

**SUSTAINABLE LIVELIHOODS IN  
SOUTHERN AFRICA:  
INSTITUTIONS, GOVERNANCE AND  
POLICY PROCESSES**



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## 1 Introduction

Water issues in southern Africa frequently surface in the international media. The droughts, floods and other major disasters of recent years serve both to illustrate and mask very significant natural resource management problems. By way of illustration, they show the susceptibility of states and peoples of the region to the vagaries of the weather, and in particular of rainfall patterns. This provides ready material for image-hungry international media and a favourite theme emerges: the African disaster. This portrayal also masks, however, the very real policy and development change surrounding water resources that has been taking place over the last decade or so and the relationships of these changes to the lives of the poor. Poor farmers being winched from a flooded river valley is a potent image of powerlessness; however, poor farmers finding themselves excluded from water management processes on the one hand and receiving large bills for water on the other rarely makes the television screens but may be just as serious in the long term.

Embedded in these new institutional forms and policy documents (for a summary see table at end of Section 3) are major international narratives on water resource governance, emerging largely out of neo-liberal development discourse. The principal targets of this discourse are the respective roles of government, civil society and the private sector. Many of the new policies and strategies to have emerged make explicit reference to the changes in these roles brought about in large part by changes in the vertical hierarchy of governance and development—the ‘decentralisation thesis’—and in the related question of horizontal involvement in new layers of decision-making—the ‘stakeholder thesis’. The final major change in role is the normative ‘bringing in’ of the private sector to service provision on the basis that this represents the delivery of efficiency to an otherwise inefficient and state-dominated area.

The key concern of this paper is with the implications of these changes for poor communities, households and individuals who are on the receiving end and have had very little say in why and how these changes came about. In only very few instances were their views sought either formally or informally, and the assumptions about the benefits they will receive are myriad, and derived from professionals and networks that are embedded in the North. What do we know of the patterns of access created by this new policy and institutional environment? Of the poor who participates, and why? What are the implications for access to water for both domestic and agricultural purposes? And, by extension, for the achievement of sustainable livelihoods? In such a variable climatic region these can be issues of survival as well as development (see box at the end of Section 3.4).

To address these questions in more detail a number of pieces of research are being undertaken in the three case study countries—Mozambique, South Africa and Zimbabwe. The purpose of this paper is to contextualise some of the change that has taken place and around which the studies are focused, highlighting key questions and concerns along the way<sup>1</sup>.

## 2 The resource environment

The relationship of the emerging institutional environment to the natural resources base of the region is of key concern. As well as emerging from governance issues pegged to wider development narratives, the new environment is also concerned with managing droughts and floods, given the experience of the region in the last decades. Nevertheless, many of the extremes affecting the poor in the last decade in particular arise out of human action (both by the poor and agencies of government), including allocating water between different uses, the management of supply structures and the location of agricultural lands and settlements.

Vulnerability is acutely tied to these social, political and economic changes, which themselves have roots in earlier policy environments. To speak of ‘natural’ disasters is therefore something of a misnomer. The link between the resource bases, changes in availability and policy and institutions is complex and constantly evolving.

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<sup>1</sup> Early inputs from Jo Zaremba, Lyla Mehta, and comments from Ian Scoones and Melissa Leach are acknowledged. Anton Earle kindly assisted in developing the summary table in Section 3.5.

Decisions about land-use, land return and other environmental resource issues are similarly closely linked to the emerging water policy and institutional environment. In recent years the label ‘water security’ has come to the fore, to describe a set of legal, institutional, social and economic relationship that ensure water access. In order to be combined meaningfully with concepts of sustainable livelihoods, however, water as an important household productive asset and cost item has to be combined with other assets and natural capital. The discourses and narratives on land and other resources are therefore embedded (or will be soon) in these new water institutional structures. The following section describing water availability is therefore only a part of a far broader picture relating to natural assets/capital and sustainable livelihoods in the region.

## 2.1 Water availability

At both regional and national levels water resources in southern Africa are highly unevenly distributed. This unevenness is both temporal and spatial. Much of the pattern is set by rainfall patterns, in large part dominated by the influence of the Indian Ocean. Rainfall is largely seasonal and in many areas most water is received during a five- to seven-month wet season. Access to different sources according to different seasons is therefore a major pattern of rural livelihoods in the region. A country such as South Africa reflects particular regional extremes; a marked north-south trend in annual rainfall is combined with an easterly shift from the wet Indian Ocean coastline (where there is 800mm annual precipitation—some 80% falling between October and March) to almost nothing in the Namib Desert in the west (Calow, et al, 1996, 10).

Following this marked rainfall pattern, the river systems of southern Africa are also heavily seasonal in flow. For this reason a large number of dams have been constructed on many of the major rivers to store some of the annual flood and to generate hydropower. Given the political history of the region, many of these initiatives were unilateral (or bilateral) and only since the early 1990s have there been concerted efforts at a regional level to address transboundary water management. There are many implications of this situation, mainly falling outside the scope of this paper. Nevertheless, it is important to stress here that some of the new institutional catchment management processes are de facto managing water that are transboundary in nature. The level of integration that needs to be achieved is evident in the fact that two or more countries in southern Africa share eight main river basins: the Congo, Zambezi, Limpopo, Okavango, Orange, Incomati, Ruvuma and Cunene.

The Zambezi and the Congo (the latter being on the periphery of the region to the north, but encompassing a significant swathe of Angola’s territory) are two of the largest rivers on the continent. To give an idea of scale, one hydropower scheme on the Congo alone could provide some 45,000 megaWatts (MW) of energy, sufficient to meet entirely current demand for electricity in southern Africa. The Zambezi is hugely important regional resources and this is reflected in its focus for development within the Southern Africa Development Community. It accounts for more than 75% of the region's total mean annual runoff and drains some 40% of the land mass (Chenje, M. and Johnson, P. (eds) 1996; 38). Some 30 large dams have already been constructed along the river, of which the Kariba Dam (between Zimbabwe and Zambia) at 160,000 million cubic metres (mcm) is the region’s largest. In recent years the management of these dams has been a focus of concern for downstream Mozambique.

Other major rivers to have had major management structures developed include the Incomati between South Africa, Swaziland and Mozambique, (with 10 dams totalling 12 mcm), the Limpopo shared by Zimbabwe, Botswana, South Africa and Mozambique (with 43 dams and a storage capacity of 12 mcm), the Save between Mozambique and Zimbabwe (with 20 dams supplying 2.6 million people) and the Orange River between Botswana, Lesotho, Namibia and South Africa, with 29 dams. New thinking on international river basin development—including the environmental issues on the Okavango—is now prompting major rethinking on the management of these rivers, particularly given the context of rising demand for water between states. To date transboundary initiatives such as the ZACPLAN, OKACOM and the Incomati Basin Initiative, have been unable to resolve the major issues of allocation and management that are beginning to emerge. It is likely—though some way off—that the emerging institutional forms of catchment management in many of these countries will have an important future role to play and could pave the way for a more inclusive and bottom-up approach to international transboundary water management.

Whilst the major river systems are of critical importance to long-term planning of water use and the development of further irrigation, environmental and hydropower potential, the immediate day-to-day management concerns of poor communities and households relate more fundamentally to access surrounding groundwater resources. This resource is estimated to provide some 60% of the rural and urban water supply for communities in the region, a result both of its relative geographical availability and ease of access through shallow wells and other low-tech structures. In Botswana, for instance, an estimated 80% of animals and humans rely on this resource alone (Chenje, M. and Johnson, P. (eds) 1996; 41).

Whilst access is an important reason for community and household choice of groundwater, quality too is important and the general availability by season in contrast to many surface water resources. It is frequently accessible from shallow, hand-dug wells and other small tube wells, which, in time of drought, can provide a 'last resort' supply—even if other natural assets have been reduced to a bare minimum in order to cope with drought shocks (for instance the sale of livestock). Significant issues arising in groundwater management include the rapid increase in demand for this resource as rural and urban human populations grow, combined with the relative paucity of data on the resource itself. In general aquifer systems vary between 30 metres (m) depth in the eastern part of the region to more than 100 m in the west, with variations from 20 m in the east of southern Africa to 200 m in many parts of Botswana and 600 m in western Namibia (Fruhling, 1996). The fact that the most productive aquifers are frequently in semi-arid or desert sub-regions makes both development and delivery of the water to population centres a problem. The problems of coastal aquifer availability near population centres is that over consumption can quickly lead to saltwater intrusion, rendering aquifers unusable in the long term.

A major problem is uncontrolled abstraction from deep wells, caused in large part by the rapid development of irrigation from groundwater. An immediate impact of aquifer drawdown will be reduced availability in those shallow wells used precisely by poorer communities and households. Localised depletion, rather than generalised reduction, is likely as abstraction from individual wells and boreholes tapping into basement aquifers are generally so low that this rarely exceeds long-term recharge capacity (Calow, et al, 1996). Furthermore, whilst availability of the resource itself may be a problem, a comparable problem is the failure of access to the resource. This, rather than depletion, may be a major cause of 'groundwater drought' following successive years of poor rainfall. According to a report on the 1992 drought experience, "the failure of wells and boreholes during drought is a function of both increased demand on low-yielding sources and reduced recharge to the aquifer". The report suggested that "Identifying hydro-geological zones that have low permeability, wells and boreholes that are low-yielding and areas of high demand might therefore help to identify areas which are vulnerable to groundwater drought" (Calow, et al, 1996, 4). The emphasis on the management and institutional structures leading to poorly maintained, low-yield structures importantly led the focus away from the resource base itself. The impact of a rainfall shortfall (or 'meteorological drought') may be multiplied considerably by 'social drought' factors.

Drought events in southern Africa are significant not simply in their national economic impact, and impact on local livelihoods, but also for influencing policy makers<sup>2</sup>. In South Africa, in particular, the last major drought occurred just prior to the democratisation process and 'policy space' was opened up enabling radical rethinking of water management priorities (Turton, 1999). In Zimbabwe, the drought experience revealed both the vulnerability of a national economy, but also how individual household as opposed to state or agency-oriented action could help mitigate impact. Some 40% of Zimbabwe's population was affected by the drought and Gross National Product (GNP) fell by some 12%. An estimated 600,000 head of cattle were slaughtered as sale of livestock became one of

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<sup>2</sup> In addition to droughts and floods, the longer-term shifts in climate patterns are of profound importance. The problem is the degree (or lack) of certainty surrounding current knowledge. Prediction of rainfall change on the basis of rising temperatures is problematic for a region such as southern Africa because most models do not incorporate the El-Ninio Southern Oscillation (ENSO) event and other atmospheric process, which are significant in precipitating 'extreme' weather events in Southern Africa. Only the broadest shifts are currently outlined by climate change experts, suggesting increased rainfall in equatorial areas of Africa and decreases in southern African areas for the December to February rainy season by the 2080s. This is a considerable stretch of time and sufficiently vague to prevent immediate action. However, when combined with givens, such as population growth and demand for resources, there is fair cause for concern particularly in terms of poverty impact and changing institutional structures of access to the resource.

the most important coping mechanisms, in addition to earning income from temporary local employment (Kinsey, et al, 1998), and household annual maize production dropped from an average of three tonnes in 1991 to less than half a tonne in 1992. Whilst the response by government and the agencies was slow and often inappropriate, Waterkeyn argues that responses by individual households were of key importance to ensuring access to water was maintained. Individual water points—particularly upgraded family wells—continued to provide supplies right through the drought in many areas, with fewer than 10% of such wells failing against a national failure rate of 40%. The well-deepening initiative taken by family members as the water table sank was the chief driver, combined with careful rationing of water use (such as giving up vegetable plots). Significantly for planners and agencies working after the drought—but an issue not successfully addressed to date—more than 75% of communal sources failed, and were only rehabilitated when assistance was made available by outside agencies (Waterkeyn, in Nicol 1998).

