimbabwe

Zimbabwe is a landlocked country, located in Southern Africa between a latitude of about 15 and 22° south and a longitude of between 26 and 34° east, with a total area of 390 760 km². Climatic conditions in Zimbabwe are largely subtropical with one rainy season, from April to August, a cool winter season from April to August and the hottest and driest period from September to mid-November.

Total population is estimated at about 12.9 million of which 64 percent is rural (CSO, 2004). The estimated annual growth rate is about 1.02 percent. In 2002, population access to improved drinking water sources was said to be 100 percent in urban areas and 74 percent in rural areas (NCU, 2005).

3.4.1. Overview of water resources

Average annual rainfall is 657 mm, but ranges from over 1 000 mm in the Eastern Highlands to around 300-450 mm in the low veld in the south. Rainfall reliability in the country decreases from north to south and also from east to west. Evaporation varies over the country to a much smaller extent than rainfall.

3.4.2. Water resources management and institutional framework

Zimbabwe has been divided into seven catchment areas based on hydrological boundaries. Each catchment is managed by a catchment council. The secretariat services are given by a catchment manager and his staff who are employed by the Zimbabwe National Water Authority (ZINWA). Below the catchment councils are the sub catchment councils (SSC) and Water User's Associations (WUA) further down. The lowest water management structure is the Water Point Committee (WPC). The CCs and SCCs are established by the Water Act (2000) and have the power to set fines and collect levies and fees for water use.

ZINWA is a government agency established under the ZINWA Act (2002). In addition to providing secretariat services to the CCs, ZINWA is responsible for maintaining the nation's raw water infrastructure as well as treating both raw and wastewater. These ecologically based administrative units have no formal relationship with existing political and administrative entities. There is little communication and coordination between the District Councils, District Development Fund and the Catchments Councils. Each council manages the water resources in their basin and has the power to allocate water. In spite of this, the District Council and the District Funds are the major source of development funds for small scale dam construction, boreholes, and other water and sanitation projects. In many instances this has resulted in the marginalisation of the water needs of resettlement and communal area farmers by the Catchments Councils. The District Development Fund together with ZINWA's role is to establish the current water situation in terms of its quantity and quality to meet human needs, as well as the water infrastructure.

The CCs include representatives of districts, local representatives of various ministries, and major water users such as commercial farmers, smallholders, and mining and urban water user representatives.

For flood management in flood prone areas of the Zambesi basin, Zimbabwe has the following institutions;

- Civil Protection Organization of Zimbabwe which is responsible for management of flood emergencies
- ZINWA and the Meteorological Department which form the early warning unit by weather and flood forecasts
- Civil Aviation and Ambulance services assist in search and relocation of flood victims
- Health Services and Social Welfare attend to the injured, look at the needs of flood victims and provide social and psychological support for victims during and after the crises
- Epidemics and Zoonotics considers disease outbreaks that may occur during flood events to both animals and human beings and draws up plans on how to control as well as eradicate

Though these committees are based at the central headquarters, there exist similar structures in the districts and provinces and work closely with the local authorities.

Local governments structures in Zimbabwe also have been based on the decentralization principle. Local government reform in Zimbabwe started in the late eighties. The objective then was to prevent the rural urban migration by developing service centres in the rural areas and democratizing local governments in the rural areas. The reforms resulted in council based local authorities both in the rural and the urban areas. The councillors are directly elected. The main governing acts for local government include the Local Government and Councils Act and the Rural District's Council (RDC) Act.

The parent ministries for local governments and water management are different so is the legislation. As a result local governments are not considered as integral players in water management.

3.4.3. Some case examples

Beitbridge Rural District Council (BRDC)

Beitbridge is a small border town in southern Zimbabwe. The BRDC's mandate includes *inter alia*:

- Administration of the areas under their jurisdiction which includes provision of primary services such as road and infrastructure development,
- Policing health in the district in conjunction with the Ministry of Health and Child Welfare.
- Revenue collection for services they offer.
- Provision of water and sanitation infrastructure.
- Monitoring all development programmes operating within the district.
- Providing training in Community Based Management for water and sanitation programmes.
- Provide backup support with regards to operation and maintenance of the water and sanitation facilities.

BRDC manages a number of government sponsored funds and donor funds funded by bilateral agreements but do not control revenue collected within the district. The revenue collected is submitted to government and their main source of funding is grants from Central Government.

BRDC has in the past years built up partnerships with transboundary organisations for water resources management. Of note is the partnership they built up with Musina Town Council, which is a neighbouring town across the border (South Africa). The two councils regularly meet and discuss the management of the Limpopo river which is the main water source for both Beitbridge and Musina.

BRDC, like most local governments in Zimbabwe, focuses more on water supply issues and issues to do with equity and mechanisms for allocation to meet environmental social justice and economic efficiency are marginalised. This calls for a glaring need to build

awareness in IWRM in all stakeholders who have a say in the management and utilisation of water resources.

3.4.4. General conclusions

Water sector reform in Zimbabwe has advanced tremendously. Local water management institutions have been established and are functional. However, local governments in the country are still lagging with regard to IWRM awareness, planning and implementation.

