

THE NEW WATER ARCHITECTURE IN SOUTHERN AFRICA

reflections on current trends

Larry A. Swatuk
Department of Political and Administrative Studies
University of Botswana

PREFACE

There is a new water architecture emerging in the Southern African region. It is an architecture that takes its cue from both local (socio-political, economic, physical) conditions and global thinking and practice. It involves at once, national reform processes which seek to rewrite outdated Water Acts, to articulate far-seeing water policies, and to restructure the management of the resource so that the natural watershed or catchment area becomes the unit of decision-making rather than an artificial political boundary. This new architecture also hopes to involve all stakeholders in a meaningful way. At the same time, the new water architecture shows trends toward privatization of water resource development, management and service. Cash-strapped SADC countries claim it is necessary to involve business in what are called 'public-private partnerships'.

In this paper I examine the character of the new water architecture in the region, including select aspects of privatization. To better understand the problems and possibilities of these trends in reform, I begin the paper with an introduction to water resources in the region, locating current patterns of exploitation in historical context. Following the introductory section, I turn to an examination of the various national, SADC regional, and global motivators behind the reform process before moving to a consideration of the new architecture and the role of the private sector therein.

I. INTRODUCTION

Water resources are highly varied in Southern Africa. The region receives most of its water during the wet summer season (October-April) when rain arrives from the Indian Ocean. This is facilitated by the regular seasonal movement of the inter-tropical convergence zone. The majority of this water falls within 400 km of the east coast of the continent. In general, the region is better watered in the north and east, and much drier in the south and west, except along the southern coasts of South Africa. According to Conley (1996: 17), 'The Zambezi River carries more than ten times as much water, and the Zaire River carries more than a hundred times as much water as the Orange River in the south.' In addition, the region is prone to both drought and flood, sometimes occurring simultaneously (Chenje and Johnson, 1996: 2).

There has been a great deal of scholarly and policy-oriented discussion regarding the coming 'scarcity' of freshwater resources in the region. This is true in a rather simplistic sense: that given the regular increase in population and the fact of an absolute amount of water, per capita availability will decline. However, for the purposes of this paper it is imperative that we understand both the socially constructed nature of freshwater resource 'scarcity' and the human impact on water availability.

It should not be surprising that access to fresh, potable water and water-based sanitation systems reflects the deep historical inequalities of the region (see UNDP *et al*, 1998: 16-37). So, national trends as presented in Table 1 below, while a good indicator of the state of delivery in the region,

mask the facts of intra-national disparities. Moreover, there are rural/urban, sex, class and race aspects to inequalities of access, with poor, black females in rural areas, for example, being most likely to lack access both to potable water and adequate sanitation.

TABLE 1: SADC STATES' ACCESS TO CLEAN WATER AND SANITATION

Country	Total Pop'n (millions)		Growth Rate %		% Population without access to safe water sanitation	
	1999	2015	'75-'99	'99-'15	1990-98	1990-98
Angola	12.8	20.8	3.0	3.1	32	—
Botswana	1.5	1.7	2.9	0.7	10	45
Lesotho	2.0	2.1	2.1	0.4	38	62
Malawi	11.0	15.7	3.1	2.2	53	97
Mozambique	17.9	23.5	2.3	1.7	54	66
Namibia	1.7	2.3	2.7	1.8	17	38
South Africa	42.8	44.6	2.1	0.3	13	13
Swaziland	0.9	1.0	2.9	0.7	50	41
Tanzania	34.3	49.3	3.1	2.3	34	14
Zambia	10.2	14.8	3.0	2.3	62	29
Zimbabwe	12.4	16.4	3.0	1.7	21	48
DRC	49.6	84.0	3.2	3.3	32	—

Source: UNDP, *Human Development Report 2001*, pp. 155-6 and *Human Development Report 2000*, pp. 170-1

Changing patterns and forms of human settlement also impact on the forms of use and styles of management of water resources. Settler-style colonialism resulted in the attempted creation of what Crosby (1986) calls 'neo-Europes'. So, urban centres developed delivery systems based on the technologies imported from water-rich Europe. Typically, the lion's share of supplied water went to irrigated agriculture, with mines and industries also enjoying privileged access.

However, the attempt to reproduce Europe in Africa, also meant that indigenous food crops and farming methods were displaced by European ones, often resulting in the substitution of drought-resistant food crops with water-guzzling 'beverage' crops and minimum tillage systems with soil-eroding practices. Choices of settlement also created special water-related problems. Urban areas often developed in the wake of mineral-exploitation or strategic location considerations. Both Bulawayo and Harare, for example, were military sites. Johannesburg and Kimberley grew out of the mid-19th Century gold and diamond rushes. The site for Windhoek was chosen because of the presence of a spring, with Gaborone being so sited, among other reasons, because of the possibilities for dam construction. Both capital cities have long surpassed population projections at the time of settlement, so creating special water needs.

Contrary to pre-colonial patterns of human settlement, then, the colonial/settler impact has resulted in large populations congregating relatively far from adequate freshwater resources. In consequence, the region has a long history of large scale water transfer and storage schemes. This supply-oriented thinking remains dominant today.

At the same time, colonial patterns of resource exploitation led to the development of numerous port cities whose post-colonial populations have grown exponentially due to a combination of factors, the most pertinent of which is the fact of South African and US/Soviet-sponsored 'civil' warfare which drove large numbers of rural people to coastal cities – Maputo, Beira, Luanda.

All of these patterns of settlement and attendant problems are exaggerated in the context of apartheid engineering, replicated to a large degree in Zimbabwe and Namibia, and to varying degrees in Botswana, Swaziland and Zambia: alienation of fertile land and the creation of plantation agriculture; forced removals of indigenous people and their relocation to arid 'homelands'; the creation of ill- or non-serviced 'locations' which in the beginning were little more than dormitories for cheap labour.