The important lessons of coping with drought in the region (and indeed flood) are therefore more than likely to be found at the local level, whilst responses can be anticipated at the policy level. This relationship of policy, to individual action, to natural resources issues is at the heart of the governance approaches embedded in new institutional forms of management. We now examine in more detail some of these embedded narratives.

## 2.2 Water narratives

### 2.2.1 Scarcity and security

Perceptions of water scarcity caused by a combination of past drought events, current rising demand and problems of distribution provide a key driver for the water management narratives of the region. These narratives are closely tied to wider global narratives of the last few decades, and that have essentially grown out of crisis-based narratives on environmental change:

***The growing demand for water—principally for the production of food—is leading to reduction in available water. Its finite but renewable nature means that competition will lead to degradation of and possibly conflict over access to water supplies, and in particular where there is an absence of effective institutions for management and allocation. There is a need both to augment supplies through increased storage and to manage demand for this resource using various means, including ensuring water is treated as an economic good. This should be reflected in supply and management costs being covered by the user of the resource.***

The narrative relies strongly on calculations of rising population combined with relatively static water availability leading water stress or severe scarcity<sup>3</sup> to characterise the lives of 235 million (m) people in the region by 2025. Both South Africa and Namibia are two countries commonly singled out as already ‘water-stressed’, and facing serious management challenges in the future. These calculations are frequently based on calculations of per capita availability of renewable surface water, using a threshold value of some 1,000 mcm per year—which includes all uses, from food production to household consumption. The concept of stress and scarcity therefore assumes a number of issues about where food is produced and who produces it, without entering into issues of relative crop value, the growth of cash cropping and other decisional environments surrounding agricultural uses. It is, by implication, an extreme over simplification of reality.

It also fails to recognise the existence of ‘social scarcity’, brought about by access to available water being denied through social, political and other legal barriers to usage (see Mehta, 2000). In fact, far from being alarmist, the use of these figures may underestimate the problem: As Abrams states, “Whilst a threshold figure such as 1,000 mcm per capita may be useful for purposes of comparison, it should be carefully used because it may understate situations of potentially serious water stress” (Abrams, 1997).

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<sup>3</sup> The Food and Agriculture Organisation of the UN (FAO) states that water is a severe constraint on socio-economic development and environmental protection at level of internal renewable water availability of less than 1,000 mcm/capita. Below 2000 mcm is considered a constraint, and a major problem in a drought year.

From concepts of water scarcity has been derived the need to achieve ‘water security’, an idea that took centre stage during the Second World Water Forum in The Hague when appeals to deal with the ‘Water Crisis’ (looming or upon us) were repeatedly made on the basis of achieving ‘water security’<sup>4</sup>. One of the most controversial aspects of the water security idea is that surrounding the propensity for conflict over water resources. This idea drove, for instance, the uptake of the water security sub-narrative by donors active in the region, including Sida. In the mid-1990s Sida produced a document that strongly supported integrated, basin-wide development on the basis that this was “a prime security objective” (Ohlsson, 1995, 17), given that some 70% of the sub-region’s surface water is shared by two or more member states of Southern Africa Development Community (SADC).

These narratives on scarcity and security are slowly being challenged by some within the region, who argue that the real target is being missed—resource use per capita is not the issue, rather it is the capacity to adapt to change in availability of the resource. This kind of thinking is strongly linked to concepts of sustainable livelihoods development and the need for dynamic conceptualisation of resource-human interaction. This idea of coping capacity ‘writ large’—usually referred to as ‘adaptive capacity’—has been developed by Turton and others (see Turton et al, 1999).

### **2.2.2 Governance and democratisation**

The translation of scarcity and security issues into action has tended to focus on the need to broaden the concepts of management, to integrate multiple stakeholders and to seek new institutional forms. There are, therefore, strongly complementary ‘development narratives’, focused on wider governance issues that have been widely disseminated and seek democratisation of management, whilst ensuring that the role of the state is reduced. Put simply, this is:

***Better governance of water resources involves improving the link between users and managers of the resource. This involves lower levels of management and effective and responsive local institutions based around the hydrological basin (or sub-basin) unit. This should be combined with increasing the link between water use and cost, in order to reduce demand for the resources in conditions of scarcity. Democratising use involves encouraging a range of stakeholders to be part of the decision making process.***

‘Good water governance’ became a key theme of international policy makers in the 1990s. The *Framework for Action* (FFA) document produced by the Global Water Partnership (GWP) outlined the recommended action on which to base ‘good water governance’: which included accelerating the trend towards devolution of responsibilities to water users and building transparent and accountable mechanisms for resource allocations; improving the allocation of water through better decision-making and the use of decision making tools which can express the value of water in different uses; establishing the right operation framework to attract private sector and civil society involvement in providing water services; and forcing both public and private sector operators to obey by the rules (FFA, GWP, 2000, 30). This focus brought the state as regulator and facilitator, and diminished its role in service provision.

However, the experience of decentralised decision making and governance over water supply and water management suggests that the practical benefits are harder to achieve, given the complex political environments in which decentralisation takes place, the implied shifts in power to lower levels that encourage elite capture and the often far from ‘democratic’ approaches to local-level institution-building achieved in practice. In effect the realities of power and politics rudely intrude at all levels, including the local level.

### **2.2.3 Integration and participation**

In all countries in this study the idea of integrated basin-level management has been established as a key government policy objective<sup>5</sup>. The idea that hydrological units are the natural units of management is based

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<sup>4</sup> This was a centre-piece idea at the recent 2<sup>nd</sup> World Water Forum in The Hague, central, in particular, to the Global Water Partnership’s ‘Framework for Action’ document.

primarily on the concept that a catchment system lends itself to management as an integrated whole. This basic idea is open to much criticism and questioning, not least because of the frequent mismatch with administrative and political boundaries—the ‘problemsheds’ as they have been described. Nevertheless, the idea is convenient for the development of decentralised management, stakeholder participation and other ‘governance-oriented’ approaches and has therefore been pushed hard by donors within the region. In essence the narrative is that:

***The catchment (or watershed<sup>6</sup>), units of which comprise a complete river basin, forms a natural hydrological management unit within which all stakeholders should be included in management. Integrated management means comprehensive approaches including the protection, use, and allocation of the resource; it recognises the need to ensure environmental flows and to introduce such concepts as polluter pays. IWRM entails the establishment of effective regulatory mechanisms and the enforcement of sanction against non-compliance with these regulations.***

As a development narrative, Integrated Water Resource Management (IWRM) is a partner to narratives on governance, participation, sustainability and gender-based approaches to development that emerged strongly in the early 1990s. Four key principles recently espoused in the lead-up to the World Water Forum help to locate the idea: water is a finite “and vulnerable” resource demanding a holistic approach to management; participation through a “multi-stakeholder approach” is necessary, women are important as users and decision makers; and water is an economic and social good, with an emphasis on the former (GWP, 2000). Defined operationally, IWRM is “...a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems” (GWP, 2000, 22).

The *Framework for Action* document stated that: “Integrated water resources management is an essential component of good water governance. IWRM has two distinct dimensions. On the one hand, it consists of a common sense holistic approach to water that integrates hydrological, engineering, social and economic best practices—an approach accepted as desired by most water professionals [emphasis added]. The second dimension of IWRM is more contentious, and requires integrating the seemingly incompatible goals, beliefs, interests and knowledge of every water user. Social and political capacity is thus as important as physical water availability in good water management. This is the more difficult and largely unfulfilled political challenge; but it must be met if water security is to be achieved...Given the political nature of integration, the first challenge to enabling IWRM is to cultivate the political critical mass in favour of it. This involves raising awareness of local and wider water crises and serious shortfalls in water services, and simultaneously raising the profile of successful initiatives” (FFA, GWP, 2000, 25).

This nod to the political issues inherent in any IWRM approach reveals starkly the powerful role played by the crisis narratives in legitimising the development narratives ‘accepted as desired by most water professionals’. The implications for those challenging the crisis narratives are therefore substantial. In southern Africa IWRM has had widespread uptake in policy documents and, increasingly, is being put into practice. Networks such as the GWP regional TAC and bilateral donors are active in this uptake and dissemination. One donor, German Technical Cooperation (GTZ), in 1999 established an international IWRM Network which it states should act as an “incentive for government and institutions to optimise water resources management”; the first year was piloted in southern Africa, because it perceived that “broad acceptance by the IWRM actors can be expected” (particularly SADC) (GTZ website, May 2000). Given this broad endorsement by donors—frequently the sponsors of national strategy development and planning—the echoes of this approach are found in all key documents emerging in southern Africa ranging from the Water Resources Management Strategy for Zimbabwe which is titled ‘Towards Integrated Water Resources Management’ to the Mozambique Water Policy, which states that: “Water is a rare resource. Its allocation on a rational and sustainable basis requires an *integrated management approach* [emphasis added] to maximise the benefits to the community both now and in the future. Water user participation in water resources management is needed to balance investment with benefits and protection of the environment...” (Republic of Mozambique, 1995).

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<sup>6</sup> Strictly speaking a ‘watershed’ is the boundary between catchments, but frequently the terms are used interchangeably.



### 2.2.4 Demand and cost recovery

Scarcity, governance and integrated approaches all share a basic concept of water as an economic good. This tool provides the justification for both introducing payment per volume and for covering costs, where community management is the option chosen. Essentially derived from neo-liberal policy environments, the core narrative has enormous implications for the poor (and the borderline poor) in that it shifts both cost recovery and financing responsibility down with management responsibility to lower levels. This narrative therefore has embedded within it major assumptions about willingness and ability to pay, the effectiveness of institutions in managing payment mechanisms (and fairly), and the measurement of resource use by users (itself costly and often unscientific). Boiled down, the narrative on demand and cost recovery argues that:

***Supply should be on the basis of demand for the resource. Volumetric tariffs will ensure equity in sharing costs between users (but not necessarily equity in terms of capacity to pay). Tariff systems should be geared towards full cost recovery and future investment as well. In terms of community water supply, payment surveys based on willingness to pay will establish the level of service provision communities are capable of supporting (the poor are willing to pay for better services). Government targets for coverage have led to unsustainable services in the past. Tariff systems will also help to manage demand for the resource and ensure conservation.***

A demand-responsive approach based on this concept is being strongly advocated by the World Bank (through the Water and Sanitation Programme) and other donors including the UK Department for International Development (DFID) in southern Africa. The approach builds its justification on the failure of government-led initiatives in the past (attributed to intrinsic problems with public sector service delivery rather than the external economic environment). The kind of regional thinking that the Water and Sanitation Programme espouses is encapsulated by Kariuki: "In Malawi, rural communities still have high expectations from Government, due to policies in which water and operation and maintenance services were provided 'free'. Supply-driven approaches are still being followed by other agencies, working in the sector, creating difficulties for the Social Fund (SF) to convince communities to contribute cash towards capital or operation and maintenance costs or collect a regular tariff" (Kariuki, M, 1998).