Policy and institutional reform

In Zimbabwe, as with the other riparian countries, the supreme law governing access, management and utilisation of water is the Water Act. The latest revision of the Water Act was done in 2000 and it introduced Catchment and Sub-catchment Councils by abolishing the previously existing Water Development Advisory Councils (WDACs) and Riverboards. In terms of hierarchical (regional) set up, there is the national level (Zimbabwe National Water Authority); first tier (basin); second tier (catchment); third tier (sub-catchment) and fourth tier (water-user groups). Catchment Council (CC) membership consists of local authorities; large scale and small scale miners; commercial farmers, industrialists and other relevant government institutions. Ideally CC members are nominated by the sub-catchment councils.

The function of the Catchment Councils are:

- Preparation of outline plans in conjunction with ZINWA, for its river system
- Determine and grant water permits
- Regulate and supervise the exercise of permits with respect to the river system
- Supervise the performance of sub-catchment councils
- Ensure users comply with the provisions of the Water Act.

Zimbabwe had to make special efforts to facilitate meaningful stakeholder participation by carrying out water reform in 1995 to first of all achieve equity in access to and management of productive water. The process involved 3 main things:

- Revoking legal provisions that guaranteed privileged access to agriculture water by the white farmers
- De-linking water rights from land rights, since the majority black population did not have land rights, and
- Broadening participation beyond just water right holders. While the institutional arrangements are in place, it is also important to note that maximising stakeholder participation in water management remains a challenge and an elusive goal.

Implementation of IWRM by local governments

Some technical staff in local government structures are well vested in IWRM issues by virtue of participants in IWRM initiatives in the region. Because of this, some local governments have adopted IWRM principles in their operations for example, the Bulawayo water demand management program. However, beyond individual's desire to implement IWRM there is no proper institutional framework through which IWRM can

be applied at the local level. As with other local governments in the region the focus of local governments in Zimbabwe is more towards WASH than IWRM.

Capacity and resources

For district authorities and smallholders alike, the transaction costs of participating in these meetings are high, and they often lack funds to attend. Water users also have to travel long distances to Catchment Authority offices to pay fees or obtain services (Nicol and Mtisi, 2003; Derman et al., 2000; van Koppen et al., 2004)

Participation and representation of local governments in IWRM

Local governments are often taken as members of CCs e.g. Bulawayo belongs to both Mzingwane and Gwayi catchment whilst Harare is a member of the Manyame catchment. Because of this institutional representation in IWRM institutions attendance at IWRM meetings is by individual employees of the local government. The result is that the views of the attending individual prevail over any council position. The local governments therefore miss an opportunity to push a purely local governments agenda in the IWRM institutions to which they belong.

3.5. Conclusions on country case studies

The adoption and implementation of IWRM is at different levels in the different countries of SADC. What is clear is that:

- All countries have adopted IWRM as the guiding philosophy for their water resources management
- All countries have started institutional, legal and policy reforms
- No country can as yet boast of having a successful IWRM approach

In terms of engaging the local governments it can be concluded that:

- Generally there are no guidelines on how local governments can engage with higher-level IWRM institutions including national government.
- In South Africa, reform has been triggered by the transition from Apartheid and efforts have been taken to develop the capacity of the local governments.
- The triggers for reform have varied from a desire for more efficient management of water resources (Botswana, Mozambique) to fulfilment of a political agenda (South Africa, Zimbabwe).
- All four countries are grappling with capacity issues. Whilst in Mozambique the issue is human resources, in Zimbabwe the issue is financing, in South Africa the problem appears to be overloading unprepared local governments with IWRM responsibility and in Botswana, centralisation effectively de-capacitates the local governments.

4. LOCAL GOVERNMENTS AND WRM IN OTHER BASINS IN THE SADC REGION

First steps have been taken by individual basin countries towards IWRM, but an overarching approach is in its infancy. Political will exists through SADC, some progress has been made on legal aspects (the Protocol on Shared Water Courses), but bureaucratic procedures hamper progress on institutional aspects and financial commitments. Implementation of the protocol is urgently called for. Progress on operational and basin-wide river basin institutions has been disappointing. Some progress has been made towards technical co-operation, but a shared monitoring system is not yet operational.

4.1. Zambezi

The Zambezi Basin has been managed as disparate parts within eight national boundaries defined during colonialism. Until recently, those eight national parts, together totalling about 1,321,900 square kilometres, were not seen as part of a whole but independent components able to survive outside the natural unit that is represented by the basin, the third largest in Africa. The result was that the Zambezi River and/or its tributaries were seen as beginning and ending within national boundaries.

Overview of IWRM

The Zambezi Basin is characterized by low to fairly good rainfall. Rainfall is variable in terms of the total amount received as well as in its duration during the season, and these factors tend to vary even more in arid areas. Consequently droughts are a frequent phenomenon.

Increasing water demand is a crucial concern in the Zambezi Basin due to population expansion and associated demand for resources, especially food. There is increasing demand for both consumptive uses (where water is extracted from water sources for use such as irrigation domestic use or industry) and non-consumptive uses such as hydropower generation (where the water can be re-used). Agriculture, irrigated and rain fed, is the biggest water user in SADC region, and as such has a substantial impact on water resources of the Zambezi Basin.

