Appendices

Appendices to Zambia case study

APPENDIX A – Quantitative Analysis of Water Resources of Zambia

Table A1 shows the average rainfall in various provinces.

Table A1 Long-term annual average Rainfall in each of Zambia's Provinces

Province	Annual rainfall (mm)	Potential evapotranspiration (mm)	Rainfall (mm) minus evapotranspiration
Lusaka	857	1571	-714
Copperbelt	1231	1530	-299
Central	947	1621	-674
North Western	1173	1475	-302
Western	808	1705	-897
Southern	737	1669	-932
Luapula	1259	1508	-249
Northern	1138	1549	-411
Eastern	961	1531	-570
Total Average, Zambia	1001	1574	-573

Source: Environmental Threats Assessment: Zambia – Strategic Planning Background Document (USAID/REDSO/ESA)

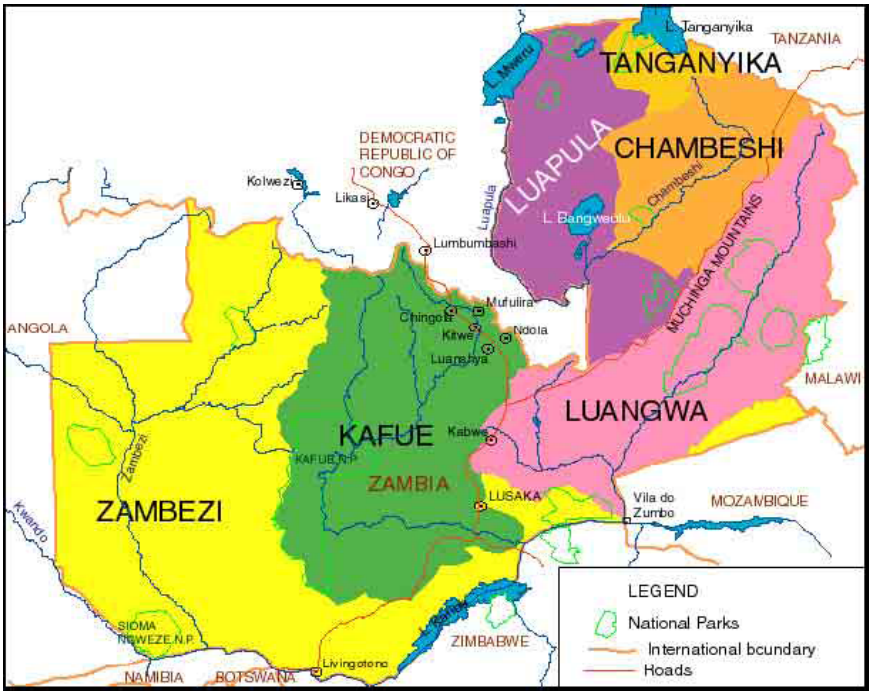
Of the six basins that Zambia can be divided into, four are shared and only two are completely within Zambia. The Chambeshi and Kafue are completely in Zambia while Tanganyika, Zambezi, Luapula and Luangwa are shared basins Figure A1. The largest basin area is the Zambezi followed by the Kafue basin, Table A2. The Kafue basin is also the basin with the most competition among water users in Zambia. The Kafue basin supports at least one third of the Zambian population and major industries[1].

[1] Chabwela and Mumba in Sherbivin, A, de., Dompka, V., (Eds). 1998. *Water and Population Dynamics: Case Studies and Implications Policy*. Washington Dc: IUCN, PRB, USAD, AAAS. Pp. 138 - 142

Table A 2 Surface water Potential by Basin

River System	Basin Area in Zambia	Approx. Water Contribution (%)	Mean Daily Discharge (million m^3 /day)
Zambezi	268235	25	59.9
Kafue	156995	13	29.7
Luangwa	144358	24	57.1
Luapula	113323	28	54.1

Source: Annex 5 WRAP Documents



Source: http://www.riob.org/wwf/WDM-Initiative-Zambia.pdf (Accessed on 11/05/2005)

Figure A1 Catchment boundaries of different river basins

A significant discrepancy occurs in the figures quoted by different studies, Table A3, Table A4. Both tables show figures from government agencies. The National Water Policy (NWP) was formulated by a team led by the MEWD and the WRAP also falls under MEWD as a project supporting it. The source of information is expected to be the same and figures should therefore have less discrepancy.