Expressions of demand form the basis for a contract between communities and suppliers under this approach. Within these expressions of demand are expressions of willingness to pay, associated with which are number of key questions: Firstly, the method by which demand is expressed involves several layers of community decision making, many of which may be dominated by powerful individuals; secondly, the articulation of demand for a particular service is only likely to be on the basis that there is knowledge of the available options, entailing effective communication by agencies concerned and communities. In poorly-resourced environments that characterise many rural and peri-urban areas of southern Africa this is a huge (and often erroneous) assumption. Finally, the nature of demand within communities is clearly not homogenous and achieving consensus on, say, tariff structures for payment can be a highly conflictual process that may also challenge existing service delivery approaches that are perhaps politically less demanding (or intrinsically political because they are for political purposes). The will to 'scale up' the approach is growing, certainly in donor circles, and is articulated in many existing policy environments.

### 2.3 Participation in the policy process

With the exception of South Africa where participation in policy formulation has been seen as an important step in democratisation of the country's government, there has been very little formal participation in policy formulation regionally in water resources development.

In Zimbabwe and Mozambique the management of the policy formulation process and the development of new forms of institutions for implementation of policy has been largely top-down. In Zimbabwe the Water Resources Management Strategy 'Steering Group' provided a forum for stakeholder representation in the process of drafting with the aim of developing a consensus-driven strategy. However, the level of consensus reached still represented a

fairly high level of stakeholder, and certainly not of groups representing the poorer stakeholders. Nevertheless, there have been genuine attempts within the implementation process in Zimbabwe, for instance, to encourage piloting as a way of improving policy implementation and that has entailed stakeholders from communal areas participating in catchment management processes. The participatory pilot of catchment management helped to establish problems with the original blueprint and to indicate ways in which the implementation process might be changed (see GTZ, 2000).

In South Africa policy development has taken a broader participatory approach, including public meetings to review drafts of emerging policy documents, including those relating to small-holder irrigation. The inclusion of local level stakeholders has ensured that policy development is more pro-poor in orientation.

One of the key questions arising, is at what level can the voices of the poor challenge already established narratives that are transposed from international to national level documents without much room for disagreement with the ‘professional consensus’? Whilst participation in implementation implies (unfairly) agreement with the established norms and principles, it at least allows meaningful input of practical experience into the local livelihoods-policy implementation environment.

### **3 Institutional and policy responses**

This section examines the policy responses to the water management challenges in the region. It shows how deeply global narratives are being embedded in policy and institutional development and raises a number of critical research questions relating to the issue of access by the poor to water for domestic use and for agriculture. The section begins with a regional overview followed by more in depth analysis of the three case study countries.

#### ***3.1.1 Regional actors and networks***

Southern Africa is well networked into global policy processes. Both the drought experience of the region and the global political significance of states such as South Africa ensure that the region receives a large amount of donor attention (and money). In terms of water issues, the drought of the early 1990s in tandem with the large volume of refugees and displaced persons caused by conflict in the region during the 1980s, encouraged many organisations to move into rural water supply and sanitation development. This was further endorsed at a global level by the international attention which the United Nations (UN) ‘Water Decade’ had focused on water and poverty. One of the principle aims of the decade (though ironic, given the future meltdown of state involvement) was to prompt governments to give water supply and sanitation greater emphasis, through seeking better national level planning in order to achieve 100% ‘coverage’. That this evidently failed was used as a major justification for the future policy shift from supply-led to demand-led approaches.

Many of the key policy drivers have been multilateral and bilateral donors, including in the case study countries, the World Bank, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), DFID, Swedish International Development Agency (Sida), Netherlands Development Agency (NEDA), Danish International Development Agency (Danida) and the European Union (EU). The World Bank has its own sub-Saharan Africa Water Strategy, which includes within it the SADC Water Resources Strategy. Many of the major donors have been involved in developing national policy directions and supporting (either directly or through assistance to private contractors) major water projects, including the Lesotho Highlands Water Project (see South Africa, below). The UNDP-World Bank Water and Sanitation Programme has led policy development in water supply. Many other agencies are involved at a local level, including the World Bank itself, through initiatives such as the Zimbabwe Community Action Project that comes under the auspices of the government’s poverty alleviation programme. This programme focuses on to the poor including the development of water for productive uses. The UNDP also co-ordinates drought relief activities in Zimbabwe with SADC and the World Food Programme.

Regionally, SADC is the most visible intergovernmental institution, and made water resource management a clear priority at its inception in 1992. The SADC Protocol on Shared Watercourse Systems—the first to be signed by all states—was finally submitted for approval in 2001. The four articles cover general principles, the establishment of

river basin management institutions, the objective of river basin management institutions, and the functions of these institutions. Issues included are ensuring optimum utilisation ‘consistent with adequate protection of the watercourse system’ and abiding by the principle of ‘community of interests’ (referring to multiple stake-holding) in the equitable utilisation of those systems, as well as the need to establish basin commissions between states. The Regional Strategic Action Plan (1999-2004), another SADC output, was based on each SADC country’s ‘Country Situation Action Reports’ (funded by the UNDP) and incorporates the Southern African Vision for Water, Life and the Environment in the 21<sup>st</sup> Century.

Another major regional initiative focused on water was the Zambezi River Basin Action Plan (ZACPLAN), a US\$9m project approved in 1985 before the establishment of SADC. Over time and through lack of funding it has been modified. Nevertheless, the ZACPLAN was selected in 1997 as a focus of the UN Special Initiative on Africa to demonstrate the capacity within the UN system to coordinate efforts and UNEP and SADC have subsequently developed the plan to provide lessons for other river basins coordination within the region. UNEP has subsequently become further involved in regional water issues (and by extension global developments) through funding the formation of the post World Commission on Dams Report ‘Dams for Development’ initiative, hosted in Cape Town.

Other important regional actors include the International Union for the Conservation of Nature (IUCN) and the International Water Management Institute (IWMI). The former has been running a research project on water demand management in southern Africa supported by Sida. Based in Botswana, Namibia, Mozambique, South Africa and Zimbabwe it aims to identify and evaluate current policies and strategies for water demand management “...in order to establish the benefits and impacts, as well as its effectiveness in meeting social and environmental needs in the southern African region”. The output of the research was presented at a regional workshop in early 1999. The expected results of the research were to “clearly demonstrate and communicate the benefits of water demand management (WDM), evaluate existing practices and applications of WDM, identify, document and disseminate best management practices in WDM, encourage and strengthen information exchange on demand management issues” (IUCN brochure, May 1998). This project again showed the strength regional donors and international organisation had in disseminating the dominant global water narratives within the region.

Finally, southern Africa is replete with non-governmental organisations (NGOs) both working broadly in development and, more specifically, on water issues. Most of the international NGOs are present in numbers and have been for some time. Much of the work was focused on emergency situations surrounding conflict, post conflict rehabilitation and dealing with refugee flows across borders. Many of these situations—for instance Mozambiquan refugees in Malawi in the early 1990s—provided ‘entry points’ for international NGO activity and brought in new thinking on community management, reflecting the dominant global narratives of the day. From this experience several significant indigenous NGOs working in the water sector have emerged, including the Mvuramanzi Trust in Zimbabwe, the Mvula Trust in South and other research institutes (the Institute for Water and Sanitation Development in Zimbabwe, for instance). In South Africa the Mvula Trust emerged out of the end of Apartheid and has become a major actor in water and sanitation debates and practice within the region with an influence that extends well beyond South Africa’s borders.

The following section examines the major policy themes and narratives of the three case study countries.

## 3.2 Zimbabwe

Zimbabwe covers an area of some 391,000 km sq, which comprises four main topographical regions ranging from high plateau to low river valleys and the mountains of the eastern highlands. Most rainfall (about 90%) occurs between November and March, though this can be highly variable. It also varies widely across the country (with the exception of the eastern highlands). Annual averages are some 1,400mm in the eastern highlands, to 800mm in the northeastern highveld, and just 400mm in the Limpopo valley. The overall average is about 650mm. Major rivers bound the country, including the Zambezi to the north, the Limpopo to the south and the Save to the east. Most collect runoff from the highveld and are transboundary in nature. Annual internally renewable water totals some 14 bcm. About 30% of this is currently utilized, according to the FAO, whilst annual groundwater potential is an estimated 1-2 bcm.

### 3.2.1 Background

Until the mid-1990s Zimbabwe's post independence economic development was relatively stable (except for the impact of drought in the early 1990s). However, since the mid- to late-1990s, economic and political crises have overshadowed the country's development efforts, including major reforms undertaken in the water sector. Many of the crises are rooted in post independence development challenges, including achieving the difficult political and economic transition from a deeply racially divided state with a minority government, to a black majoritarian government and a more inclusive form of economic development. Land reform and, specifically, the resettlement of large predominantly white-owned farms by black farmers has been a key issue, and one with important bearing on water development and the future success of current water reforms.

In general, three main development phases can be identified in Zimbabwe's recent history: a post-colonial period, a pre-independence period up to 1980s focused largely on the dual development of the black and white populations, and a post-Independence period of socialist oriented development that lasted for much of the 1980s and focused on the development and delivery of basic services to the black population. From the 1990 onwards there has been a period of heavy donor influence and the introduction of structural adjustment programmes from leading, finally, to the current economic and political crisis in the country.

During the 1990s, the country embarked on a significant institutional shift to a more decentralised system of government, at which level the role of rural district councils has been augmented mirroring changes in both neighbouring South Africa and Mozambique.

### 3.2.2 Actors and narratives

Actors involved in the Zimbabwe water sector have been changing in the last few years as water reforms have been introduced and new institutional roles and responsibilities have developed. Management of surface waters has been incorporated within new catchment councils and a process of devolving responsibility for water supply development to the recently established Rural District Councils (RDCs) has been undertaken, representing the significant wider impact of decentralisation policy.

Until independence, municipal government and rural councils concentrated on servicing the white, predominantly commercial farmer population, whilst African Councils so-called were the key institutions providing African-majority areas with services. Similarly, further up the hierarchy, many government departments were "structured to facilitate separate development between races" (Mudge, 2000). The forerunner of the District Development Fund (DDF) (see below)—the African Development Fund (ADF)—was, for instance, created in 1949 to provide infrastructure for African 'Tribal Trust Lands' funded from a levy raised on African grain sales (ibid, 2000).

Water supply delivery followed this structure closely. Not surprisingly, therefore, post Independence there was radical institutional change. After independence with the passing of the 1988 Rural District Council Act the Ministry of Environment and Water Resources Development focused mainly on providing free water to rural communities through the offices of the District Administrator at a local level. International thinking surrounding the UN 'Water Decade' supported this state-led supply-driven approach and lent itself to a target and coverage-based development. As the National Master Plan developed at the time stated, it would provide "...the entire communal and resettlement area population with access to safe and adequate (drinking water and sanitation) facilities by the year 2005". During this period the District Administrator's (DAs) office came to dominate local-level decision making on where and how funds were spent on water supply development.