Key IWRM issues

Through interaction by stakeholders and national governments, it has emerged that there are issues of common concern in the basin. These issues center on resource assessments and water management.

These have been identified as:

- Increasing demand for water
- Groundwater resources - lack of understanding and Management
- Fragmentation of the river system
- Degradation of natural systems
- Lack of services and poor management of infrastructure
- Role of woman in water resources management

- The role of agriculture in water resources

ZACPRO 6 Phase II Project

The most visible IWRM initiative in the basin currently is the Zambezi Action Plan Project No. 6 (ZACPRO 6.2). ZACPRO 6 Phase II is the core project of the project series under the Zambezi Action Plan (ZACPLAN) which was adopted by SADC in 1987. The SADC-WD is the custodian of the project with financial assistance from the Swedish International Development and Cooperation Agency (SIDA), the Norwegian Agency for Development Cooperation (NORAD) and the Danish International Development Agency (DANIDA).

ZACPRO 6 has two main aims:

- Setting up regional and national enabling environment necessary for strategic and integrated water resources management among and for the stakeholder institutions and interest groups. The objective is confined to facilitating the adoption of the Zambezi Basin Commission (ZAMCOM) and setting up other legal agreements, establishment of National and Project Steering Committees (NSC & PSC), conducting awareness campaigns, and technical capacity building;
- Establishment of Water Resources Management Systems.

ZACPRO 6 encourages and supports stakeholder participation in IWRM in the basin but does not specifically target local governments. These participate by virtue of being members of the national steering committees for the project.

General conclusions

By virtue of being the largest in the SADC region (outside the DRC) and the most shared, the Zambezi basin has provided the ideal case for international cooperation in water resources management. Subsequently, basin level IWRM initiatives have developed in this basin. Inter-country cooperation is at the treaty level. However, local government involvement in basin wide IWRM initiatives remains weak. Co-operation has been driven more by the desire to minimize conflicts than by economic imperatives, perhaps due to the relative under development of the basin. Nevertheless universal agreement on basic operational procedures and definitions, namely water allocation, has not been reached yet.

Policy and institutional reform

The riparian states all agree that the Protocol on Shared Watercourses remains the guiding document in the management of the basin waters. However there is no universal agreement on how the sharing should be achieved. For example, Zambia did not sign the ZAMCOM Treaty as it did not agree with the definition of Zambezi waters.

What is of note is that political will is very high in the Zambezi Basin and the debate among states is now focusing more on the sharing of benefits and trade-offs, for example between flooding in Mozambique and hydropower generation in Zambia and Zimbabwe. However, local governments have not as yet joined this debate.

Implementation of IWRM by local governments

There are no institutional frameworks in the riparian countries that specifically target the participation of local governments in the basinwide initiatives such as ZACPRO 6 even though mechanisms for participation such as the national steering committees have been established. The various local governments in the basin apply IWRM according to their specific understanding of the concept. Consequently, as in all big basins, IWRM interpretations and invariably application is geographical location specific.

Capacity and resources

The main weakness is that the adoption of IWRM is being funded externally by donors, not national governments in the riparian states. This brings sustainability into question, as the initiatives are not likely to continue beyond the funded project phase. ZACPRO 6 is a case in point.

Participation and representation of local governments in IWRM

The application of IWRM has begun in the Zambezi Basin, and effective IWRM will become a reality when:

- All stakeholders including women at all levels are involved in decision-making over water resources management.
- Stakeholders are sensitised to understand their role and the challenges associated with IWRM and appropriate capacity is built within the Basin.
- Resources are mobilised to ensure that water plays its role in unlocking socio-economic development in the SADC region and in particular in the eight countries sharing the water resources of the Zambezi River.
- A strategy is devised to ensure sustainability of institutions through innovative methods and commitment of the regional leadership.

Needless to say, that these conditionalities for effective IWRM do not specifically target local governments. These remain lumped with other stakeholders and more effort is required to improve their engagement with IWRM initiatives.

4.2. Limpopo

The Limpopo river basin in southern Africa is shared by four countries – Botswana, Mozambique, South Africa and Zimbabwe. The basin covers 400 000 km² in size and occupies between 11% and 16% of each of the four countries.

This area is semi-arid, dependent on rainfed subsistence agriculture mainly on small landholdings. The basin is characterized by a heterogeneous constellation. Subsistence farmers and scattered rural communities can be found in all riparian states, large commercial farmers and mines mainly in South Africa and to a lesser degree in Zimbabwe and fishermen in the Limpopo delta in Mozambique.

Overview of IWRM

Mean annual rainfall ranges between 200 and 1,200 mm/a with an average of 530 mm/a. The climate ranges from tropical dry savannah and hot dry steppe to warm and cool temperate. The basin is drought and flood prone with a total mean annual runoff estimated to 7 330 million cubic metres.

The groundwater potential in much of the basin is moderate to low and is able to sustain potable supplies and perhaps small gardens but not large irrigation schemes. This is so partly because of the poor water bearing capacities of the geological formations but also because of the low rainfall which results in low groundwater recharge rates.

Institutional arrangement for managing water is through the Limpopo River Basin Commission (LIMCOM).