Moreover, this 'crush' of people in barren environs was made all the worse in the post-colonial and post-apartheid periods as the movement of indigenous people was no longer restricted. Families from the rural areas joined husbands and fathers in the townships and 'high-density suburbs'; many others made the trek to urban areas in search of work. At the same time, the early post-apartheid period saw a large influx of Africans from beyond the SADC region into the urban and peri-urban areas.

Changing global structures of production and South African state-makers' attempts to find a neo-liberal solution to them have also exacerbated settlement problems in the region. Countries which had long-supplied labour to the mines and farms of South Africa – recruited via WNLA – in recent years have seen the return of tens of thousands of these citizens, retrenched as the South African mining industry continues to restructure. So, cities like Blantyre and Maseru are increasingly overrun with the newly unemployed and displaced.

Taken together, what these facts reveal is water security for the few and insecurity for the many. As stated at the outset of this paper, this is a 'crisis' that is socially constructed. Its roots are historical, the result of deliberate actions taken in the service of settler and colonial interests. Its contemporary manifestations result from a combination of continuing elite privilege, shallow social and physical science, and the collective actions of millions of people responding 'logically' to abiding conditions of poverty and underdevelopment.

The region's water resources cannot be discussed outside of these facts. Indeed, it is a mistake to think that 'managing' water is an apolitical issue concerning choices of appropriate technology and strategies for sectorally-specific human resource development. To the contrary, the region's water is merely a pool reflecting back to us the contradictory faces of unlimited privilege for the few and limitless poverty for the many. How then to better manage these resources?

II. MOTIVATIONS FOR REFORM

Given the above historical and contemporary setting, the pressures for reform of the water sector come in many shapes and sizes, some with more influence and better organisation than others. In this section I discuss motivators for reform from three perspectives – national, regional, and global. The list provided is not exhaustive. It is meant to be indicative of the primary forces driving water resources management reforms.

II.i National

In most SADC states, water resource use and management has long followed its colonial path of development, with various limited modifications after independence. This means that the infrastructure that has grown up around the resource has privileged white settlers in urban and rural settings, as well as industry, mining and large-scale agriculture (see TABLE 2). During the colonial/apartheid periods there was a general neglect of the needs and concerns of indigenous people. In the South African case, present problems are worse than they might have been if, for

example, water-borne sanitation systems, storm sewers and the like had been built along with the apartheid-era dramatic expansion of roads. But the intention of better road networks was apartheid control, not the satisfaction of basic human needs. So, the recent massive influxes of people into urban and peri-urban areas set the scene for health emergencies (like epidemics of cholera) because of the absence of reticulated sewage systems.

TABLE 2: FRESHWATER RESOURCES AND USAGE IN LAND-BASED SOUTHERN AFRICAN DEVELOPMENT COMMUNITY STATES

Country	Average annual Internal renewable Water resources		Annual Withdrawals			Sectoral Withdrawals				
	Total (cu.km)	Per Cap (cu.m) Year 2000	yr data	Ttl (cu.km)	% resources	per cap of water	(cu.m)	dom	ind	agri
Angola	184	14,288	1987	0.48	0	57	14	10	76	
Botswana	2.9	1,788	1992	0.11	4	81	32	20	48	
Lesotho	5.23	2,430	1987	0.05	1	31	22	22	56	
Malawi	17.54	1,605	1994	0.94	5	98	10	3	86	
Mozambique	100	5,081	1992	0.61	1	40	9	2	89	
Namibia	6.2	3,592	1990	.25	4	185	29	3	68	
South Africa	44.8	1,110	1990	13.3	30	391	17	11	72	
Swaziland	—	—	—	—	—	—	—	—	—	
Tanzania	80	2,387	1994	1.17	1	40	9	2	89	
Zambia	80.2	8,747	1994	1.71	2	214	16	7	77	
Zimbabwe	14.1	1,208	1987	1.22	9	136	14	7	79	
DRC	935	18,101	1994	0.36	0	8	61	16	23	

Source: WRI, *World Resources, 2000-01*, p. 277

In Angola and Mozambique, the departing Portuguese deliberately sabotaged infrastructure, for example by pouring cement into drain pipes. During the long periods of civil war, anything of value that could be removed and sold on the open market was – including ceramic bathroom fixtures and copper/lead piping in households and apartment buildings. So, today it may be seen in places like Beira that people buy water by the bucketful in markets set up outside high rise buildings lacking basic infrastructure.

In all SADC countries, the independence period saw a dramatic expansion of activity surrounding the provision of basic needs, with a specific focus on the rural areas and the exploitation of ground water resources. Not only did this create new layers of bureaucracy, it also cost the state a great deal of money. In some cases, this ‘state-building’ exercise was complicated by South African destabilization of the region. Still today, the Beira and Tete corridors of Mozambique show the scars of war.

Generally speaking, surface water and ground water have been treated as separate entities. Surface water is usually under the ‘control’ of a central authority, such as the Department of Water Affairs whose task it is to supply bulk raw and treated water to urban households and for commercial purposes. The Department is also responsible for overall planning, for providing ‘vision’. Groundwater until recently has been treated as a private good – those with the capacity

to extract it, can do so without charge, although limits may be placed on the total abstractable amount. This policy has resulted in such urban oddities as Harare homeowners drawing water from boreholes to minimise their costs even though both ground and surface water are part of the same watershed. In the rural areas, 'water' has been treated as an essential commodity, not a commercial one, so the focus here usually has been provision via borehole under the auspices of District Councils (DC) or Rural District Councils (RDC).

This resource split also foreshadows the multiple players in the provision and administration of water including some or all of the following: river boards (usually an association of commercial farmers holding riparian rights or permits), RDCs and DCs, provincial administrations, national government through several ministries and related departments (Agriculture, Water, Wildlife and Tourism, Land and Mineral Resources), city councils, and a wide variety of funding and servicing agencies (e.g. District Development Fund, Agricultural Extension Services). While these groups liaise with one another, it is inevitable that conflicts and sometimes conflicts of interest arise in the attempt to 'manage' the resource. It would be wrong to suggest that an overall policy exists to smooth the decision-making process. In a recent interview of a high ranking technocrat in Botswana's Ngamiland District Land Use Planning Unit, the question was asked "What role do you play in the making of water policy?" The response: "Water policy? Do we have one?"