Norwegian Aid (Norad) led development of the Master Plan for Rural Water Supply and Sanitation development (completed in 1985), central to which was an attempt at improving institutional coordination and steering from the centre. To this end the National Action Committee (NAC) was established, which combined a number of key ministries and undertook an overseeing role. The NAC set up Province-level Water and Sanitation sub-committees (to scrutinise district-level work) and to help tackle problems of overlap and replication. These were chaired by the DA. The National Coordination Unit (NCU) provided secretarial support to the NAC and prepared sector plans and budgets. One of the key reasons for greater sectoral coordination was precisely the somewhat unregulated and burgeoning role of international donors and NGOs. This is represented in the fact that from 1982 to 1989 the ESA proportion total capital sector financing rose from 20% to 90%. Major donors included Danida, Neda, EU, Japan International Cooperation Agency (JICA), Norad, Sida and the United Nations Children Fund (UNICEF). Ambitions to reduce the percentage of donor capital funding to 35% by 2005 were unlikely to be met (Mudege, 2000), and probably remain so.

By 1991 21 districts had been covered by the Integrated Rural Water Supply and Sanitation Programme (IRWSSP)—from only 1 in 1987. However, towards the end of this period international narratives on water supply and sanitation began increasingly to move away from supply-driven approaches on the basis that they were unsustainable. The new consensus on the Water Decade's failure (most notably to achieve water and sanitation for 'all' by 1990) began to filter through into national-level decision making. The increasing emphasis on water as an 'economic good' came to translate into policy for cost recovery at a local level<sup>7</sup>. Local resource governance, local-level cost recovery and sustainable water supply delivery were became dominant concerns of donors and after the RDC Act of 1988, "there was a genuine move towards addressing issues of cost recovery" including the establishment of a steering committee for cost recovery within the NAC and the drafting of a cabinet paper on cost recovery in 1990" (Mudege, 2000). In the early 1990s with the International Monetary Fund (IMF) Economic Structural Adjustment Programme (ESAP) programme coming into being, including the usual suspects of budget deficit reduction, external trade liberalisation, and domestic deregulation cost recovery rose up the water policy agenda.

The new thinking was encapsulated in the 1990 Decade Consultative Meeting that concluded, *inter alia*,

"The future responsibility and authority for planning, financial control, implementation and operation and maintenance of rural water supply and sanitation, including decisions relating to technology choice, must be increasingly borne by the local authorities and community members, ultimately leading to complete management through established local structures... The financial responsibility for direct operations and maintenance should, in future, be borne by communities and local authorities... The contribution of the private sector and non-governmental organisations in the sector, will in future assume greater importance and should be encouraged and co-ordinated" (in Mudege, 2000).

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<sup>7</sup> Interestingly, Mudege notes that cost recovery measures 'would not sell within the ruling structures of the governing party', (Mudege, 2000).

As the shift was made to lower levels of responsibility, the District Water and Sanitation Sub-Committee became the key organising body, responsible for planning, initially chaired by the DA and then subsequently by the RDC Executive Officer. In turn, the committee's role shifted from a direct instrument of development to an advisory body (Government of Zimbabwe (GOZ), 2000, 45). During this transition many international NGOs began working in the sector including the Lutheran World Federation, Christian Care, World Vision, Africare, Save the Children (UK), as well as UNICEF. The gradual shift to a new community-based, RDC-led process represented a decline in influence of central ministries and of the DDF in particular. It also represented a new relationship to locally operating NGOs, specifically in relation to training in community-based management. RDCs were expected to perform training and development of community maintenance and management capacity<sup>8</sup>. However, few additional resources have been made available from central government to enable RDCs to perform their assigned roles. The 1992 drought served to slow down considerably the process of policy and institutional change, with all sectoral funding returning to NAC control.

Other problems to have emerged in the decentralisation process in water supply have been the lack of lower-level legal structures capable of accounting for government money<sup>9</sup>, as well as a political culture which can prevent effective 'bottom-up' demand-driven development (particularly given the continued existence of centralised supply-driven organisation such as the DDF). RDCs still refer activities to higher-level authorities whilst a 'strong cultural emphasis on self-sufficiency'<sup>10</sup> remains that makes community-managed initiatives sometimes difficult to get off the ground. The box below outlines the problems of the current community-based maintenance system in Zimbabwe that has emerged following the shift to a community-based system at the end of the 1980s.

**Water supply maintenance:**

The late 1980s was a time of considerable focus on the water sector in Zimbabwe, particularly the development of community-based maintenance. The system established at this time completed the process of development introduced after independence by NGOs involved primarily in deep well construction activities in communal areas. The first tier of the three-tier system consists of a water point committee, one member of which is a pump caretaker responsible for preventive maintenance and cleanliness of the pump surroundings. The second tier is a mechanically-trained pump minder selected by the community and paid by the DDF as a casual worker responsible for the general maintenance and repair of the pump. The third tier is the DDF maintenance team capable of major repairs. As a consequence of the economic squeeze introduced by the ESAP programme in the 1990s the DDF system suffered major failures as early as 1994, with rates for maintenance almost halving between the late 1980s and mid-1990s. Long periods of disrepair sometimes up to six months were recorded in a number of studies. In addition, there was little involvement of stakeholders in the repair process as well as a poor supply of spare parts depending on the efficiency of the central and district level government (Mudege, 2000).

Some major initiatives in the development of productive water points given the experience of drought in Zimbabwe were developed during the 1990s around the concept of collector wells. DFID, in particular, has invested large sums in studying these wells and was poised to increase dramatically the number of such water points in the late 1990s. Some £2.15m was earmarked over three years building on pilot studies of productive water points carried out with the Institute of Hydrology (Low Veld Research Station). The purpose of the project was to provide productive groundwater in drought-prone areas. Up to 120 sustainable productive water points were to be established in the seven districts of Masvingo Province. In earlier pilot studies yields of at least 15 cu m day were achieved and many households using the points reported increased vegetable

<sup>8</sup> Provinces were tasked with monitoring district performance.

<sup>9</sup> This is no exception, of course. Few countries have lower tiers capable of such accountability (perhaps *kebeles* in Ethiopia are one exception).

<sup>10</sup> Indicated by the large number of family wells, estimated at 150,000 (Peter Morgan, pers. comm.).

production, consumption and non-cash income. A higher willingness to pay than at conventional government-installed water points was recorded.

A change to the policy and institutional environment of water supply during the 1990s was accompanied by substantial shifts in water resources management. Pre-independence the 1976 Southern Rhodesia Water Act had linked access to water with access to land: ownership governed the right to water and rights were granted in perpetuity. The Irrigation Department as existed was mainly for large-scale commercial (predominantly white) farmers and was concerned largely with supply infrastructure such as dams. Although it did also work in African communal areas here it helped to open up lands for development in the Zambezi, Limpopo and Save valleys, providing areas for resettlement, and effectively assisting in substituting for lands taken over by white farmers in preceding years, (Mudege, 1977).

The 1998 Water Act, which came into force in January 2000, paved the way for a complete overhaul of the system. It changed the basis by which water was apportioned, managed and paid for and embedded the narrative on integrated water resources management in the development of new catchment councils (CCs) and sub-catchment councils (SCCs). It also transformed the old Water Resources Department into the Zimbabwe National Water Authority (ZINWA), one of the key guiding principles of which was for ZINWA to become self-financing through the raising of levies on water users. As stated in the Water Resources Management Strategy for Zimbabwe: “ZINWA is to operate along commercial lines, generating its own resources for operation and maintenance of infrastructure and contracting commercial loans for capital development in its own rights. What this meant though was that prices charged for providing water to consumers had to be increased in order to meet the commercial operation criteria. Notwithstanding, the issue of targeted subsidies to vulnerable groups was to be addressed through the pricing mechanism” (ZINWA, 2001).

The development of the catchment management system has had a strong donor lead from GTZ, as well as input from DFID, Sida and Neda. Moreover, the donor approach to institutional development under the new structure divided assistance between the seven new catchments<sup>11</sup>, rather than put money into a common pool. The result has been an uneven rate of institutional development, with some CCs—such as the Save and Mazowe—receiving strong donor support, whilst others, including Runde, barely beginning to operate. The new system also sought a greater level of local stakeholder involvement in the process in keeping with the IWRM narrative and the idea that end-users should be close to management decision making. In theory, the CCs are now in charge of managing the water affairs of the catchment and are supposed to elect representatives of ‘the various users’ of water within the catchment to the council. The tasks of the Council are to include preparing an outline plan of management for the river system, determining applications and granting permits for water use, regulating and supervising the use of water, supervising the performance of sub-catchment councils and resolving conflicts amongst users. ZINWA’s catchment manager’s office provides technical assistance. In practice the Councils to date have been largely preoccupied with establishing the systems of tariff collection and managing their own finances. Many are still heavily reliant on donor assistance.

SCCs are essentially tasked with ‘promoting stakeholder involvement’, and, being smaller units, at a lower level, are thought of as more capable of being inclusive of all stakeholder groups. Their tasks include regulating and supervising the exercise of permits (including for groundwater use), monitoring flows, electing a representative to the CC, providing technical expertise in protection, data collection and planning of catchment management, collecting rates and fees and they ‘may also be required to collect levies’. In practice their core concerns are very much around the collection of fees, on which they depend to cover the administrative costs. In some cases their incapacity to be inclusive of stakeholders has prompted calls for a lower tier of stakeholder decision making through water user associations. In the Mazowe CC the third tier was found to be necessary and Water User Boards were created. The established, formal role of the CC as a ‘referee’ between competing users (and uses) is being challenged by some members who regard it as unnecessarily limiting. During a

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<sup>11</sup> Gwayi, Mzingwe, Runde, Save, Mazowe, Manyame and Sanyati.

meeting of the Mazowe CC Planning Sub-Committee<sup>12</sup> a wider, more developmental role was discussed in which CCs would ‘proactively’ encourage water resources development within their catchments (and sub-catchments), including by working more closely with RDCs.

Primary usage of water is supposed to be free of charge, in order to ensure access to the quantities necessary for sustaining livelihoods—this includes household domestic use, and usage for household livestock. The exact definition of ‘primary usage’ remains rather vague, however, and different interpretations by users or managers could represent a significant challenge for the future. To cover their running costs the councils collect levies from commercial users and the levying of charges on small farmers will test the capacity of the system, given both the huge transaction costs in billing involved (to often remote areas), the difficulties of measurement and the problems of seeking enforcement where bills are unpaid.

Some of the major challenges of the CCs will include managing an already fairly complex environment of dam constructions, including the proliferation of small dams during the 1990s built by NGOs (including Save the Children UK and Care) in the aftermath of the 1992 drought. The Care small dams project which received funding from DFID, Australian Aid (AusAID), Neda and the EU (Small Dam Rehabilitation and Community Resource Management) constructed 70 small dams covering over a hundred thousand people in Midlands and Masvingo Province (over eight districts), working through local government and community-based management. The programme originated out of the 1992–93 relief activities of CARE Zimbabwe recognising as a guiding principle the multiple uses of water, including livestock use, irrigation, and fisheries. Offering what it says was more efficient irrigation (reducing women’s work in particular) the project enabled women to increase their vegetable production.