Some key issues

In broad terms it can be observed that in all countries of the Limpopo basin:

- Involvement of community at lower levels in water management and service provision is now being considered.
- Consultation of the citizenry and NGOs by the local authorities is gaining ground.
- However the thinking of “Water Master Plan development” is still very strong even though actual plans may not be developed.
- IWRM is taken as a response to policy directives not a voluntary way of managing water resources.
- Scarcity of resources and finance is driving local governments to look beyond central governments to find solutions.
- Data collection and information management does not receive high priority, particularly in the smaller local authorities in the basin yet it is crucial for their planning needs.

4.3. Incomati

The Incomati river basin rises in the mountains and plateau (2,000 meters above sea level) in the west of the basin and drops to the homogeneous flat coastal plain to the east of the Lebombo mountains at elevations below 150 m. Five of the six main rivers in the basin originate in the plateau area, namely the Komati, Crocodile, Sabie, Massintonto, and Uanetze. The Joint Inkomati Basin Study (JIBS) conducted thorough investigations to quantify the surface and groundwater resources of the Incomati. JIBS estimated the net virgin runoff of the Incomati river basin at 3,587 Mm³/a.

Surface water is being exported from the Incomati basin to neighbouring basins. This type of consumptive water use represents the third largest water use in the basin, after irrigation and water consumption by exotic tree plantations.

Overview of IWRM

Within the individual basin countries concerns have centred on water quantity issues only, and development has been equated with storage dams. The good intentions of economic co-operation and solidarity require translation into concrete action, both from up- and down-stream countries, and resources committed. No progress is possible unless the Protocol is implemented and all basin states agree on the definition of a basin. Existing Joint Technical Committees (JTC) need new impetus and in both rivers basin-wide institutions are urgently required. Though weak, technical co-operation has provided continuity during the 1980s. Data exchange and joint monitoring should be perfected; while human resources capacity of weaker countries needs strengthening. At present, the sharing of water is unbalanced with absolute scarcity precluding win-win solutions. Wider negotiations are therefore needed, but historical injustices also need to be settled.

Key issues

These centre around:

- Increasing demand on water resources
- Threat to biodiversity
- Threat to non extractive economic activities
- Institutional arrangements

4.4. Orange

The Orange River Basin is of great importance to all four riparian states. Three of the basin states, Botswana, Namibia and South Africa, are the most economically powerful in the southern African region and the future economic development in both Namibia and South Africa is, to some extent, dependent on the utilisation of the resources of the Orange River. Lesotho receives a significant amount of its foreign exchange through royalty payments for water exported to South Africa under the Lesotho Highlands Water Project (LHWP). Lastly, Botswana's interest in the basin is largely of a strategic nature as leverage for concessions in other basins in which it has a more direct interest. It must be noted, however, that Botswana could be supplied by means of water transfer from the LHWP at some time in the future, so it is strategically important that Botswana keep this option open. Given these interests and the developed nature of the basin strong institutional structures are critical to managing the demands and interest of the riparian states.

Overview of IWRM

Important progress is being made with IWRM in the three main basin countries; but demand for water may not jeopardise environmental concerns. Political commitment between South Africa and Lesotho is exemplified by the LHDP while Namibia is being drawn into basin development. The Orange poses some legal dilemmas (Botswana; rights of Namibia) but the current water reform in RSA is a positive development. The lack of a basin-wide institution is surprising. Technical co-operation is fairly strong; the differences between Lesotho and South Africa (size, capacity) need to be addressed. The

balanced sharing of the Orange water is through a huge unconventional deal, not without risks, but apparently win-win.

Lesotho Highlands Water Commission (LHWC)

The first (bilateral) agreement in the Orange River Basin was signed in 1978 when a Joint Technical Committee (JTC) was established between South Africa and Lesotho to investigate the feasibility of the proposed LHWP. In 1986 the Lesotho Highlands Water Project Treaty was signed – establishing two autonomous statutory parastatal bodies. The Lesotho Highlands Development Authority (LHDA) is responsible for the management of the dam construction and related issues within Lesotho itself while the Trans-Caledon Tunnel Authority (TCTA) is responsible for the management of the complex set of delivery tunnels into South Africa. In addition to these, a Joint Permanent Technical Commission (JPTC) was established, consisting of delegates from both riparian states, with the responsibility of coordinating the two parastatals, as well as to report back to their respective governments. This regime was further strengthened in 1999 with the agreement of what became known as Protocol VI of the Lesotho Highlands Water Project Treaty, which upgraded the JPTC into the Lesotho Highlands Water Commission (LHWC).

The Orange-Senqu River Commission (ORASECOM)

A conference of Water Ministers in SADC, hosted by South Africa in 1995 prompted the Orange-Senqu Basin States to meet to discuss the possibility to create a multilateral Basin Commission. A long process of discussions and negotiations followed, mostly influenced by the evolving political transformation in South Africa since 1994 and the progressive developments in the water sector in Southern Africa. On 3 November 2000 the ORASECOM was eventually established between Botswana, Lesotho, Namibia and South Africa.

The ORASECOM agreement reached in 2000 is the first multilateral basin-wide agreement between all riparian states and is seen as a major step towards international cooperation on matters relating to the utilisation and management of the Orange River basin.