Lastly, policy makers throughout the region recognise that water is a scarce resource whose per capita availability continues to decrease as economic activities and populations proliferate. Current allocations which favour irrigated agriculture, mining and industry lead to waste due to inefficient use and high state subsidies – in some cases, the water is free – to widespread pollution due to the inability to police the ways in which (toxic) waste is disposed, and to a decline in the overall quality and quantity of the resource due to agro-industrial practices, particularly for downstream users. To quote Conley (1996: 19):

South Africa at present represents an example of a country which has reached a stage in its development where its scarce water resources will have to be allocated increasingly to the most worthwhile purposes only. It has become necessary for each water use to warrant the cost of providing the water.

Thus, to summarize the pressures for water reform at national level, we may borrow from the Government of Zimbabwe's Water Resources Management Strategy document (WRMS, 2000: 7-8) wherein nine factors are identified:

- continuing inequities of use and access;
- too many actors/institutions and too little coordination;
- increasing competition for a scarce and finite resource;
- generally poor water resources;
- declining quality of that limited resource;
- lack of state-generated finance to adequately run the sector;
- lack of a common policy/benchmark by which to judge actions in the sector;
- a narrow band of stakeholder involvement in the sector; and
- recurrent drought on a large scale.

II.ii Regional

By 'region' I mean that group of states comprising the Southern African Development Community, which, for purposes of this paper excludes Mauritius and the Seychelles and deals

only with the continental land-based members. Regarding pressures for reform at this level, I will mention only three: the potential for integrated, regional development; the contrast between a well-watered North and a poorly-watered South; and the fact of shared watercourses.

In terms of regionally-centred development, the post-apartheid era has seen a proliferation of activities geared to exploit the complementarities of the region's resources, wherein water is regarded as a factor of production (Swatuk and Vale, 2000). Emblematic of this 'new regionalism' is the push toward an integrated energy network linking the hydropower (real and potential) of the north to the coal-based thermal power of the south. Driving this enterprise is the Southern African Power Pool (SAPP) led most conspicuously by the South African energy giant, Eskom (Swatuk, 2000; Horvei, 1998; more generally, see Hettne, 2001; and Schulz, Söderbaum and Ojendal, 2001).

Water figures centrally in a variety of other regional development initiatives, for example the attempt to sell Southern Africa as a global tourist destination of choice (non-consumptive use); and to manufacture or trade-upon already existing sub-regional complementarities in the form of growth corridors (Beira, Maputo, Trans-Kalahari) and cross-border initiatives (transfrontier parks) which combine consumptive and non-consumptive forms of water resource use (Taylor, 2002).

Numerous SADC protocols (on trade, energy, tourism, water resources, labour) seek to locate in law the formal and informal regularities that will build up around these activities.

Related to these initiatives is the fact that the bulk of the region's water resources are found in the north, whereas most of its people and industrial development are found further south, particularly in South Africa. South Africa's growing demand for water has led policy makers there to consider a number of international inter-basin transfer schemes. The Lesotho Highlands Water Project (Phase I) is already operational and remains highly controversial (Bond and Ruiters, 2001; Pottinger, 1996). Inter-state and institutional discussions have been underway for some time regarding the possibility of drawing water from the Zambezi River (via the contested but under construction Matabeleland water transfer project) and possibly the Congo River further north. Informed opinion considers the DRC's inclusion in SADC to have been spurred by the future promise of that country's vast natural resources, not the least of which are land and water (Swatuk, 1997).

Lastly is the fact that the SADC region is characterised by numerous international river basins. One of the consequences of settler colonial/imperial policy was that rivers became convenient means for demarcating borders, so what were once the life sustaining arteries of regional settlement became the life threatening loci of potential water wars today (see Swatuk and Vale, 1999 for details).

As can be seen in TABLE 3, there are at least 15 international watercourses in the SADC region. Usage of these waterways has, historically, proceeded along the lines of either unilateral exploitation of the resource within national boundaries or exploitation based on a bilateral or multilateral agreement signed by the basin states. Usually these agreements have been single issue oriented, i.e. regarding water transfer, storage and use by agriculture (an irrigation scheme), industry (hydropower), or primary consumption (an urban population). Until very recently there has been little attempt to rationalise or coordinate the impacts of these many and various agreements either within a specific basin or in terms of broader regional sensibilities.

In the 1980s, however, this all began to change. If one were to attempt to pinpoint a defining moment in progressive approaches to regional cooperation on shared water resources, it would be the 1985 UNEP-led decision to use the Zambezi River as a pilot case in its Environmentally Sound Management of Inland Waters (EMINWA) project. In 1985 a Working Group of Experts was created, drawing together representatives from the six independent basin states, the UN commission for Namibia, but without Angolan participation. In addition, there was regular participation from 12 international organisations. Meetings were held in Nairobi (1985), Lusaka (1986) and Gaborone (1987), out of which was established ZACPLAN – the Zambezi River Action Plan – immediately designated a ‘concerted action programme of SADCC’.

It is significant that two defining moments in regional water resource management centred on the Zambezi River. In the late-1950s, the Kariba Dam was built in the hopes of providing the electricity requirements for the industrialisation of the then federation of Rhodesia and Nyasaland. According to Moyo *et al* (1993: 326), ‘with an area of 5,250 km², it is Africa’s largest reservoir, having a capacity of 180,000 million cubic metres.’ In 1986, Zimbabwe and Zambia created the Zambezi River Authority, a bilateral arrangement for the management of the waters and hydropower resources of the middle Zambezi. According to Chenje and Johnson (1996: 166), ‘ZRA replaced and took over the properties of the old Central African Power Corporation.’ Unlike ZACPLAN, however, the ZRA, like its CAPC predecessor, is centrally concerned with the management of water along a limited portion of river as a factor of production. ZACPLAN, on the other hand, seeks to manage the waters of the entire Zambezi River Basin in an integrated and sustainable way – including its environmental use. Thus, old and new approaches to water resources management coexist in a single basin, signalling the uneasy relationship that exists throughout the SADC region between old ideas of partial, exclusivist ‘modernisation’ and new ones of holistic, inclusive ‘sustainable development’.