### ***3.2.3 Key research questions***

- The shift in water supply development to an emphasis on cost recovery has been championed in policy documents and strategies; it has received significant support from donors and NGOs. How has the development of cost recovery approaches been able to overcome the problems of common property management, specifically in terms of defining a group of users and ensuring payment of fees for access to the resource?
- How has the decentralisation of responsibility for developing rural water supplies to RDCs been accomplished in practice? What are the capacity constraints at the Council level and how successful have they been at establishing funds for spare parts? How has the relationship between the DDF and RDCs developed under the decentralising environment?
- How do political relationships between communities and ward councillors affect the functioning of the decentralised system?
- What can CPR theory provide in analysing the failure of some communal water points and the success of others? How important is community homogeneity versus the role of key local actors, for instance?
- The decentralisation of catchment management is opening new opportunities for access to decision making over the resource by poorer farmers and other users. What is the reality of participation in these new institutions and what are the significant (invisible) barriers that prevent entry by new stakeholders?
- Whose interests predominate in the new institutional structures and what are the similarities and differences with past management structures, in particular the River Boards? What is the significance of this pattern of interests in the management of the resources and achieving the spirit of the new Water Act and National Water Resources Management Strategy?
- How significant is the new system in increasing or decreasing the financial barriers to accessing water for small-scale supplementary irrigation? How are communities and households anticipating that they can circumvent the new regulations and institutional structures?

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<sup>12</sup> Attended on July 11<sup>th</sup> 2000.



- New modes of land use in many catchments may be influencing the demand for water and increasing the propensity for environmental change. How are these changes being responded to within the new management institutions? What role are the various institutional actors represented on the new bodies playing in this response?

### 3.3 South Africa

South Africa has a total area of 1,221,000 sq km within which a dry central plateau and wetter coastal periphery (particularly to the east) are the two major hydro-geographic features. Roughly speaking there are three major precipitation regions, with most rain falling from November to April: namely a narrow winter rainfall season along the western and southwestern coasts, all-year rainfall along the south coast and a summer rainfall region elsewhere. Illustrating the high variance in water availability, the driest 70% of South Africa—including the plateau—has only 11% of the utilizable water. Given the aridity, evaporation losses are high and only 9% of total rainfall reaches the rivers (Asmal, 1998); the 60% that does originates from only 20% of the land area (Department of Water Affairs and Forestry (DWAF), 1999). With the capacity of the (200 or so) major dams in the country totalling some 50% of total average annual runoff most feasible exploitation of the plateau's resources has been exhausted, and managing these dams effectively remains a major challenge.

The country's major river systems are the Orange River and the Limpopo, with smaller rivers to the north and northwest. Most other surface waters are on the periphery of the country. The Orange River (of which the Vaal is the main tributary) drains most of the plateau, but contributes only about 22.5% of total runoff. Rivers draining the eastern slope of the escarpment cover only 13% of the total land area, but account for some 43% of runoff. Groundwater resources can yield an estimated 5,000 mcm a year, representing about 15% of surface runoff (G. du T. de Villiers, et al (1996)), although this only accounts for 10% of total water use.

Already utilising about 30% of its renewable water supply South Africa faces a number of major water management and allocation challenges, not least of which is the transfer of water from more water abundant to less water abundant areas of the country. Since the early 1960s, a complex series of transfer schemes have been built, enabling industry (particularly mining) and rapidly expanding urban areas to receive sufficient water. One of the most important uses for water has been in coolant for power stations, and in the central plateau region high use has been made of the Komati, Usutu Vaal and Tugela river schemes. By the 1980s these supplied stations generating some 80% of all South Africa's electricity.

The largest and most controversial scheme has been the Lesotho Highlands Water Scheme, the agreement for which was signed between South Africa and Lesotho in 1986. The scheme consists of dams on the upper reaches of the Senqu-Orange River and about 200 km of tunnels transferring some 2,200 mcm a year to the Ash river, a tributary of the Vaal, serving to double available water for the Gauteng Province, South Africa's industrial heartland<sup>13</sup>. On completion of all three main phases—including the development of six dams—anticipated demand in Gauteng will be met until 2021. Sale of electricity and water by Lesotho would bring in an envisaged R130m a year (Villers, et al, 1996), as well as enabling Lesotho to become self-sufficient in power.

#### 3.3.1 Background

Patterns of water use and the management issues surrounding access to water are steeped in South Africa's political history. The legacy of apartheid left the black majority government elected in 1994 with a situation in which some 12-14m people lacked access to formal water supplies (DWAF, 1999) and 21m people out of a total population of 41 million had no formal sanitation. Unsurprisingly, most of these people lived in the former homeland areas, where 75% of the population lived on 13% of mostly water-short land.

<sup>13</sup> Formerly Pretoria-Witwatersrand-Vereeniging (PWV) mining and industrial region.

Under apartheid the government was concerned mainly with the bulk provision of water to the commercial farming sector and industry. The importance of this sector is reflected in the fact that by the mid-1990s, irrigation accounted for some 50% of total water use, but represented only 10% of the cultivated area; whilst providing some 35% of all domestic foodstuffs and 85% of all agricultural exports (DWAF, 1999). Those supplied by irrigation boards and private farmers made up some 80% of the total irrigated area (Villers, et al (1996). Water rights were linked closely to ownership of land and the radical shift in policy on this single issue has been a major source of tension over water reform in South Africa.

### *3.3.2 Actors and narratives*

Prior to the 1998 Act, water usage was governed by the Water Act (No. 54 of 1956). Rights to abstract water were principally riparian, and “Abstraction by riparian landowners was not subject to limits unless formally apportioned by a Water Court among different users of the same stream, or regulated by a government Water Control Area, or an Irrigation Board. In addition, groundwater and surface water flowing across land were considered the private property of the owner of the land” (Woodhouse and Hassan, 1999, 23).

‘Homeland resources’, by contrast, were considered communally owned, and therefore under the control of tribal authorities. The government in practice provided block allocation to each homeland administrators’ Department of Agriculture. “Black farmers who approach their local irrigation board seeking water are referred to DWAF, who respond that ‘there is no water available because it has all been allocated’. By this is meant water of black farmers must be obtained from the ‘homeland’ amount already held by the Department of Agriculture” (Woodhouse and Hassan, 1999, 27). The old Irrigation Boards, established under the Act, were responsible for water distribution within Government Water Control Areas—areas where government had asserted control over all water abstraction. Outside these areas they acted more like water users associations. Outside the jurisdiction of irrigation boards, irrigators have access to water through riparian rights and through the right to build dams to store surplus water in streams draining their land (Woodhouse and Hassan, 1999, 25). The boards distributed water to their membership (mainly white commercial farmers) and levied management charges, or where supplied through government water works, collected tariffs on behalf of the government (Woodhouse and Hassan, 1999, 26).

The major water reform that took place post-apartheid both radically altered the basis for management and allocation and adopted many of the global narratives outlined in Section 2. The 1998 National Water Act effectively abolished riparian rights and the distinction between ‘private’ and ‘public’ water. Water was essentially nationalised: “all water in the water cycle whether on land, underground, or in surface channels, falling on, flowing through or infiltrating between such systems” became an “indivisible national asset” over which the national government would act as custodian ‘in the public interest’ (DWAF, 1997). A second key aspect of the legislation was the establishment of a national water reserve that prioritised human and ecological flows over flows to agriculture or industry. The use of water ‘for all other purposes’ remained subject to authorization (in Asmal, 1998). Another major innovation was the simplification of water resources management, and the development of multiple stakeholder, catchment management agencies.

The major political issue under the Act of redistributing water allocation was guided by the idea of social efficiency of alternative and possibly competing demands and an awareness of changing demand for water as previously excluded social groups took up new opportunities (Woodhouse and Hassan, 1999). This new emphasis was given an institutional basis through the development of decentralised water management institutions “in such a manner as to enable interested parties to participate’ (DWAF, 1997). Each of the 19 Water Management Areas was to be governed by a Catchment Management Agency (CMA) aimed at meeting demand for the resource whilst providing scope for greater public participation in management. At a subsidiary level, Water Users Associations (WUAs), were also earmarked for establishment, to allow further devolution of water management.

**Key features of the National Water Act:**

- Guarantee of water to meet basic human needs and to maintain environmental sustainability, to be known as the 'Reserve'
- Allocation of water to meet other needs that are beneficial to the public interest
- Allocations will not be permanent, but for a 'reasonable period', and may be traded between water users with Ministerial consent
- The new legislation broadens the definition of water use to include any activities which result in reduction of stream flow (e.g. forest plantations), or deterioration of the water resource (e.g. waste, effluent), or removing and disposing of underground water (e.g. mining)
- All water, wherever in the water cycle it occurs will be subject to a catchment management charge which will cover actual costs of catchment management activities
- Some or all charges may be waived for disadvantaged groups to promote equitable access for productive purposes such as agriculture
- Water management will be carried out in regional or catchment water management areas, recognising that conflicting interests will intensify the need for national management and supervision, and that the policy of subsidiarity does not interfere with the need for a national perspective on water use
- Phased establishment of catchment management agencies, subject to national authority, to undertake water resource management in water management areas
- In shared river basins, government will be empowered to give priority over other uses to ensure that the legitimate requirements of neighbouring countries will be met

Source: Asmal, 1999

Each CMA would include a governing board (that would then elect a Chief Executive Officer) appointed by the Minister of Water Affairs, and charged with "achieving a balance among the interests of water users, potential water users, local and provincial government and environmental interests groups" (National Water Act (NWA), 1998, Section 81). Financing of the CMAs would be through management charges payable by all water users in catchment. In common with counterpart structures in Zimbabwe, the board is expected to reflect a range of water users and stakeholders, including gender and demographic representation, representation by DWAF, local, provincial and national government and by historically disadvantaged communities. Each CMA's core functions would be to: 1) investigate and advise on the protection, use, development, conservation, management and control of water resources in a particular WMA; 2) to develop a catchment management strategy; 3) to coordinate the related activities of water management institutions within a particular WMA. In reality, until the CMAs were developed (and many have been slow to do so) "most existing water use remained legal, but subject to phased change in the future as catchment management strategies are developed" (Woodhouse and Hassan, 1999, 32).

Under the CMAs, the Water Users Associations were expected to undertake specific water management activities, but not be 'mini CMAs'. In practice it was predicted that many would simply be formed from existing irrigation boards (Woodhouse and Hassan, 1999, 32). With the structure of these boards largely composed of former large-scale farmers, the transition to a more inclusive structure reflecting a multiplicity of stakeholders is problematic. Part of the problems lies in their financing structures that relies on levies charged to members, hence "Their establishment is only possible if members are able to pay for the operation and maintenance costs of any capital works and for the full administrative costs of the WUA. Other potential funding comes from operating waterworks, direct financial assistance from DWAF or a CMA or aid and sponsorship funding". (DWAF, 1999b).