Key issues

These centre around:

- Water quality
- Soil erosion and wetland degradation
- Industrial and municipal pollution
- Water quality problems associated with agricultural activities
- The state of the Orange river estuary

4.5. Overall conclusions on basins

Diversity is over riding

The central observation when analysing water resources management in SADC is diversity – diversity of the basins, of the countries, of the regions, of the local governments and of the people themselves. The sheer vastness of SADC and perhaps its relatively sparse population density means there is disconnect between the different areas within the basins. This heterogeneity is evident even at country level where it manifests itself in the institutions that are established for water management.

This observation is key in that it puts paid to views about monolithic basin wide water management systems. In our view it will be wrong to talk of a Limpopo way of managing water resources that is universal in the Limpopo and quite distinct from a Zambezi way of managing water resources. The different levels of development in the various parts of the basins and the objectives underlying the developments have determined the trajectory followed by the different parts of the basins.

Disconnect between national and local governments

The para-national initiatives are driven by national governments and reflect the attempts of the SADC nation states to co-operate. The functionaries in these initiatives are inevitably government ministry officials who negotiate and advise governments in line with set government policies. In most cases they are not interested in practical implementation of the regional resolutions but seek only to push the agenda of their state during the regional discussions and in the final document to be produced. The National steering committees (NSCs) for ZACPRO 6 testify to this.

Local governments, on the other hand, grapple with local needs and must satisfy the stakeholders expectations. In doing so they must abide by policy frameworks provided by their parent ministries. Thus as ministries focus on government policy relating to IWRM at the regional fora they completely ignore the follow-up policy to guide the local authorities in their day to day operations. The result is that IWRM is talked about but not applied locally since there is no framework to guide its implementation from the national governments.

Common issues

Common issues in the four basins include:

- increasing demand;
- degradation of natural systems;
- stakeholder participation; and
- institutional arrangements.

5. CURRENT SITUATION OF LOCAL GOVERNMENT AND IWRM IN SADC – A SYNOPSIS

Several issues in IWRM are directly linked to various mandates of local government, ranging from water supply and sanitation to land-use planning and local economic

development. These functions are either affected by the way water resources are managed, or have an impact on downstream water uses. This makes local governments a key player in IWRM. The local government plays its role in IWRM in two ways. In “full” IWRM local governments get effectively represented in IWRM institutions such as catchment management agencies. In “light” IWRM the local government only applies IWRM principles within its mandates. The ensuing discussion examines the engagement of local governments in IWRM in the SADC region from this perspective.

5.1. Local government and WRM at regional level

Globally there has been a realisation that international river basins are best managed through para-national institutions. In line with this thinking, river basin commissions have sprung up in most regions of the world. Examples from Africa are the Nile River Basin Commission, the Zambezi River Basin Commission and the Okavango Basin Commission. Whilst the institutional set-ups are well designed to serve national governments and quasi-governments organisations they often leave out the stakeholders within the basin particularly local government institutions. In most cases the stakeholders are not fully aware of the operations of the river basin commission let alone their role in them. If the river basin commissions are to be successful, they need to be understood on the ground. There is need therefore not only to raise awareness about the existence of a river basin commission and its operations but also to define the role of the stakeholders in the operations of the commission.

5.1.2. The inter state level

As noted before, at the regional level, SADC has prioritized stakeholder participation through clear references to it in its Regional Indicative Strategic Development Plan (RISDP) and in the Regional Strategic Action Plan (RSAP) for water where there are even dedicated projects that promote this approach. However, despite this pronounced commitment to stakeholder participation, there is to date no legal and institutional framework for transboundary water resources management specifically targeting local governments. The SADC Water Division (SADC/WD) made a clear statement during briefings that there is need to strengthen current efforts to encourage member states (MS) to go for sustainable water resources management decisions which are enriched by wide stakeholder participation. This, from the SADC perspective, is seen as a critical conflict prevention mechanism. The big question remains of how stakeholder participation can be institutionalised at regional level. One of the key stakeholders in this regard is the local government.

In terms of the challenge of institutionalising participation at regional level, there are basically two schools of thought. One school of thought says that regional development issues are a matter of regional governments to attend to, and not a collection of some “stakeholder groups” with dubious definitions, status and character. There are legitimate government-to-government structures and processes, which have clear mandates. These need to be respected and care should therefore be taken not to undermine these institutional arrangements or work at cross-purposes with their goals and objectives. The other school of thought (pursued by SADC mainstream) perceive stakeholder participation as a vehicle with which sustainable decisions can be reached on regional

water management (holistic approach to basin management). There is a clear realisation from this school's perspective that projects cannot be implemented by governments alone. Other actors' inputs are important, for example NGOs, academic institutions, etc. The expectations and aspirations of these stakeholders are important to enhance sustainability (through participation ownership and commitment). This debate needs a speedy resolution to enable local governments to engage in IWRM in an assured and clear manner. Currently, it appears that local governments in the region, regardless of their size and location, are in a dilemma as to which approach best serves them. The result is that local governments tend to be passive in relation to interstate IWRM initiatives.