Table A3 Ground Water Potential in Zambia

Drainage Basin	Luapula - Tanganyika	Luangwa	Kafue	Zambezi	Total
Basin Area Km^2	194,000	147,500	155,000	256,000	**752,000**
Total Mean Annual Rainfall (mm)	214.1	122.3	149.72	228.69	**714.85**
Groundwater through flow	0.83	1.634	0.96	0.22	**3.65**
Vertical Recharge	41.5	33.02	24.45	64.03	**160.08**
Ground water	377.7	242.76	252.06	86.82	**1,740.4**

Storage
Source: Zambia National Water Policy

Table A4 Groundwater Potential by Province

Province	Groundwater (Estimated annual recharge rates) * 10^9 m^3/ year
Central	7.7
Copperbelt	2.6
Eastern	6.1
Luapula	3.9
Lusaka	1.5
Northern	11.5
North-Western	11.4
Southern	5.7
Western	7
Total	57.5

Source: Annex 5 WRAP Documents

Most of the Zambian population relies on surface water resources while the rest make use of the ground water resources, Table A5.

Table A5 Developed Ground Water Supply

Population Ration (%)		Proportion of the Population Served by Developed Water Supply (%)			Proportion of the Population Served by Developed Ground Water Supply (%)		
Urban	Rural	Urban	Rural	Total	Urban	Rural	Total
43	57	85	58	70	20	52	38

Source: SADC Groundwater Monitoring Networks

In summary, though there are enough resources in Zambia to cater for the entire population with no signs of first order water scarcity, there seem to be problems in the legislative and institutional side of water resources control, use and allocation. The national figures on access to safe water and sanitation are still less than two thirds of the population even for optimistic figures. Given the number of organizations involved in the water sector ranging from Central Government to NGOs and the community based groups there is a clear need to define the role each actor plays and ensure no overlap in responsibility or duplication of effort. The institutional weaknesses introduce aspects of second order water scarcity which relates to the allocation and control of water resources.

APPENDIX B – Water Legislation in Zambia

Water Act 1948

The Water Act focuses on the provision for ownership, control and use of surface water. It makes a clear distinction between private and public water and primary, secondary and tertiary uses of water. Primary use of water is defined as the use of water for domestic purposes and the support of animal life[2]. Secondary use of water means the use of water for the irrigation of land and pisciculture. Tertiary use means the use of water for mechanical and industrial purposes for the generation of power. Private water falls within the boundaries of land owned by any particular land owner. The landowner in this case includes the President and a mortgage or lessee. Public water means all water flowing or found in or above the bed of a public stream, whether visible or not, including lakes, swamps or marshes. A public stream means either a watercourse or a drainage depression or dambo of natural origin, forming part of a natural drainage system, wherein water flows in ordinary seasons where such water is not private water. Any person shall have the right to the primary use of public water which is found in its natural channel or bed at such places to which access may be lawfully had.

It can be deduced from the above definitions and distinctions that primary uses of water should have priority where conflict in water use and allocation may arise. The ownership of all water in Zambia is vested in the President. The use, diversion and apportionment of all water are made according to the terms of the water act. The act does not apply to The Zambezi River, Luapula River or the portion of the Luangwa River which constitutes the boundary between Zambia and Mozambique. The exclusion of the international watercourses is traced back to the colonial days when the authorities made agreements with neighbouring countries on management of international or shared water resources. This resulted in the water act being restricted to national watercourses.

Environmental Protection and Pollution Control Act 1990

This is the main legislation that focuses on managing pollution and the environmental aspects of water management. The Act outlines the procedures for licensing of effluent discharge, abstraction of water for dilution of effluent and the abstraction of water for the treatment of effluent. The enforcement of this Act is under the Environmental Council of Zambia (ECZ). ECZ operates a polluter pays principle even though it is currently reported to be unable to carry out its duties effectively due to lack of manpower, infrastructure and technical means[3].

National Water Policy 1994

The policy is aimed at promoting a sustainable water resources development with a view to facilitate an equitable provision of adequate quantity and quality of water for all competing groups of users at acceptable costs and ensuring security of water supply under varying conditions[4]. In the NWP, the Water and Sanitation sector in Zambia is divided into a rural and urban sector with the peri-urban sector falling under the urban sector. It clearly outlines a long term strategy for meeting the water and sanitation needs of the urban and rural sector and also the body responsible for the strategy implementation. It has been partially implemented with some of its fruit being the commercialisation of the water sector in Zambia and other water sector reforms.

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[2] Republic of Zambia. 1949. *The Water Act*. Lusaka: Government Printers.

[3] Technical Component 6 Water and Environment of WRAP

[4] Government of Zambia. 1994. National *Water Policy*. Lusaka: Ministry of Energy and Water Development.