A study of one of the early transitions to CMA management carried out on the Komati [Incomati] indicated problems of legitimacy and difficulty in undertaking the level of stakeholder involvement called for in the Act. The eventual inclusion of black farmers' representatives in the formation meeting on the Komati basin, for

instance, was the result of specific efforts by DWAF to identify black farmers' organisation and invite them to additional meetings (Woodhouse and Hassan, 1999). Issues of concern in relation to CMA development on the Komati include that:

- Black farmers voiced concerns about dependency—including as 'junior' members of irrigation boards dominated by larger commercial farmers
- Black farmers saw the Board as radically transformed when it becomes a WUA, while white farmers saw it as remaining largely unchanged
- The extent of water availability was confused, both institutionally (DWAF, Irrigation Boards, and the Department of Agriculture all avoid responsibility), and technically. The most common response to applications for irrigation permits was that 'all water has already been allocated'. (Woodhouse and Hassan, 1999, 48).

The political challenge of changing the basis for managing macro water issues has been mirrored in micro water development for domestic use. The new direction in water supply was mapped out in the 1994 White Paper on Community Water Supply and Sanitation, prior to which there had been no 'political mandate' to provide water to people (Abrams, 1996). After 1994 DWAF became responsible for water and sanitation services in the former black homelands, previously a responsibility of Rural Service Councils, or Joint Services Boards in white-dominated rural areas. Under this system cost recovery was largely unsuccessful, not least because failure to pay water bills provided an effective outlet for political opposition.

The 1994 White Paper signalled a major policy shift from supply-side to demand-side approaches. It included the principles that supply of water and sanitation should be demand-driven and community based, that basic services were a human right, that water has an economic value, and that the user pays (for ongoing costs) (Waddell, 2000). The ensuing Local Government Act also established the responsibility of local government to provide water services in the long term. By 2007 the government was to have achieved successful maintenance of existing schemes and to have reached those not served, a heavy political commitment given the scale of the task.

Four rural development programmes followed: the first of which used water boards and DWAF to implement; the second which brought in NGOs and local authorities; the third made greater use of the private sector; and the fourth which promoted faster delivery (a growing political concern given the commitment made) through the establishment of Build, Operate, Train and Transfer (BOTT) schemes. This latter approach derived from NGO approaches to small-scale, appropriate technology, community-based development, and built on concerns that traditional government initiatives were too slow 'to service the historically disadvantaged' (Waddell, 2000, 1). By 2000 a study conducted on the scheme suggested that BOTT's main achievements had been improved access to water services for more than 3.5m people, the engagement of 500 organisations, including 290 historical disadvantaged corporations and NGOs, the implementation and commissioning of nearly 75% of 58 projects earmarked, demonstration of active cost recovery, and a per capita cost per person served of between Rand (R) 150 and R2600 (Mas, 2000). However, the scheme also came in for considerable criticism, not least because of the perceived problems of sustainability when transferred to local government.

In function, BOTTs were organised at a provincial level, with a core partnership between DWAF (the contracting party), the Project Implementing Agency (contractor), local governments and communities. Project Implementing Agencies were a form of private sector-NGO partnerships, with the communities represented at the level of Project Working Committee and Project Steering Committees. The key financial feature of the schemes was the expectation that communities would contribute to an initial fund for construction and then pay a tariff based on achieving 100% cost recovery, based either on metered yard connections or on pre-paid cash cards for standpipe use. The village water committee, responsible entirely for revenue collection, therefore became the key institution, supported for up to the first year in heavy maintenance requirements, but after transferral of the scheme to DWAF and then to the local authority, fully responsible for financing repairs and

maintenance. Given this heavy reliance on the success of community financial management DWAF was ostensibly to consider institutional and social development capacity as well as shareholding structure and empowerment opportunities in the granting contracts to consortia.

The implementation of the BOTT schemes raised a number of issues surrounding access to resources for the poor, including issues of cost recovery, governance of water supply management responsibility and the speed of service delivery. Whilst the BOTT schemes were widely heralded as a solution to problems of reaching the poor, early RDP programmes had already highlighted many of the problems of community management. These included communities being unable to collect sufficient operation and maintenance fees, some families being unable to afford the tariffs, difficulties in measuring volumes used and service levels not meeting community expectations (more people wanting yard connections and being willing to pay for them) (Breslin, 1999). Some of these problems reflected more generic issues related to cost recovery including the scattered nature of households in many rural homeland areas, fee collection on a monthly basis requiring logistical and administrative skills, the need to ensure that billing procedures were clear to both literate and illiterate households (a crucial issue of trust for community financing), how to recalculate tariffs if other costs (e.g. fuel) increased, ensuring financial transparency and dealing with periods of financial insecurity (e.g. at the beginning of the school year) (Ibid., 1999).

In some ways, the political dimension overrode these issues. Commissioning of the Amanz'abantu scheme in the Eastern Cape just before the 1999 elections "became a national political event" (Waddell, 2000) and the strong political narrative is clear in the consortium's literature:

"[Amanz'abantu] aims to build capacity, involve historically disadvantaged companies and individuals and train local communities and authorities in the management of water services...[Its objective is to] ensure ownership and sustainability of the water services infrastructure by actively involving communities and local government in all stages of the project, from planning, design and construction to operation and maintenance and, finally, transfer and mentorship" (Amanz'abantu, 2001).

The Amanz'abantu consortium in Eastern Cape (one of four provinces for which tenders were issued), is led by a subsidiary of Northumbrian Lyonnaise des Eaux (with a 25.5% stake), the Water and Sanitation Service of South Africa (WSSA). An NGO—the Mvula Trust<sup>14</sup>—was brought in by DWAF to undertake social development activities, specifically training new consultants to liaise with communities the key strategy of which was to involve community representatives as consumers and put them in charge of water and sanitation development, and then to develop local institutions to support the new local-government based approach water supply and sanitation services (Waddell, 2000). For the local councils (the first elections for which were held in November 2000), however, the BOTT schemes are effective provincial monopolies the costs of which the councils incur in full when they are transferred. They are not therefore a very attractive proposition, particularly if the community financing side does not function well. Having only recently been established this task of managing the BOTT schemes is also something for which the councils are severely lacking in capacity.

Just prior to the elections, however, the narrative on water shifted back substantially to a supply-driven, basic needs approach. Provision of free water to rural communities became a strong political slogan in late 2000 and DWAF announced that it planned to provide some 6,000 litres per household per month free to households in the form of a basic water requirement (part of the African National Congress (ANC) election manifesto for council elections had promised a 'free basic amount of water, electricity and other municipal services'). This move was greeted enthusiastically in recent Mvula Trust literature, where the NGO stated that:

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<sup>14</sup> Founded in 1993, and in part funded by the Development Bank of South Africa (DBSA), the Independent Development Trust and the European Union, Mvula aimed to provide water to rural communities of fewer than 5,000 people. The Trust made a 'demand-responsive approach' central to its work.

“[The] Government’s new policy on free basic services will help municipalities to ensure that all citizens enjoy the socio-economic rights which our Constitution guarantees. It is a big step forward in the struggle against poverty. Ensuring a basic amount of services free to the poor also empowers municipalities to enforce payment from those who are less poor. In the past enforcing credit control measures has been hampered by opportunists using the plight of those who genuinely cannot afford to pay, to avoid paying themselves.

But implementing the free basic services policy will not be easy. Ensuring that those who consume more than the basic amount pay for the service requires efficient metering, billing and credit control. In areas where water is provided for by public standpipes, metering is expensive in relation to the relatively small income that can be raised with this level of service. In such cases waiving all charges at standpipes makes sense, coupled with the drive to maximise the number of individual, metered connections.” (Mvula Trust, 2001)

### ***3.3.3 Key research questions***

- How can the transition to multiple-stakeholding in lower-tier management structure be facilitated so that there is a balance between established users and emerging users in decisions taken?
- How can the national priorities of developing and conserving water resources be reflected at a local level alongside the need to ensure socially-efficient use?
- What are the major institutional barriers to the entry of historically-disadvantaged communities into the decision making process?
- What are the links between land restitution and the development of CMA/WUA institutions?
- How far developed are the local councils structures in providing the necessary backstopping to communities with BOTT-implemented structures of management and financing?
- What is the significance of the post-2000 repositioning on water charging to rural communities by DWAF? How are existing schemes affected and how will local government finance their maintenance through cross-subsidisation?
- What has been the impact on access to water by the charging structures implemented under BOTT?

## **3.4 Mozambique**

Mozambique has a total area of some 800,000 sq km, which includes about 13,000 sq km of inland water, mainly at the southern end of Lake Malawi (Niassa). The population of 18m inhabits a generally low-lying country with a long coastline of 2,470 km. The land is bisected North-South by some 25 major rivers, all flowing into the Indian Ocean. The largest by far is the Zambezi, 820 km of which flows through Mozambique and contributes half of Mozambique’s total runoff.

Available annual was totals some 216 bcm of which 100 bcm derives from local rainfall and the remainder from upstream countries. In all there are 104 river basins in the country, most of which flood for 3-4 months and for the remainder of the year have very low flows. Southern Mozambique has the greatest management problems, and receives less than 10% of available water, much of it from transboundary rivers. Other management problems include flooding on the Maputo, Umbeluzi, Incomati, Limpopo and Save Rivers, and problems of saline intrusion (of up to 50km inland) on rivers such as the Incomati when upstream withdrawals severely restrict flows. In general, irrigation accounts for some 85% of available water used, with rural and urban water supply accounting for, respectively, less than 10% of the total. (Soussan, 2000). Although there is now shortage on paper (the country uses only 0.6% of its internal renewable water), twice in the 1980s and in 1992 the country was hit by serious rainfall shortage affecting both rainfed agriculture and access to potable water (see box at end).

Key resource management challenges include managing transboundary rivers cooperatively and developing effective institutional and technical means to achieve access to secure supplies of domestic water.

### ***3.4.1 Background***

Mozambique received independence from Portugal in 1975<sup>15</sup>. Divided into 11 administrative provinces, the most densely populated provinces are Zambezia and Nampula, each with some 3 million inhabitants (Soussan, 2000). The country borders Tanzania, Zambia, Malawi, Zimbabwe, Swaziland and South Africa, and until the election process in 1994 large swathes were affected by civil war causing significant numbers of Mozambiquan refugees to seek sanctuary in neighbouring countries. Since 1994 an electoral process has proceeded without significant disruption and the country's economy has grown rapidly, including through the deregulation of the economy attracting considerable aid inflows. In recent years, however, the impact of huge flooding has severely disrupted economic development.

In common with the two preceding countries, Mozambique has undergone significant policy change in water resources management during the 1990s. Many of the key international narratives on water have been incorporated into new policy documents on water management, supply and sanitation development. Another key feature of the policy environment has been the move to a decentralised government system, reflecting a radical departure from previously highly centralised government of the country.

### ***3.4.2 Actors and narratives***

Traditionally the centralised management of water in Mozambique covered both water resources and water supply and sanitation. At the beginning of the 1990s a major shift in policy began with the 1991 Water Law, which provided for the transfer of government management of water supply systems to private firms, autonomous utilities and water users associations. This Law established both 'common' and 'private' usage of water; the former referring to domestic and personal needs, including watering livestock and small-scale irrigation (that were free), whilst the latter largely for commercial use came through concession or licence. (Ibraimo, 2000).