The SADC Secretariat's Water Division has been prioritising the river basin approach as the approach of choice as well as the concept of sharing either the water or the benefits as a way of seriously motivating participation by all parties. Such an agenda does not easily lend itself to promotion by a government agency but by semi-autonomous institutions that are not burdened with the red tape that normally comes with government, but are held accountable by the collective desire of the stakeholders to succeed. Progress in this direction has mainly been hindered by lack of trust. The issue of sovereignty has also not helped the stakeholder participation cause at the regional level. One cannot help but observe that most of the experience with attempts at regional stakeholder participation has been difficult and dogged by negotiations in bad faith. Consultations have also, for the most part, been token and not definitive.

5.1.3. In-country level

The status of stakeholder participation at country level is somewhat complex to measure and assess. To start with all the riparian countries in the region's river basins have elaborate structures and institutional arrangements to facilitate stakeholder participation. However, verification on the ground shows for a fact that this stakeholder participation does not happen as planned and intended. A variety of reasons are put forward to explain the situation, including the following:

- Lack of resources to facilitate participation
- Lack of capacity to effectively participate (capacity of the stakeholders themselves)
- Low motivation to participate (no immediate benefits perceived by potential stakeholders)
- Too much bureaucracy by government agencies frustrates stakeholders
- Limited empowerment from higher levels (top down approaches).

Though these assertions may be general to stakeholder participation they equally apply to local government engagement. Worse for local governments, they seem not to realise the special role they can play in pushing IWRM initiatives at the local level. Local government participation therefore is not from a vantage point but is lumped with any other stakeholder such as farmers and other interest groups.

There is also a lack of enabling legislation and other enabling conditions, for example the decentralisation of power to local levels particularly for making internationally significant decisions, etc. One is usually left wondering if governments really do want

relevant stakeholders to effectively participate, where it matters most – at policy-making level. In South Africa, for instance, the Water Act does not propose stakeholder participation at national level but at catchment and lower level institutions. Although CMAs provide the crucial avenue for stakeholder participation, one wonders if this is the most effective means. Each CMA has to design a strategy for the catchment and is supposed to perform certain important functions to implement the Water Act. This includes the issuing of licences and the active promotion of stakeholder participation, especially of community participation. This situation seems to imply that national authorities want to utilise stakeholder organisation to help them implement their policies and programmes as opposed to meaningfully engage the stakeholders in policy dialogue. The situation is very much the same in Zimbabwe and even more apparent in Mozambique where participation is just at implementation level. Botswana does not seem to have made any serious attempts to put in place provisions for the empowerment of stakeholder groups in water management. What one observes on the contrary, are clear attempts to close out non-state actors in water management.

Participation cannot be a half-measure as it seems to be in all the riparian countries reviewed. Participation seems to stop at the doors of the implementing institutions and executing organisations in the various countries. For the participation to actually work, higher level institutions that have a commitment to meaningful participation must develop their own participatory working style and procedures as well as a corresponding/complementary “corporate” participatory culture. There is an implied requirement in this situation for such institutions to be prepared to share power. This is the only meaningful way that stakeholders can make a significant input into policy making whether at national or indeed for transboundary water management.

5.2. Local government and WRM at the local level

5.2.1. Overview

Much has changed legally and institutionally in SADC since the 1980s. Most countries have moved from single party political governance to more open and democratic states. With the political changes most laws and policies have been rewritten, including those in the water-related sectors of the economy. Some countries are also presently undertaking significant reforms in land policy and legislation.

The decentralisation of water resources management has involved the emergence of a hierarchical organisational structure for the governance of water resources within country. At the local catchment level, the devolution of authority to river basin institutions has been based on the principles of stakeholder participation, equity in access to water resources, efficiency in resource use and management, and sustainability of the ecosystem, livelihoods and administrative structures. The local river basin institutions are increasingly embedded in a larger set of globalised economic and political processes.

In order to facilitate Integrated Catchment Management (ICM) of water resources, the practice in the region has been to partition a country into Catchment Areas in which the Catchment Area boundary is defined by the whole extent of the river system or group of

river systems. Each Catchment Area falls under the jurisdiction of a Catchment Council (CC). The Catchment Areas are sub-divided into Sub-Catchments whose boundaries are delineated according to “sub-hydrological zones”. The Sub-Catchments are administered by Sub-Catchment Councils (SCCs). In some cases, the Sub-Catchments are further sub-divided into Water User Boards or Associations that are composed of elected members from defined “micro-catchments”. The terminology may differ from country to country but the structure basically remains representative in all the four countries studied. What varies significantly is the devolution of power and resources from the central authority to these water management bodies. It appears in most cases responsibility is devolved but resources are not, thus creating ineffectual and, in some cases, unworkable institutional arrangements. The other notable difference from country to country is the relationship between the quasi government water management institutions and the local governments within the institutions’ area of jurisdiction.

With respect to local governance most SADC states have enacted far-reaching Local Government Acts since the late 1990s. In most cases these laws transfer administrative and political authority to the district and municipal levels, and integrate governmental agencies at these levels into one administrative unit. As in water management, institutional and legal changes have involved significant devolution of authority from central government to local levels: District Assemblies, Traditional Authorities, user groups and communities. Resource users are for the first time being called upon to shoulder responsibilities in circumstances that are markedly different from the old political and socio-economic context.