Water and Sanitation Act 1997

This Act focuses on the domestic supply of water and sanitation under the establishment of the National Water and Sanitation Council (NWASCO). NWASCO's functions are defined as: providing for the establishment, by local authorities, of water supply and sanitation utilities; providing for the efficient and sustainable supply of water and sanitation services under the general regulation of the body; and providing for matters connected or incidental to the foregoing[5]. It began operation in 2000 with the formation of five Commercial Utilities in three different provinces. The Copperbelt province has the largest concentration of Commercial Utilities. While other provinces only have one Commercial Utility with head offices in the provincial headquarter, the Copperbelt has three. The number of Commercial utilities formed in each province is not determined by NWASCO. A local authority may resolve to establish a water supply and sanitation utility as a company under the companies act provided the majority of the shares are held by the local authority. The decision to create a Utility among different local authorities is left to the local authorities concerned. A total of 10 CUs had been formed by 2005 in Lusaka, Southern, North Western, Northern, Western, Copperbelt and the Eastern province. In other provinces, the process of creating Commercial Utilities was at different stages such as consultation. Countrywide coverage strategies and strategies to cater for the poor were still being worked out.

Water Related Institutions

There are several bodies that regulate water related activities such as licensing, tariffs and standards as has been mentioned in the previous section. Some problems associated with most institutions in developing nations are the under-staffing and lack of funding. Problems also arise in the water sector and other sectors in Zambia due to inappropriate institutional frameworks and weaknesses of the institutions involved. When it comes to dealing with natural resources, some communities where these resources are found cannot participate in deciding who has access to the resources. Sometimes the decision should be made by the chief though traditional rulers can be overruled by the central government. In Zambia less than 10% of the land is state owned, over 80% of the land is trust land or reserve land which lies under the jurisdiction of traditional chiefs. In essence this 80+% would fall under customary and not common law. In addition, it would also fall under the authority of the chiefs of the different Zambian tribes.

Global Water Partnership (GWP)

The Global Water Partnership has a mission to assist countries in sustainable management of their water resources[6]. It facilitates the exchange of knowledge, experience and the practice of integrated water resources management. A regional Partnership, the Southern African Water Partnership, was formed in 2000 with members from Angola, Botswana, Lesotho, Namibia, Malawi, Mozambique, South Africa, Zambia and Zimbabwe.

One of the outputs of the GWP has been the development of the Southern African Water Vision which covers water, life and the environment in the 21st century. The vision is: "Equitable and sustainable utilisation of water for social and environmental justice, regional integration and economic benefit for present and future generations."
Reportedly the consultation process for the vision could not involve all stakeholders due to limited time and financial resources. The project team particularly highlighted the difficulties experienced in reaching the civil society. In an effort to include as much of the civil society as possible, some civic society groups were identified to voice the concerns of civic society such as the Zambezi society and Environment 2000 in Zimbabwe. The Water Vision is based on the Dublin principles which aim to promote changes in those concepts and practices which are considered fundamental to improved water resource management. The GWP

[5] Government of Zambia. 1997. *The Water Supply and Sanitation Act*. Lusaka: Government Printers.
[6] Global Water Partnership Southern Africa. 2001. Progress report for Phase 1 (1999 – 2001). Harare : GWP Southern Africa Secretariat.

acknowledges that these principles are not static and there is a clear need to update and add specificity to the principles in the light of experience with their interpretation and application.

The GWP also recognises that the present “water world” in Southern Africa contains many situations that are evolving. These include: a rapidly growing population, a rapidly urbanising population, widespread and increasing poverty, widespread food insecurity, inadequate coverage of water and sanitation services especially in the peri-urban, urban and rural poor, disease and premature death from water related illnesses, dependence on agriculture for livelihoods, polluted water bodies, low levels of energy supply, degraded watersheds, transboundary river basins with complex water rights issues and constraints within water management institutions.