Hoping to build on the latter, ZACPLAN became the template for the now well-known SADC protocol on shared watercourse systems, ratified in 1997. The SADC protocol has, *inter alia*, the following objectives:

- Develop close cooperation for judicious and coordinated utilisation of the resources of the shared watercourse systems in the SADC region and coordinate environmentally sound development of the shared watercourse systems in order to support sustainable socio-economic development
- Have regional conventions on equitable utilisation and management of the resources of shared watercourse systems in the SADC region and consolidate other agreements in the SADC region regarding the common utilisation of certain watercourses
- Promote SADC integration processes in accordance with Article 22 of the Treaty establishing SADC.

Aside from the trend toward regional protocols, a number of basic-specific initiatives have emerged in the form of standing commissions, technical units and the like (e.g. the Okavango River Commission; the Zambezi River Basin Commission).

Clearly, one of the great motivators for reform at the regional level comes from individual SADC state participation at UN and other international fora. Indeed, one could make the argument that most SADC state activity in the area of environmental resources management came in preparation to and following on the UNCED meeting held at Rio de Janeiro in 1992. While SADC state

interests in forging regional agreements on water and other natural resources management have local roots, the influence of international thinking and action should not be underestimated.

TABLE 3: INTERNATIONAL RIVER BASINS SHARED BETWEEN SADC STATES

BASIN	BASIN STATES	SPECIAL FEATURES
Buzi	Mozambique, Zimbabwe	2 small hydropower installations in Mozambique; 1 of the dams also used for irrigation
Cunene	Angola, Namibia	potential hydropower of 2,400 MW; 4 dams in Angola; 1 in Namibia controversial because of impact on indigenous people (at Epupa gorge)
Cuvelai	Angola, Namibia	low and erratic run-off; 40 dams built to provide water for agriculture, livestock, and about 50% of Namibia's people; inter-basin transfer from Cunene to Cuvelai
Incomati/ Nkomati	Mozambique, South Africa Swaziland	22 large dams in catchment with 2 more in progress; several international operating agreements; clear indications that natural flows in dry season greatly reduced through abstractions
Limpopo	Botswana, Mozambique, South Africa, Zimbabwe	4 dams in Botswana, 1 in Mozambique, 26 in South Africa, 9 in Zimbabwe; transfrontier national park planned in basin;
Maputo/ Pongola	Mozambique, South Africa Swaziland	5 dams in South Africa, 4 in Swaziland, 1 in Mozambique; important water source for population of Southern Mozambique; much flow diverted by SA and swaziland
Nata	Botswana, Zimbabwe	partly ephemeral; considered to be of little international significance
Okavango	Angola, Botswana Namibia	Endoreic River system designated a World Heritage site; planned off-take near Runde to bring water to indhoek; Draft catchment management plan recently completed; potential peace in Angola could lead to upstream development
Orange	Botswana, Lesotho	most over-developed river in region with 24 large dams in South Africa, 5 in Namibia and 2 in Lesotho; numerous intra- and inter-basin transfers; Location of controversial Highlands Water Project
Pungwe	Mozambique, Zimbabwe	off-take of 0.7 cumecs near headwaters in Nyanga National Park Mountains brings water to Zimbabwe city of Mutare; Sugar plantations, National Park, city of Beira dependent on downstream flow
Rovuma	Malawi, Mozambique Tanzania	no significant development made or planned but could gain in significance for Mozambique if Save/Pungwe flows decrease in future
Save River	Mozambique, Zimbabwe	Osborne dam in Zimbabwe unused at present; Sugar plantations in lowlands in Mozambique; Provides 20% of Mozambique's surface water; Supports Highest density of rural Zimbabwe population; Chimanimani and Gonarezhou national parks in basin
Umbeluzi	Mozambique, Swaziland	2 dams in Swaziland, 1 in Mozambique
Zaire/Congo	DRC, Angola, CAR, Cameroon, Tanzania, Zambia	potential Hydropower development at Inga Rapids with 34,000 cumecs at high flow; is main 'road' in DRC; potential 45,000 MW largest hydroelectric energy project in world

BASIN	BASIN STATES	SPECIAL FEATURES
Zambezi	Angola, Botswana, Malawi Mozambique, Namibia, Tanzania, Zambia, Zimbabwe	4 th Largest river basin in Africa; supports 20m or 30% of total population of basin countries; 1 st UNEP EMINWA project led to ZACPLAN then SADC water protocol; 2 dams in Malawi, 5 in Zambia, 12 in Zimbabwe, 1 in Mozambique; numerous developments planned (more hydropower; inter-basin transfer pipelines; irrigated agriculture), some of controversial nature

Source: Adapted in part from Ohlsson (1995: 51-2) and Conley (1996: 24-55).

II.iii Global

Like nested Russian dolls, national and regional motivators for reforming the ways in which water resources are managed sit snugly within a series of influential global narratives. As with the previous two sections, here I highlight only those factors perceived to be most important in determining SADC state behaviour. These are global discourses of sustainable development, of environmental security, and of development and peace.

II.iii.i Sustainable Development

The language, if not always the content, of ‘sustainable development’ is now firmly entrenched in virtually every policy document regarding natural resource use. For example, the South African *White Paper on a National Water Policy for South Africa* (1997: 35) states that ‘the quantity, quality and reliability of water required to maintain the ecological functions on which humans depend shall be reserved so that the human use of water does not individually or cumulatively compromise the long term sustainability of aquatic and associated ecosystems’ (*Principle 9*). Similarly, Chapter 7 of Zimbabwe’s *Water Resources Management Strategy* (2000: 57-66) is entitled ‘A Fair Share for the Environment’.