For both water and local government reform the degree to which policy reforms reflect the will or voice of the people is difficult to ascertain. What is clear though is that the letter and spirit of the reforms is to empower communities and user groups in various ways but not necessarily local governments.

5.2.2. Main issues from a local government perspective

The table below summarises some of the IWRM issues from the perspective of local governments in the SADC region. It is clear that local governments are grappling with the question of how to operationalise IWRM within their mandates and functions.

Table 3: Issues affecting local governments and IWRM in the SADC region as presented by the LoGo Water Associated local governments.

Enabling Environment	Institutional Roles	Management Instruments	General & Mainstreaming
<ul style="list-style-type: none"> • Local governments not fully involved in water resources management • Lack of awareness • Pollution and down-stream effects not considered. • Lack of political will. • Insufficient funding for IWRM activities. • Lack of water storage capacity • Lack of water points in settlements • Need to identify how IWRM can be embedded into local government activities. 	<ul style="list-style-type: none"> • Catchment planning activities • Local governments taken as implementing agents only • Lack of a sense of ownership of community projects on the side of the communities • Need to identify specific areas where an IWRM strategy can be implemented. • Responsibility for water management not defined for local, provincial and, national government. • Responsibility for regulation of quantity and quality not clear. 	<ul style="list-style-type: none"> • Lack of joint work with other cities downstream. • Lack of cooperation on actions among the different stakeholders. • Difficult to collect fees (esp. from govt agencies). • Poor state of monitoring equipment. • Lack of financial resources. • Lack of freedom: Local government activities are streamlined within existing national government master plans. 	<ul style="list-style-type: none"> • Integration at the local level (internal) and Metro (cross boundary between cities). • Bulk supply – various sources? E.g. import water (from Vaal dam (ex Lesotho)). • Environmental issues • There is a need to apply components of IWRM to existing projects, and raise awareness of the potential of IWRM • Need to inculcate Demand Management principles in local government water management.

5.2.3. Discussion

Mandate and functions

The legally recognised stakeholders that constitute the water institutions include local authorities (Municipalities, Town Councils, Rural District Councils and traditional leadership), mines, large and small scale commercial farmers, communal farmers and, in some cases, civic organisations with particular interests, for example environmental groups. The responsibilities of water institutions are to monitor the exercise of permits, water flows and use; to assist in pollution control, catchment protection and data gathering; and to collect from permit holders the levies to be used in the performance of the councils' functions.

Most of the water institutions derive their power from an act of parliament and have come about because of the water sector reform that was carried out in the SADC region from the mid 1990s.

Local governments have the mandate for service provision in their areas of jurisdiction but generally do not have a mandate for IWRM since IWRM planning is always at a higher spatial scale than the local governments geographical boundary. Naturally, the functions of local governments in the water cycle are confined to WASH. .

Participation and representation

Membership of water management organisations is generally by election or appointment. In general there is a plausible link between the problem of legitimacy of the river basin institutions and the top-down process of council formation and accession into office by water institutions within any given catchment area, especially if its office is assumed by nomination rather than election. Often local users feel the whole process has nothing to do with them or is a mere extension of the political governance system into water management.

It has been noted and mentioned in most countries that most councillors in the water management institutions pursued self-interest or the interests of their constituencies at the expense of the interests of the broader community. For example in Zimbabwe the commercial farming sector was disproportionately influential in the implementation of water sector reform. This results in pre-occupation by the institutions with issues relating to the commercial use of water, particularly for irrigation purposes. Consequently, inadequate attention is given to issues of WASH, industrial and recreational water use for which local governments may have a greater stake and interest.

Representation of local governments in water management institutions is more by default. By virtue of being some of the major users of water and also because they have juridical power over designated geographical areas, local governments find themselves seating in water management institutions. Local government officials are then nominated to attend meetings on behalf of the local government. Naturally, different individuals attend the meetings at different times and the level of participation of the local government resonates with the enthusiasm of their representative in the water management institution. Often the local government is accused of not taking water management institutions seriously enough. For example, the City of Mutare in Zimbabwe is reported to have attended less than 50% of all meetings of the Save Sub-Catchment Council in which it is a major stakeholder.

By not presenting an “institutional” position in water institutions the local governments miss the opportunity to drive the IWRM agenda at the local level. It also needs to be acknowledged however that in some countries the local governments are not capacitated enough to represent themselves effectively in water institutions. For example, in Botswana and Mozambique, local governments are represented by their parent ministries.

Enforcement

While most recent Water Acts in the region identify local authorities within particular catchments as stakeholders the relationship between most water institutions and local authorities has been far from cordial. This situation suggests that there is need for

flexibility in the ICM framework if the legal requirement for stakeholder constituency representation and what is practically feasible at the operational level are to balance.

There is generally a lack of effective coordination and consultation in the catchment planning process for water resources management. This has resulted in discrepancies between the needs perceived by councillors in water institutions and the actual needs perceived by local people. Most governments in the region pursue a decentralisation policy, in which the government ministry, through local authorities, has the responsibility for coordinating local level service provision by the various sectors. This role includes the coordination of services related to primary water supply and sanitation. However most of the water sector reform initiatives in the region have vested water institutions with the responsibility for coordinating water resources use, development and management at the catchment level, which transcends the authority administrative boundaries. Effective coordination between local authorities and water institutions is therefore weak if not downright despised by either party.