APPENDIX C – Daily Volumes of Domestic Water

Public Sheet

Name	Age	Location	Family Size	Source	Amount (Litres)	Uses	Cost (monthly)
Beatrice Tembo	20s	Linda	5	Communal Tap	40 - 60	Washing, Cooking, Bathing, Drinking	K3000
Mavis Lungu	30s	Linda	6	Communal Tap	40- 60	Washing, Cooking, Bathing, Drinking	K3000
Mrs Tembo	30s	Linda	8	Private Tap	Not Sure	Washing, Cooking, Bathing, Drinking, Gardening	K15000
Mr Patson Katyanga	50s	Linda	6	Communal Tap	40	Cooking, Bathing, Drinking	K3000
Maggie Kamanga	20s	Linda	3	Communal Tap	40 - 60	Washing, Cooking, Bathing, Drinking	K3000
Aides Mboza	40s	Linda	8	Communal Tap	60-80	Washing, Cooking, Bathing, Drinking	K3000
Eunice Sikazwe	20s	Linda	N/A	Communal Tap	40 - 100	Hair dressing	K3000
Lucy Chilanda	20s	Bauleni	3	Communal Tap	120	Washing, Cooking, Drinking, Bathing	K3000
Mr Bulaya	50s	Chipata	1	Communal Tap	40	Washing, Cooking, Drinking, Bathing	K3000
Ms Helen Mulenga	40s	Chipata	4	Communal Tap	120	Washing, Cooking, Drinking, Bathing	K3000
Mr David Sichula	30s	Chipata	9	Communal Tap	360	Washing, Cooking, Drinking, Bathing	K6000
Mr Gondwe	40s	Chipata	15	Communal Tap	540	Washing, Cooking, Drinking, Bathing	K6000
Mr Tembo	40s	Chipata	6	Communal Tap	140	Washing, Cooking, Drinking, Bathing	K3000
Mr Joshua Bwalya	30s	Bauleni	3	Borehole	40 - 60	Washing, Cooking, Drinking, Bathing	Zero
Mr M. Simaata	40s	Chipata	6	Communal Tap	140	Washing, Cooking, Drinking, Bathing	K3000
Mr Kepson Mwaba	30s	Kanyama/ Makeni	3	Borehole from Nearby Farm	20	Cooking, Drinking	K100 / 20 litre

Mr Tembo	20s	George	6	Communal Tap	140	Cooking, Drinking, Bathing	K3000
Mr Joseph Mukwila	30s	George	2	Communal Tap	60	Cooking, Drinking, Bathing	K3000
Mrs Loveness Palangwa	40s	George	9	Communal Tap	280	Cooking, Drinking, Bathing, Indoor Toilet	K7000
Faidess Mutoya	30s	George	7	Communal Tap	140	Washing, Cooking, Drinking, Bathing	K3000
Elizabeth Chileshe	40s	George	7	Communal Tap	200	Washing, Cooking, Drinking, Bathing	K3000
Vincent Muke	30s	George	3	Communal Tap	100	Washing, Cooking, Drinking, Bathing	K3000
Mr Patrice Mumba	40s	Lilanda	9	Communal Tap	80	Cooking, Drinking, Bathing	K3000
Mrs Banda	50s	Lilanda	2	Communal Tap	40	Cooking, Drinking, Bathing	K3000
Roy Chileshe	60s	Matero	16	Communal Tap	140	Washing, Drinking, Cooking, Bathing	Zero
Mr Mondoka	50s	Matero	10	Communal Tap	160	Washing, Cooking, Drinking, Bathing	Zero
Mr Jere	50s	Matero	6	Communal Tap	200	Washing, Cooking, Drinking, Bathing	Zero
Mr Kawaya	40s	Chipata	6	Communal Tap	140	Washing, Cooking, Drinking, Bathing	K3000
Ms Chisha	40s	Matero	9	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero
Mrs Musonda	30s	Matero	8	Communal Tap	120	Washing, Cooking, Drinking, Bathing	Zero
Mrs Banda	50s	Matero	11	Communal Tap	140	Washing, Cooking, Drinking, Bathing	Zero
Ms Kasonde	40s	Matero	9	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero
Mr Michael Ngonga	60s	Shamabanse	3	Communal Tap	40	Washing, Cooking, Drinking, Bathing	Zero
Mr Ernest Chishimba	50s	Nakoli	5	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero
Ms Stellia Banda	30s	Shamabanse	7	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero
Mrs Gondwe	50s	Kawama	8	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero
Mr Phiri	60s	Kawama	10	Communal Tap	120	Washing, Cooking, Drinking, Bathing	Zero
Mr Chewe Mpelembe	50s	Kawama	9	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero
Oliver Kangwa	40s	Kamushanga	7	Communal Tap	100	Washing, Cooking, Drinking, Bathing	Zero