With specific regard to water, the attempt to move toward demand management, which involves working within the existing limitations of the found resource, rather than augmenting supply, and toward consideration of water resources as part of a wider ecosystem, through the promotion of integrated water resources management (IWRM) reflects global thinking (e.g. the Dublin Principles; Agenda 21) as well as local realities.

II.iii.ii Environmental Security

Global worries regarding ‘environmental security’ have filtered down to the regional level, particularly in the form of ‘water wars’ (Ohlsson, 1995; Hudson, 1996, Green Cross International, 2000). One of the ‘facts’ motivating the regional water reform process is the following claim made by South Africa’s Water Research Commission in 1994: ‘South Africa will run out of water between 2020 and 2030 unless measures to combat the shortage are taken’ (quoted in SAIRR, 1994: 1). Pallett *et al* (1997: 44-5) claim that Botswana, Malawi and Namibia exist in conditions of ‘absolute water scarcity’, while South Africa and Zimbabwe suffer ‘water stress’. These ‘facts’ preface virtually all academic and policy writing on water and/or environmental security in the region.

The scientific measures supporting these truth claims are internationally derived. For example,

European scholar Malin Falkenmark (1986) established the benchmarks for water stress — more than 600 people per ‘flow unit’ (equal to 1 million cubic metres) — and ‘absolute water scarcity’ — more than 1,000 people per ‘flow unit’. According to this measure, in 1995 there were said to be 4,257 people per flow unit in Botswana, 1,500 in Malawi, and about 1,200 in Namibia. However, after reciting these ‘facts’, Pallett *et al* themselves point out that these statistics are a crude measure which neither distinguishes between total run-off or available run-off, nor accounts for groundwater resources or water available from lakes — hence the clearly misleading figures for Botswana and Namibia, which derive most of their freshwater from groundwater sources, and for Malawi, whose major source of freshwater is Lake Malawi.

Moreover, a significant portion of Falkenmark’s water allocation is given over to irrigation, yet the vast majority of food produced in both Southern Africa and the world uses not extractions from flowing blue water (the basis for the ‘water stress’ measure) but green water. To quote Rockstrom (2001: 72-3):

[T]he world is largely green, i.e. 70% of the countries depend primarily on green water flow (return flow of vapour in rainfed agriculture) to sustain food production. The conclusion is that conventional freshwater assessments compare apples and pears, i.e. blue water availability, with a general human water requirement index (the 1700 cubic metres/cap/yr) that, for the largest part, in most countries of the world, is covered by direct return flow of vapour in rainfed agriculture, rather than from bluewater withdrawals.

Lastly, throughout Southern Africa the vast majority of freshwater — in the order of 70% of all water used — is used by irrigators (Table 2 above), most of whom are producing not food crops for local consumption, but cash crops for export. If there is a freshwater shortage, should not current allocations be the subject of interrogation? Pallett *et al* suggest that, were better methods put into use, current levels of irrigated agricultural production in the region could be sustained while using one-sixth the present amount of water. Why, then, are these things not being done? Of course these are rhetorical questions. The point is to show how global narratives get imported into the SADC context and, without question, sometimes become the basis upon which future policy is made. The same might be said about privatization, as will be shown below.

II.iii.iii Development and Peace

Running like an undercurrent through both the ‘sustainable development’ and ‘environmental security’ discourses are key neo-liberal assumptions which are also at the heart of recent Western thinking on the interrelationship between development and peace: i.e. development involves social change which, if it is to result in peaceful societies, must rest upon open markets and liberal democratic forms of governance. Although contested in a wide variety of international forums, this perspective has gained the upper hand in mainstream approaches to environment and natural resources use and management. Duffield defines the ‘liberal peace’ in the following way:

The idea of *liberal peace* ... combines and conflates ‘liberal’ (as in contemporary liberal economic and political tenets) with ‘peace’ (the present policy predilection towards conflict resolution and societal reconstruction). It reflects the existing consensus that conflict in the South is best approached through a number of connected, ameliorative, harmonising and, especially, transformational measures (2001: 10-11).

How these ideas translate into policy is most readily seen in the present directions being taken by donors in the SADC region. All major donor policies rely on (at least) the following five

assumptions:

- (i) state-by-state structural adjustment programmes are a necessary part of regional economic growth and development;
- (ii) regionally integrative activities – e.g. in the areas of trade and transboundary natural resources management – build economies of scale and facilitate regional comparative advantage so facilitating sustainable niche development;
- (iii) wherever possible, ‘developmental’ activities should cultivate ‘smart-partnerships’ between civil society actors in recipient countries and private enterprises in donor countries;
- (iv) recipient states should become facilitators rather than initiators of development. Hence, they should concentrate on creating and upholding regulatory frameworks wherein the private sector can pursue developmental activities which are self-defined; and
- (v) all of these activities should be undertaken in the spirit of democratic participation, including transparent and accountable forms of decision-making.

Drawing on Zimbabwe’s recent experience with water reforms, these ‘liberal peace’ assumptions underpin the activities of, in particular, the catchment donors — e.g. GTZ, DFID, SIDA – who have carved up Zimbabwe in a tangible demonstration not of a ‘new imperialism’ but of ‘liberal power’ (Duffield, 2001: 34). For example, with regard to the Save Catchment, the new water architecture, supported by a generous donation from SIDA, purports to

- (i) devolve power to stakeholders who will manage the system on a user-pay, polluter-pay, sliding-water price, commercial basis;
- (ii) manage the resource in an environmentally integrative way – on the basis of ‘catchments’, rather than political boundaries;
- (iii) include local NGOs, consultants, companies and the like working in league with their counterparts from Sweden and/or other Western countries (e.g. to monitor environmental health; to manage water points; to build dams);
- (iv) limit central state involvement through the creation of a parastatal, ZINWA, and devolve real power to stakeholders through Catchment Councils, Sub-catchment Councils, among other things; and
- (v) democratise the entire process through regular elections to Council, inclusive membership criteria, etcetera.