The lack of effective coordination has been ascribed in part to the lack of a synergy between the new Water Act emanated from water sector reform and related Acts administered by other sector agencies. Hence, although the legal instruments are not necessarily in conflict, the local level articulation of policies by the water institutions and local authorities are often at variance with each other.

The lack of effective coordination was also due to overlaps in the relative alignment of administrative and catchment boundaries. The water institutions view some of the overlaps as inconvenient to ICM, and consider that certain adjacent institutions manage portions of some sub-catchments since the places were more accessible from those Catchment Areas.

Generally there is a failure by sector players to develop new protocols of organisational behaviour in line with the recent shifts in the water sector. In some cases there is resistance by some established local authority actors to the new river basin institutions, who were felt to be usurping the political action space. In some cases, local authority personnel have refused to participate in the sub-catchment planning process.

Capacities and resources

Technical skills and financial resources remain central to successful implementation of IWRM by local governments in the region. Sadly governments do not yet contribute financially to regional initiatives nor do they finance water management beyond their own structures.

Stakeholder organisations such as catchment councils are grossly under funded and can hardly organise meetings in countries such as Zimbabwe. However this is not a universal reality in SADC. Some countries such as Botswana have the capacity to finance IWRM initiatives within their borders – the constraint in such cases is that such countries may not be willing to finance regional initiatives. Even if they were it is debatable if the regional operational framework can facilitate such approaches.

IWRM is a relatively “recent” phenomenon in the management of water resources in the region. Consequently, there is a dearth of requisite expertise in the water institutions and least of all in the local government set-ups across the region. Capacity building remains a basic requirement for implementation of IWRM in the region and at the local level.

6. CONCLUSIONS

The preceding discussions lead to the main conclusion that in the SADC region there is currently a limited involvement of local government in “full” IWRM. On one hand, IWRM institutions such as catchment agencies and river basin commissions do not seem to open up sufficiently to this local government level. On their part local governments are often too preoccupied with reaching water and sanitation targets that IWRM issues fall off their agenda.

Lessons at a regional level

An overall observation is that the concept of local government and IWRM is not well established in the region. Thinking is still very much compartmentalised, within both local government and IWRM institutions. As such local governments are not really considered as a constituency of IWRM bodies and local government initiatives rarely factor in the contribution of IWRM institutions in their operations.

Other points to note are that:

- Almost all river basin organisations in the region are sponsored by external donors not national governments.
- Almost all river basin organisations in the region do not specify the role of local governments in their operations
- Though national governments acknowledge the role of local governments in implementing government policy at the local level they do not take them on board in para-national operations nor define a role for them in para-national water institutions.

Lessons at a local level

A worrying note is that much of the water reform in the SADC region has been donor driven as such the institutions that arose from these reforms are not clear on their roles and responsibilities. On the ground however, the main problem of local governments and IWRM institutions at the local level are centred on co-operation and co-ordination of activities in water supply and sanitation. The main issue is who is responsible for what?

Some of the lessons from the region are that:

- Though water laws (and in some cases environmental laws) are explicit on the roles and responsibilities of water institutions, sector instruments seldom realise these distinctions.
- The spatial juridical boundaries of water institutions and local governments seldom coincide leading to conflicts on authority and in some cases downright power struggles.

- Representation in water institutions is generally by election or appointment. However most local authorities sit in water institutions by default raising two problems. (1) Council officials attend meetings often on a rotational basis resulting in loss of consistency of council positions and (2) council officials hardly bear allegiance to the public that they represent in the water institutions.
- Urban local governments have difficulties dealing with internal transgressors such as factories that pollute water resources since in a majority of the cases the local authority is treated as one user by the water institutions.

General lessons

The following aspects have been identified as missing in different countries across the SADC region:

- Coordination among the institutions dealing with IWRM; and coordination between the various stakeholders (Zambia)
- The creation of a regulatory agency/body (Namibia)
- Common vision at the ministerial level of the sectoral departments involved in IWRM (South Africa)
- Institutional coordination, effective communication between public, private, and non-governmental organisations, and effective stakeholder participation (Zimbabwe)
- Monitoring of water quality and of groundwater utilisation; enforcement and policing against water polluters (Zimbabwe)

The most frequently mentioned missing element in IWRM is coordination, and related lack of integration and lack of common vision between government bodies. Education and training should have an important role to improve this missing element. The lack of links between grass roots and highest levels and the purported lack of understanding between scientists and policy makers are other clear manifestations of this missing element. What has been suggested by some as a solution is the creation of regulatory bodies and institutional systems for implementation.

Another missing element at the policy level is monitoring of actual water utilisation (in particular of groundwater) and of water pollution. Related to this is a lack of enforcement observed in countries, in particular with respect to water quality. An emerging conclusion is that the public itself should become involved in monitoring. Monitoring systems relevant to, and appropriate for, grass roots levels should be developed. This is likely to be tied into the development of effective catchment management systems involving stakeholders in planning and decision making.

Futhermore, there are missing elements at the technical level: relevant data sets, rational charging policies, water conservation, demand management, and the use of computer models in decision-making.

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