The subsequent 1995 National Water Policy established nine key principles for supply and management:

1. The satisfaction of basic needs in water supply and sanitation is a basic priority
2. The participation of the beneficiaries in planning, implementation, operation and maintenance, and in cost bearing, provides services in accordance with the desires and economic capacity of the users (i.e. a demand-driven approach)
3. Water has both economic and social value
4. Water resources management has to be decentralised to autonomous catchment authorities; and water supply and sanitation services are to be decentralised to the local level and become financially self-sufficient
5. The government will eventually withdraw from direct service delivery and focus on promotion of local initiatives, mobilisation of resources, provision of technical assistance and regulation
6. Bulk raw water will be allocated on the basis of integrated river basin management plans
7. Investment policy will balance economic development with poverty alleviation and public health improvement
8. Sector capacity will be expanded through human resource development, definition and implementation of new institutional arrangements; active involvement of beneficiaries will be sought
9. The dynamics of the private sector will be used to accelerate provision and improve the quality of services (cited in Soussan, 2000).

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<sup>15</sup> The 1975 first Constitution of Mozambique stated that all inland water resources were considered State property.

These principles closely reflected the global narratives on water management, particularly in their emphasis on the state as a facilitator and enabler of private sector entry into water supply provision and water management.

The new Act and Policy changed the institutional environment of water management at all levels. The National Water Council was created in 1991 and grouped together the Ministries of Agriculture, Energy, Industry and Construction and Water (the chair) and undertook to elaborate a national water management policy and to monitor its execution. The National Water Directorate (DNA), came under the Ministry of Construction, and Water (one of four directorates), and was to ensure proper utilisation of ground and surface water resources. At the final level, Administracoes regional de aguas (ARAs) were to be established and act as public institutions but with financial and administrative autonomy. They would report direct to the DNA, and were primarily responsible for decentralized river basin management and hydrological network operation at a regional level, coordinated by the DNA. The tasks to be undertaken would include preparation of basin development plans, maintaining and operating hydrological infrastructure, maintaining a register of water users, and collecting water-user taxes and fees. Below the ARAs there were to be Basin Management Units (UGBs) (see box, below).

However, the process of establishment and development of ARAs has been slow and by the late 1990s only one ARA—ARA-Sul—in charge of the area up to the Save River had been fully established. The other ‘pipeline’ ARAs were ARA-Cento covering the basin of the Save River to the Zambezi, ARA Zambeze covering the Zambezi River, ARA Cento Norte (from the Zambezi to the Lurio River) and ARA Norte (Lurio river to the northern border)).

#### **Catchment management processes**

ARA-Sul was established in November 1993, in part because of the recognised serious water management problems in the south. ARA Sul’s statutes stated that it would operate according to the principles of: uniform and coherent hydrological and information services; better use of existing water resources; water conservation; cost recovery for the hydraulic structures; environmental protection; and protection of water resources against pollution. The institutional structure included a Technical Department responsible for the operation and maintenance of major infrastructure, including dams, the operation of hydrological networks, and databases and support to the Basin Management Units. The UGBs are responsible for operation of hydrological networks and structures, dissemination of information on availability of water resources, water demand forecasts, and preparation of plans for dam, etc. By the late 1990s the latter these had been established in the Umbeluzi, Incomati and Limpopo river basins. The Save was not yet set up. The idea was that UGB directors would have a basin committee (Comite de Bacia) as a consultative board, composed of representatives of water users operating in the catchment (Roland Rodts, 2000). The Dutch Government provided four-year institutional support to ARA-Sul, which, amongst its duties includes tariff and billing functions and the operation and maintenance of the Corumana Dam, on the Sabie River, a tributary of the Incomati.

Source: World Bank, 1996

Other institutions established under the water reforms were the Coordination Unit for International Rivers (GRI) and the Secretariat of State of Agricultural Hydraulics (SEHA), which came under the Ministry of Agriculture and was the co-ordinating authority for drainage and irrigation. Within SEHA a programme for small-scale irrigation (Program nacional de irrigacao de pequena escala (PRONIPE)) was created), (Source FAO, 1994).

The water supply and sanitation situation in Mozambique was particularly poor after the end of the civil war in the early 1990s. By 1998 national coverage was only an estimated 40%. Following the Peace Agreement in 1992, most rural water supply programmes that were established addressed what were basically emergency



needs. After the 1995 Policy and Rural Water Transition plan of 1997, the government undertook a more strategic development of the sector, including making then national rural water supply organisation (PRONAR) (an organisation that had previously directed all rural water activities in the country, though often lacking in capacity and competence) a technical department at the DNA. In addition the government focused on the provincial water and sanitation departments (DAS), providing more competent and trained technical staff. The DAS would then become responsible for monitoring, supervising and assisting water and sanitation projects although the time it took to train suitable staff made this a very slow process. Finally, it was envisaged that the national programme for community participation and education (PEC) would carry out community-level training. The government central programme of provision through the DAR/PRONAR office delegates management to the Provincial Workshops for Rural Water (EPARs). The situation that has resulted is one where administration and organisation of rural water supply are “neither completely decentralised nor decentralised”, with repetition of authority and responsibility being combined with generic problems of low calibre staff, and difficult retention and training (Soussan, 1999).

The Mozambique Water Policy outlines an ambitious range of objectives, particularly given the low level of capacity as a starting point. It states that “full cost recovery should be achieved before 2003”, whilst estimating that only about 30% of the urban population (let alone the rural population) has access to public water supplies with the rest relying on local sources, including hand-dug wells, and surface waters. Achieving full cost recovery as well as encouraging a shift in source type is therefore a monumental task. In peri-urban areas the government envisages:

“The management of standpipes...by water-point committees, with particular attention given to the participation of women on these committees. The operation of stand-pipes could then be sub-contracted to private operators. This could only be carried out after approval of the local water committee, which will then monitor the quality of service. The operator would be billed in accordance with the quantity consumed. Formal agreements would have to be established with respect to the level of charges and quality of service in accordance with local demand. A system of cross-subsidies should be established to reduce prices for the poorer groups.” (Republic of Mozambique, 1995).

These ideas build heavily on World Bank water supply and sanitation narratives deriving from the demand-responsive approach advocated by the Water and Sanitation Programme. They are ambitious ideas, given both the low level of capacity to pay and the existence of alternatives to piped supplies in many areas. Early NGO experience concerned with sustainability of community supplies, such as the Care Mozambique two-phase Community Water and Sanitation Project, also promoted a shift to more ‘demand-driven approaches’. Ownership issues were central to this approach and, it was argued, gave “the community management an incentive to pay attention to operations, maintenance and repair” (Obiols and Lochery, 1998). One of the major challenges noted, however, was ensuring that funds generated maintained their value, with some communities investing water fees in goats that could be sold when funds required (Obiols and Lochery, 1998). Other key external agencies involved in rural water supply include UNICEF, which covers all provinces and provides India MKII hand pumps; and the UK NGO WaterAid which operates in Biassa, as well as Medecins Sans Frontieres and OXFAM. Helvetas, supported by the Swiss Development Corporation, includes in its work the direct rehabilitation and construction of water systems, as well as technical assistance to DAR and the training of communities.

The key question arising from the policy shift and the reality of supply on the ground is how far can the principle of user pays as represented in the 1998 Water Tariff Policy be reconciled with a national legal framework that seeks to guarantee access by the poor. Already there are problems of over abstraction in some areas causing water tables to fall. Further key problems surround the data capacity of local and community institutions. As Kroon (1998) noted decisions by local government are often made without verification of the actual readiness and competence of the community organisation to manage the resource. Data from the districts

is also frequently poor and requires thorough checking, although water departments frequently use the information raw and prepare plans for implementation on an annual basis on this data.

**The impact of drought in 1992: A UN view**

“The supplies of drinking water in the areas severely affected by drought are critically low. Water rationing is being implemented in some places like Manica. In many parts there is an influx of people from countryside to the district capitals in search of water and food. It is feared that as water shortages become more acute in the rural areas there will be an even greater increase of migration to towns and cities placing extra strain on the water supplies there. The flow of the river Pungue in Sofala province is only about 1% of normal, with serious consequences for the water supply to the towns of Dondo and Beira. In rural Sofala it is estimated that 75% of shallow water sources and 25% of medium depth sources are dry or drying up, at a time of year when they should be near their highest levels.

Similarly in districts in Maputo province along the Incomati river, water levels now, at the end of what should have been the rainy season, are in fact significantly lower than they usually are at the end of the dry season. While many people will still be able to obtain water during the drought by digging in the river bed, the quality of water is steadily deteriorating. Information from Inhambane and Gaza provinces indicates that the water supply situation could be even graver than in Sofala, with clear evidence of falling water tables in both provinces. In Funhalouro district of Inhambane women are walking for a whole day to their only water source, sleeping there and walking back the following day. In one village people are obliged to drink water from a borehole which has almost ten times the maximum salt content recommended by the World Health Organisation (WHO). In Gaza there are reports of people drinking visibly contaminated water from drainage ditches. Tete and Manica provinces are also critical. The water supply problems are compounded by hand pumps breaking down and by the war. Widespread insecurity restricts the area to which people can go to collect water, putting excessive pressure on accessible water sources. Livestock are, of course, also suffering from the acute lack of water” (UN, 1992)

### **3.4.3 Key research questions**

- How does the new institutional structure of basin management incorporate the needs of small-scale and large-scale users? What are the main institutional barriers to small-scale stakeholder involvement?
- How are the questions of land and environmental management linked to the development of the ARAs?
- How significant is the issue of transboundary management (possibly through cross-border collaboration between respective catchment agencies?) to basin-level water management?
- How does the ‘demand-responsive’ approach derive the necessary results in terms of increasing access to the poor? Are district-level agencies able to mobilise (or stimulate) demand or are they focused mainly on supply side delivery?
- How are the rural water schemes able to overcome problems of lack of common property management experience? How far is the development of ‘ownership’ a reality in provinces such as Zambesia?