Stated goals of ‘equity, sustainability, and participation’ appear in virtually every policy document. Donors themselves rely on expert knowledge – e.g. water and civil engineers, environmental biologists – and a constructed, self-referential ‘epistemic community’ – e.g. UNEP, GEF, the World Bank — that increasingly counsels market ‘solutions’ to abiding problems of resource scarcity and inequitable access. Donors are in a very powerful position because they have knowledge and capital. Moreover, theirs is a coherent approach to peace and development in Southern Africa. It is not confined to a particular sector – e.g. water – rather, donor approaches to water resource management are part of a logical framework which hitches liberal political and economic processes to peace-keeping, -making, and -building operations throughout the so-called ‘South’. To quote from a background document to a recent EU-SADC conference: ‘The main thrust of the management of shared river basins is to find ways of turning potential conflicts into constructive cooperation, and to turn what is often perceived as a zero-sum predicament ... into a win-win predicament’ (NEDA, 1997: i).

If the above-mentioned five assumptions seem unproblematic, it may be regarded as a measure of the degree to which development 'experts' have internalised most of the basic assumptions underlying the liberal peace. Yet, 'development', according to Duffield (2001: 39) 'has always had as its aim the modernisation and transformation of the societies that it encounters'. Thus, development under 'liberal peace'

is better described as an attempt, preferably through cooperative partnership arrangements, to change whole societies and the behaviour and attitudes of the people within them. In attempting to promote direct social change, development has increasingly come to resemble a series of projects and strategies to change indigenous values and modes of organisation and replace them with liberal ones. Ideas of empowerment and sustainability are largely refracted through a lens of behavioural and attitudinal change... [T]his process is synonymous with a change from traditional to modern values (Duffield, 2001: 42).

Like the need to locate the water reform process within the context of historical continuities, we must also consider the degree to which current global ideological trends determine both the regional process of reform and its likely outcome. With this in mind, let us now turn to the emerging architecture of water management in the SADC region.

III. THE EMERGING ARCHITECTURE

As with thinking, so too with practice. National water reforms are nested within a wide series of regional and global initiatives, many of which are inter-linked. For South Africa's water policy makers this is a good thing:

With the ending of apartheid, South Africa's water law review has not had to be conducted in isolation from the rest of the world as in the past. The problems confronted here are not unique ... As a result, not only is there a large amount of international thought, policy and practice which can be recast to meet the specific conditions of South Africa but South Africa's own efforts to address water policy in a structured and principled way have attracted great interest (DWAF, 1997: 11).

In general, at the national level the new architecture attempts to tie a shared vision based on equity, sustainability and efficiency to a system of delivery dependent on stakeholder involvement. In terms of institutions, the catchment itself is to be the unit of social organisation and resource management. South Africa and Zimbabwe are already 'experimenting' with this new management unit, with some other SADC states further behind. Mozambique, Zambia and Tanzania, for example, lack the necessary capital, technical and human resources to effectively institute these reforms. Botswana, with either only ephemeral or internationally-shared rivers, a small dispersed population and an arid climate does not envision such reforms. Lesotho and Swaziland, as small mountainous countries where many rivers rise, are also unlikely to pursue such a management form, preferring instead to participate in a variety of inter-state technical units created to manage their shared water course systems which are, themselves, not terribly unlike catchment councils at national level.

As the most industrialised countries of the region, with large commercial agricultural/forestry sectors, burgeoning urban populations and deeply unequal societies, South Africa and Zimbabwe are compelled by circumstance to look at new ways of managing this limited resource. Using the Zimbabwean case for example, each Catchment Council is headed by a chairperson elected from

the general Council. The general Council is made up of the chairperson and vice-chairperson of each Sub-Catchment Council who are themselves elected officials. The Catchment and Sub-Catchment Councils include all relevant stakeholders or their representatives within the catchment: e.g. commercial farmers, small holders, tourism operators, National Parks, mines, urban and rural councils. Sub-Catchment Councils may also be further broken down into Water User Boards and/or Water Point Committees, with the aim being to manage water at the lowest appropriate level (the subsidiarity principle). Each Catchment has a Manager, seconded from the national water authority, whose task it is to provide technical assistance and other guidance as may be necessary. The Catchment Manager is also responsible for drawing together a Catchment Management Plan in cooperation with the Council. The Catchment management plan will contain details of:

- Water allocations;
- The requirements of the Reserve and international obligations;
- The main issues affecting water quality and quantity which require investigation;
- Management goals for addressing the critical issues, and
- Potential management strategies and responsibilities for action to achieve these objectives;
- Financial arrangements (DWAF, 1997: 30).

Catchment Councils also have a Training Officer whose primary task is community outreach. He/she also acts as a kind of sounding board for local interests and concerns.

The entire structure is overseen by the National Water Authority whose task it is to ensure that decisions and actions are taken within the context of the Water Act. At national level, water policy is to be guided by the relevant department within the relevant Ministry. So, in Zimbabwe the Department of Water Development, located in the Ministry of Rural Resources and Water Development, continues to provide overall leadership on water resources planning, use and management. According to South Africa's *White Paper on a National Water Policy for South Africa* (DWAF, 1997: 29):

Apart from the clearly Governmental functions of policy formulation and regulation, certain water resource management functions will continue to be performed by Government at national level, including:

- Strategic and technical planning, and the maintenance of a national water plan;
- Joint management of international catchments;
- Overall management of catchments on a national basis; and
- Water information services.

The Catchment Councils are envisioned to be self-financing. It is also hoped that they will have real decision-making power regarding water resources use, for example in the issuing and revoking of permits and in designing a locally-sensitive, inclusive management plan. In terms of finance, they are to collect fees (i.e. a sort of catchment management tax), levies (i.e. costs to the user), and penalties (e.g. for polluting a stream). As stored water remains in the hands of national government, Catchment Councils receive only a small percentage of the levy on this water.

As highlighted above, donor states are heavily involved in the new management architecture in Zimbabwe. Indeed, in the absence of their essential financial support, it is likely that these reforms would fail.

While recognising that access to both potable water for essential consumption and commercial water for production have favoured a minority throughout the region, the new water architecture

claims that replicating this form of provision across the region is neither economically feasible nor ecologically sustainable. In some ways, this position rehearses the global debate involving over-consumption in the North versus over-population in the South. Now that a privileged minority have access to piped water, can a government deny the same to its marginalized majority? If so, on what basis is this decision being made?

Clearly there are contradictory forces at work. For example, the new water architecture hopes to work toward a fairer and more sustainable allocation of resources. Yet, if the Catchment Councils in particular and the water sector in general are to be self-financing, this means that each has a vested interest in the continuing and probably expanding sale of water for commercial use. This therefore means that Councils are likely to favour those that can pay for water, i.e. those who already know how to exploit the resource. As another example, all SADC national water authorities acknowledge that new supplies will continue to be tapped. Yet, they also claim that integrated water resources management requires working within the limits of the specific catchment. So, 'creating' new water requires not augmenting supply but in restraining demand. There are numerous approaches to demand management, some more progressive than others (Goldblatt *et al*, 1999).

All SADC states now claim a central concern with water demand management (WDM). Thinking about WDM is being facilitated by a number of regional (e.g. SADC water sector) and regionally-based (e.g. IUCN, UNDP, GWP) institutions, as well as donors (e.g. SIDA through its support for the 'communicating the environment' programme and water research fund for Southern Africa). WDM considerations are also clearly reflected in basin management plans, for example the draft Okavango River Basin Management Plan.

At the centre of WDM is pricing policy. Along the lines of the business-dominated 2nd World Water Forum at the Hague, SADC states now acknowledge that water must be treated as an economic good. As a scarce commodity, it should not be under-priced. SADC states differ in their pricing policies, where, for example, Botswana sets tariffs to reflect the costs of supply to different centres and users, Zimbabwe sets what is called a 'national blend price'. Most SADC states implement a rising block tariff, some with steeper blocks than others. In this way, heavier water users subsidize those who use less water. Most states also include a 'life-line' tariff where, for example, a certain amount of water may be provided free of charge by the state (say 25 l/day/person) or a minimal fee is charged (e.g. in Botswana where a family of 8 with piped water in an urban setting using about 50 l/person/day would pay less than P10.00/month in total).

In principle, SADC states are claiming commitment to water pricing policies geared to 'full cost recovery'. Given that throughout the region the major users have historically had their water heavily subsidised, if paying for it at all, it remains to be seen how this will play out in practice. It also raises questions about new systems of delivery for those historically disadvantaged by the apartheid system: if new systems are built, who will pay the full cost – surely not the poor?

IV. THE ROLE OF THE PRIVATE SECTOR

There are numerous costs associated with supplying water. These include: abstraction, storage, transport, cleansing and purification, distribution, and waste-water treatment. 'Capital and operating/maintenance costs are included to some extent in each category' (Bond, Macdonald and Ruiters, 2002). There is a worldwide trend toward involving the private sector in each of these activities (Barlow and Clarke, 2002). In Southern Africa, the developmental and state-building goal of 'water for all' conflicts with the uneasy facts of national debt, structural adjustment

programmes, and chronic budget deficits at various or all levels of government. Simply put, governments are facing the unhappy facts of their general inability to deliver basic services to the citizenry. To be sure, the early post-colonial periods saw a great deal of activity in health, education, and related social service sectors. There were many early gains, and popular expectations were raised. For many SADC governments, however, the first oil shock now twenty-plus years ago put paid to their state-building activities. Many of these delivery systems are in total disrepair. Some countries, like Tanzania, never recovered. Others, like Mozambique, suffered a dual setback at the hands of apartheid South African destabilization. Both Mozambique and Tanzania have privatised water supply services as a basic condition of their IMF-directed structural adjustment loans.

Most SADC states have involved the private sector both in supply-oriented and demand management-oriented activities. Under the rubric of 'public-private partnerships', SADC governments have undertaken loans and contracted private firms in the construction of water delivery systems: e.g. the Lesotho Highlands Water Project, the Namibian National Eastern Water Carrier, the Matabeleland and Pungwe-Mutare pipeline projects in Zimbabwe, the North-South Carrier project in Botswana, and the Zomba Dam in Malawi, to name but a few. This spate of intra-basin storage and inter-basin transfer/storage schemes has been a boondoggle for foreign construction companies, banks, and the like.

According to the WRMS document for Zimbabwe, 'The nature of the private sector participation envisaged in the water sector will be largely in the form of public-private sector partnerships. The companies bring in management expertise, technical skills and credit standing in financial investments. A mutually beneficial partnership is built between the public and private sector to ensure that consumers ultimately get the best service possible within the means available' (2000: 49). A variety of forms of partnership are envisioned:

- Service contracts
- Management contracts
- Lease contracts
- Concessions
- Joint ownership
- Divestiture

Many SADC City Councils involve to varying degrees private sector interests in their delivery systems. While some are local corporations or parastatals, many others are international — water giants like Vivendi, Suez and Saur International of France; companies from former colonial masters, like Aguas de Portugal operative in Mozambique. Interestingly, Brazilian firms are also active in Mozambique, so suggesting a South-South flavour to privatization.