### 3.5 Summary policy table for South Africa, Zimbabwe and Mozambique

	<i>MOZAMBIQUE</i>	<i>SOUTH AFRICA</i>	<i>ZIMBABWE</i>
<b>LEGISLATION</b>	<ul style="list-style-type: none"> <li>• <b>WATER LAW, 1991</b></li> <li>• <b>NATIONAL WATER POLICY, 1995</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>NATIONAL WATER ACT, 1998</b></li> <li>• <b>Water Services Act, 1997 (covering domestic water use &amp; sanitation)</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Water Act, 1998</b></li> <li>• <b>ZINWA ACT, 1998</b></li> </ul>
<b>DEVOLUTION</b>	<ul style="list-style-type: none"> <li>• Ministry of Public Works &amp; Housing (MOPH) – central water control. In the MOPH the National Directorate of Water (DNA) – in charge of policy making &amp; implementation on a national scale.</li> <li>• Gov. to withdraw from direct service delivery – promote local initiatives.</li> <li>• 5 Regional Water Authorities (ARA's), based on hydrographic basins – to encourage end user involvement. They are financially &amp; organisationally independent from gov. So far only 2 are operational.</li> <li>• ARA's prepare &amp; implement basin development plans, levy water fees &amp; maintain &amp; operate infrastructure. They are in charge of bulk water.</li> <li>• Urban water is provided by public utility CO's.</li> <li>• Rural water is controlled by National Rural Water Supply Organisation (PRONAR). Local councils to be set up with local people represented.</li> <li>• Desire for international treaties is high – as only 40% of water originates in their borders.</li> </ul>	<ul style="list-style-type: none"> <li>• DWAF retains overall responsibility for water delivery &amp; can overrule local authorities.</li> <li>• 19 Water Management Areas (WMA) oversee water management.</li> <li>• Each WMA contains several Catchment Management Agencies (CMA). They are governed by a board appointed by the minister – representing stakeholders &amp; experts. Large emphasis placed on gender &amp; racial representivity.</li> <li>• The CMA issues water use licences &amp; levies charges &amp; is funded from these charges. It also has the responsibility of overall catchment management.</li> <li>• Individual users can form Water User Associations (WUA) &amp; represent local interests. They fall under the control of the CMA. Local needs can be addressed by the pooling of financial &amp; human resources. They should be funded by water use charges from the members – but if they are poor – then from the CMA.</li> <li>• Water Service Authority (WSA) – provide access to water for all domestic consumers in area. Based on municipalities &amp; rural councils.</li> <li>• Logistics of water delivery delegated to a Water Service Provider (WSP) – can be water board/committee or private co.</li> </ul>	<ul style="list-style-type: none"> <li>• Government (Ministry of Rural Resources &amp; Water Development) retains policy &amp; regulatory role &amp; appoints chief of ZINWA.</li> <li>• ZINWA – in charge of large-scale water provision &amp; development. Self funding – from the sale of water in large dams (owns all dams &gt; 5000m<sup>3</sup> = 60% of water used commercially). Sets the prices for water. Currently in transition – as no funds from gov. nor from comm farmers (largest users). Board of directors has 21 members – all appointed. 4 members from the CCs are selected by the board from names put forward by CCs. ZINWA also appoints the manager of the CC.</li> <li>• Catchment Councils (composed of stakeholder groups e.g.: RDCs, all farmers, mines, industry &amp; urban authorities – can have any amount &amp; mix) allocate &amp; manage water in the catchment.</li> <li>• Sub CCs – monitor the exercise of permits, water flows &amp; use. 15 members.</li> <li>• A third level has been created to involve non-water rights holders, but this has not been institutionally recognised.</li> <li>• Generally accountability is upward, rather than downward. More decentralisation than devolution.</li> </ul>
<b>SUPPLY/ DEMAND MANAGEMENT</b>	<ul style="list-style-type: none"> <li>• Policies mainly focussed on supplying people in rural &amp; urban areas with water.</li> <li>• Needs of the environment are mentioned – but not clearly laid out.</li> </ul>	<ul style="list-style-type: none"> <li>• Demand management starting with water metering &amp; costs.</li> <li>• Water use registration is currently taking place – includes all not receiving water from a WSP &amp; using for – irrigation, mining, industry, storage &amp; waste. WUA's, WSA's &amp; WSP's must also register.</li> <li>• All registered users will be charged a fee for licensing &amp; water use. Efficiency &amp; optimisation encouraged.</li> <li>• Licences are fully tradable.</li> </ul>	<ul style="list-style-type: none"> <li>• The new act introduced water permits, with a fixed duration (max 20yrs). Issuing of permit, by CCs, reflects capacity of water use.</li> <li>• Levies on commercial users.</li> <li>• Rationing in times of drought – equally between permit holders.</li> <li>• Permits issued for a specified purpose &amp; specific piece of land – they can't be sold.</li> <li>• Overall approach still supply sided.</li> </ul>

<b><u>COST RECOVERY</u></b>	<ul style="list-style-type: none"> <li>Levies will be charged to water users. This will reflect its economic value &amp; cover supply costs.</li> <li>Principle of sustainability to guarantee returns for CO's.</li> <li>Now most of the costs are being covered by donors – very few commercial users.</li> </ul>	<ul style="list-style-type: none"> <li>WSA decides on cost recovery. E.g. CT &amp; Durban give h/holds 6000l/m free. Market price charged after this.</li> <li>WSA's moving toward full cost recovery.</li> <li>CMA's decide on level of cost recovery – in accordance with catchment management plan.</li> </ul>	<ul style="list-style-type: none"> <li>ZINWA receives levy from permits issued by CCs &amp; from bulk sale of water.</li> <li>Catchment Councils are receive funds from ZINWA.</li> <li>'User pays' – policy focussed on productive uses of water. Trend towards full cost recovery.</li> <li>Primary use – free in rural areas, charged for in urban.</li> </ul>
<b><u>ACCESS</u></b>	<ul style="list-style-type: none"> <li>The central gov. is in charge of water – but with increasing control to ARA's.</li> <li>NWP recommends – basic water a necessity. A basic supply of water for all – domestic &amp; small-scale agric. – this is called common use &amp; brings it in line with customary law.</li> <li>Private use refers to commercial uses &amp; alterations to stream flow etc. This has to be licensed.</li> <li>Water has an economic and a social value.</li> <li>Large drives to educate consumers of their rights &amp; responsibilities.</li> </ul>	<ul style="list-style-type: none"> <li>The National Government is the custodian of the water resources of the country.</li> <li>The only water right is the reserve: for environment (quantity or quality) &amp; basic needs 6000l/ household/month.</li> <li>Water users granted licences, by CMA's – not necessarily to the owner of the land, but rather to the user.</li> <li>Small-scale wateruse for gardening &amp; livestock need not be registered.</li> <li>Licenses issued for max. of 40 years &amp; reviewed &lt; every 5 years. If use conditions are changed this has to be done to all other license holders using the resource.</li> </ul>	<ul style="list-style-type: none"> <li>No privately owned water – belongs to the nation, with head of state as custodian.</li> <li>Order of priority:</li> <li>Primary (drinking, cooking, livestock &amp; bricks), but seen as 'non-productive'.</li> <li>Environmental</li> <li>Urban/Industrial/Mining</li> <li>Agriculture</li> <li>Equity – water to those who need it most. But many issues of equity and stakeholder representation not yet addressed. No official policy to encourage new users.</li> <li>Cultural resentment toward women managing water.</li> </ul>
<b><u>PRIVATE SECTOR</u></b>	<ul style="list-style-type: none"> <li>Private sector involvement encouraged – due to low level of financial &amp; human resources from the gov.</li> <li>5 cities have their water supplied by a private co.</li> </ul>	<ul style="list-style-type: none"> <li>WSP can get private companies to manage water distribution. But the resource is not privatised.</li> <li>BOTT arrangements for infrastructure development.</li> <li>Any public/private partnership must be in harmony with DWAF policy.</li> </ul>	<ul style="list-style-type: none"> <li>Commercial farmers are the largest water users – they resent having to pay new tariffs.</li> <li>Dams &amp; distribution networks will be commissioned by ZINWA &amp; built by private companies. These will be paid for by revenue from tariffs.</li> <li>No BOTT arrangements yet.</li> </ul>

#### 4 Regional research questions and cross-cutting issues

- What have been the key routes taken by global narratives in influencing the development of water law, policies, strategies and institutions in southern Africa? How responsive are these routes to feedback on policy implementation?
- How has the influence of ideas generated in Northern-based institutions and networks affected access by governments to alternative narratives and experience?
- What has been the trade-off for the poor in terms of policy change to a ‘financially sustainable paradigm’? How has this affected institutions of communal resource management?
- What are the principal limits to influence of networks and actors supporting counter-narratives in southern Africa?
- How important is decentralisation as an instrument of water policy implementation?
- Is there scope for enabling the ‘entry’ of private sector providers and, if so, are informal service providers the key entry point for greater ‘privatisation’ of supply? If so, what are the governance issues surrounding water pricing and cost recovery involved?
- In all countries how can ‘pro-poor governance’ of water be derived from ‘multiple-stakeholder involvement’ in institutional decision making?

## 5 Appendices

### 5.1 Major River Basins in Southern Africa

River Basin	Area (sq km)	Length (km)	Riparians	
Congo	3,800,000	4,700	9	<b>Angola, Burundi, Cameroon, Central African Republic, Congo, DRC, Rwanda, Tanzania, Zambia</b>
Zambezi	1,300,000	2,650	8	<b>Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe</b>
Orange	850,000	2,300	4	<b>Botswana, Lesotho, Namibia, South Africa</b>
Okavango	570,000	1,100	4	<b>Angola, Botswana, Namibia, Zimbabwe</b>
Limpopo	415,000	1,750	4	<b>Botswana, Mozambique, South Africa, Zimbabwe</b>
Rovuma	155,000	800	2	<b>Mozambique, Tanzania</b>
Cunene	106,500	1,050,	2	<b>Angola, Namibia</b>
Cuvelai	100,000	430	2	<b>Angola, Namibia</b>
Save	92,500	740	2	<b>Mozambique, Zimbabwe</b>
Incomati	50,000	480	3	<b>Mozambique, South Africa, Swaziland</b>
Pungwe	32,500	300	2	<b>Mozambique, Zimbabwe</b>
Maputo	32,000	380	3	<b>Mozambique, South Africa, Swaziland</b>
Buzi	31,000	250	2	<b>Mozambique, Zimbabwe</b>
Umbeluzi	5,500	200	2	<b>Mozambique, Swaziland</b>

## 5.2 Zambezi River Basin Riparians

Country	Total Area (sq km)	Area in Basin	%	1998 Total Population	Population in Basin	%
Angola	1,246,700	145,000	11.6	13,168,000	487,200	3.7
Botswana	582,000	84,000	14.4	1,500,000	12,000	0.8
Malawi	118,484	110,390	93.2	11,407,000	9,821,400	86.1
Mozambique	799,380	140,000	17.5	20,791,000	3,991,870	19.2
Namibia	824,269	24,000	2.9	1,645,700	60,890	3.7
Tanzania	945,087	27,000	2.9	31,798,000	1,271,920	4.0
Zambia	752,614	540,000	71.6	10,037,400	7,046,250	70.2
Zimbabwe	390,759	251,410	64.3	12,552,000	9,050,000	72.1
Total	5,077,293	1,321,900	-	102,898,700	31,741,500	30.8

Source: ZACPRO 6 Sector Study 3, 1998

## 5.3 Water Resource Availability in southern Africa

Country	Land area	Irrigated land	Annual internal renewable water resources per capita	Annual freshwater withdrawals	
				As % of water resources 1980-99	Per capita (cu m) 1980-89
Namibia	823	0.9	333	38	166
South Africa	1,221	10.3	1,206 <sup>16</sup>	18	410
Botswana	567	0.5	1,588	1	100
Malawi	94	1.7	1,678	2	20
Zimbabwe	387	7.0	1,776	5	138
Lesotho	30	0.9	2,551	1	31
Tanzania	884	5.0	2,998	1	36
Swaziland	17	35.8	5,275	4	408
Zambia	743	0.9	12,267	1	86
Mozambique	784	4.0	12,997	1	53
Angola	1,247	2.5	16,618	0	52
Average	--	13.5	5,390	6.5	136

(Source: Chenje, M. and Johnson, P. (eds) 1996).

<sup>16</sup> Expected to fall to less than 700 cu m per person by 2025 (World Resources Institute, 1992).

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