V. ISSUES TO CONSIDER

V.i. The 'bottom line' versus 'development'

Private companies, by definition, are centrally concerned with earning a profit from providing a service. They are generally not concerned with, among other things, general public welfare, the state of the environment, conserving natural resources, or social justice. It is the responsibility of the government in service to the state to not lose sight of these broader social goals. Attention to these issues will require very clear lines of responsibility between the service provider and the state. Monitoring of activities is centrally important, as is the creation and operation of an

effective regulatory body. Within the SADC region, it is clear that the trend toward privatization results from state incapacity and/or government ineptitude. How then are weak states and corrupt, cash-strapped, and human resource poor governments to function as effective watchdogs over private companies? As is too well known, the enforcement of a law like ‘polluter pays’ is rare indeed. Moreover, the global trend is toward ‘self-regulation’ – an extremely worrying situation where water quality, among other things, is concerned.

V.ii. Capacity, capacity building and technology transfer

This raises the question of the role of the private company beyond simply service provision. It is imperative that private companies undertake to build local capacity and transfer skills and technology so that once the entity reverts to the government at the end of a concession period¹ the problems which led to the public-private partnership in the first place do not re-emerge. However, the historical record shows that where M/TNCs have been active in developing countries, they are highly resistant to capacity building, and skills/knowledge/technology transfer.

V.iii. What kind of private sector?

Clearly, some aspects of the private sector are more useful and sympathetic to broader social and developmental goals than are others. Indeed, in many areas of demand management – e.g. environmental auditing, detection and regular monitoring of unaccounted for water, repair of faulty equipment, installation of water-wise technology – private sector participation is beneficial, perhaps even essential.

Perhaps the most hopeful examples of private sector involvement in demand management are the various positive economic activities that spin-off from South Africa’s ‘Working for Water’ programme (e.g. the establishment of ‘green charcoal’ enterprises) (WRI, 2001: 193-205). Many of these activities may operate just as effectively as cooperatives, or as ‘public-public’ enterprises.

However, where private sector involvement is perhaps most dangerous is in its transnational form, both as a physical company and as a metaphysical philosophy (see Bate and Tren, 2002; cf. Barlow and Clarke, 2002). Water multinationals are no different than any other multinational corporation. They operate on economies of scale and are geared toward both profit and market dominance. Turning over municipal water provision to a company like Vivendi, for example, in effect gives monopoly control to a giant company whose capacity may far outstrip that of the host local, regional and national governments (e.g. as in Malawi or Tanzania).

Host governments must be very careful about the terms and conditions under which these actors are invited in. Their behaviour must be clearly in line with broader national objectives, with the objectives of catchment councils and with the oft-ignored objective of ecosystem sustainability. Too often, these providers are invited in to ‘manage’ a resource with the result being better provision to those that can afford to pay, and poorer service to the poor. According to Bond and Ruiters (2000: 41-2): ‘In South Africa ... privatization and ability-to-pay have threatened to drive water developments, thus stripping the meaning off wider concerns such as social citizenship, public health, gender equity, ecological integrity and personal/social dignity’.

V.iv. Unpacking supply-side ‘motive’

Moreover, it is no accident that supply-side ‘solutions’ dominate water resource management in the region. Supply side approaches bring together state-makers, companies, banks, and influential

individuals in a powerful network of privilege. Pipelines generate income for companies, interest for banks, and act as tangible evidence of state power for dominant parties and personalities. The proposed Zambezi River to Bulawayo pipeline, for example, offers tangible evidence to the residents of Matabeleland that 'ZANU-PF will provide'.

V.v. Ring-fencing

One reason private sector approaches to water resources management appear so attractive is because historically water has been regarded as a discreet 'sector' amenable to forms of management geared to a limited number of essential and non-essential, commercial and non-commercial uses. This is a system of management that grew up regarding water as a factor of production. It is a system dominated by engineers and bureaucrats – most of whom are men – in the service of industry, mining, big farming and select urban households.

Privatisation helps reinforce both this conception of the resource as a factor of production and the uses to which it should rightly be put. What it reflects, therefore, are extant social relations that are too often blind to gender, race and class considerations. What needs to be done, before along with or instead of privatization, is the philosophical and ethical relocation of water back into its wider social and environmental milieus. Water is essential to everyone. It is a goal of all SADC states that people have access to affordable and reliable potable water. Privatisation, however, paves the way for the dominance of the sector by those who already commandeer the lion's share of the resource. This is further facilitated by the language of a sector that must pay for itself and whose revenues should not be pooled and used for other activities.

In my estimation, the ring-fence must be broken down. This also means that, far from being dismantled, cross-subsidies should be more broadly considered in society. A beginning can be made with military spending and production. How is it that R60 billion can be spent on weapons in South Africa, but reticulated water and sanitation systems for the poor are unaffordable? For every rand, pula, kwacha or dollar spent on weapons, a percentage should go into a national water security or environmental security fund. Every step taken away from a broader conception of security (common security, collective security, human security) toward a narrower state-centric conception should be taxed as a matter of course. Similarly, South Africa is a major exporter of weapons whose manufacture requires a great deal of water. Every dollar or euro or pound earned should have a small percentage go toward the aforementioned fund. Products of death and destruction should at minimum help create life and construction: call it conscience money if you will.

VI. CONCLUDING REMARKS: WHOSE WATER IS IT ANYWAY?

Rain falls and water flows. It knows no borders. Yet we have inherited a series of lines on a map which tell us that some people have a (riparian) right to this water while others do not. Privatisation further sub-allocates this resource with no guarantee of sustainable use, conservation, improved quality and the like. Is this somehow not ridiculous?

At minimum, deals made at regional, national, sub-national and local levels must be transparent and those who make the deals must be held accountable. While public-private partnerships in the management of the region's water resources seems unavoidable, it is imperative that broader public-public partnerships be struck to ensure that 'privatisation' does not mean, as I fear it will come to mean, the state absolving itself of its developmental role.

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¹ Concessions are typically 20-30 or more years in duration. Variants within the concession option are BOOT (build own operate transfer), BOT/DOT (build operate transfer; develop operate transfer), ROT (rehabilitate operate transfer) and BLT (build lease and transfer).