Daily water volumes

Jennifer Mulenga	40s	Kamushanga	3	Communal Tap	120	Washing, Cooking, Drinking, Bathing	Zero
Emmerson Beenzu	50s	Kakumbi	6	Mono pump	100	Washing, Cooking, Drinking, Bathing	Zero
Mrs Banda	40s	Kaputula	9	Mono pump	100	Washing, Cooking, Drinking, Bathing	Zero
Mr Mpintwa	50s	Kaputula	4	Mono pump	120	Washing, Cooking, Drinking, Bathing	Zero
Shadreck Nyirenda	60s	Kamushanga	6	Communal Tap	120	Washing, Cooking, Drinking, Bathing	Zero
Theresa Chewe	30s	Kamushanga	6	Communal Tap	80	Washing, Drinking, Cooking, Bathing	Zero
Miriam Chola	50s	Kamushanga	16	Communal Tap	80	Washing, Drinking, Cooking, Bathing	Zero
Julius Ntembwa	50s	Katondo Lwansanse	12	Communal Tap	60	Washing, Drinking, Cooking, Bathing	K 2000
Francis Mulenga	40s	Katondo Lwansanse	6	Communal Tap	80	Washing, Drinking, Cooking, Bathing	K 2000
Phinias Mweleba	50s	Katondo Lwansanse	12	Communal Tap	60	Washing, Drinking, Cooking, Bathing	K 2000
Lamil Munkondya	50s	Katondo Site and Service	12	Communal Tap	80	Washing, Drinking, Cooking, Bathing	K 2000
Patrick Mbewe	40s	Katondo Site and Service	9	Communal Tap	60	Washing, Drinking, Cooking, Bathing	K 2000
Doris Sakambanya	50s	Katondo Site and Service	6	Communal Tap	120	Washing, Drinking, Cooking, Bathing	K 2000
Alfred Machisa	50s	Katondo Site and Service	10	Communal Tap	80	Washing, Drinking, Cooking, Bathing	K 2000
Catherine Nthani	40s	Katondo Lwansanse	6	Communal Tap	60	Washing, Drinking, Cooking, Bathing	Free (Tap attendant)
Rhoda Kabonso	40s	Katondo Chirwa	7	Communal Tap	100	Washing, Drinking, Cooking, Bathing	Free (Tap attendant)
Eunice Kunda	40s	Chililalila	5	Communal Tap	100	Washing, Drinking, Cooking, Bathing	K 2000
Mary Nampemba	50s	Chililalila	10	Communal Tap	100	Washing, Drinking, Cooking, Bathing	K 2000
Media Mulenga	40s	Moomba	14	Mono pump	120	Washing, Drinking, Cooking, Bathing	K 2000
Mr Chitongelesho	50s	Zambezi	10	Communal Tap	120	Washing, Drinking, Cooking, Bathing	K 2000
Evans Lungu	40s	Chililalila	7	Communal Tap	100	Washing, Drinking, Cooking, Bathing	K 2000

Daily water volumes

Kepson Chipeta	60s	Chililalila	4	Communal Tap	120	Washing, Drinking, Cooking, Bathing	K 2000
Steve Mulenga	40s	Chililalila	6	Communal Tap	100	Washing, Drinking, Cooking, Bathing	K 2000
Agnes Masheto	30s	Chililalila	8	Communal Tap	140	Washing, Drinking, Cooking, Bathing	K 2000
Bernadette Musumali	40s	Moomba	4	Mono pump	120	Washing, Drinking, Cooking, Bathing	K 2000
Elida Daka	40s	Moomba	5	Communal Tap	60	Washing, Drinking, Cooking, Bathing	Zero
Ms Olipa Nakazwe	60s	Mwaiseni-Kanyala	15	Communal Tap	200	Washing, Drinking, Cooking, Bathing	K 2000
Ms Rosemary Mwamba	40s	Mwaiseni-Kanyala	13	Communal Tap	200	Washing, Drinking, Cooking, Bathing	K 2000
Ms Rosemary Kapalu	40s	Mwenye		Borehole	80	Washing, Drinking, Cooking, Bathing	Zero
Ms Loveness Chengo	60s	Mwenye		Borehole	100	Washing, Drinking, Cooking, Bathing	Zero
Ms Martha Mwilwa	40s	Mwenye		Borehole	80	Washing, Drinking, Cooking, Bathing	Zero

Daily water volumes

APPENDIX D – International Water Initiatives

Initiative	Year	Purpose	Proposing Body
International decade for Water and Sanitation	1981 - 1990	Outcome of the United Nations Water Conference, held in Mar del Plata, Argentina, 1977. The Plan of Action recommended that governments "develop national plans and programmes for community water supply and sanitation, and identify intermediate milestones within the context of the socio-economic development planning periods and objectives giving priority attention to the segments of the population in greatest need". Resolution II of the Conference also recommended that "national development policies and plans should give priority to the supply of drinking water for the entire population and to the final disposal of wastewater".	United Nations
Africa 2000	1993	An international cooperative effort to expand water and sanitation services throughout the countries of the Region. The overall objective of AFRICA 2000 is to ensure access to safe drinking-water and adequate sanitation for all people of the Region through the acceleration of investment in countries. A key aim of AFRICA 2000 is to promote country-based partnerships between national governments, external support agencies and NGOs so they work together effectively to address the water supply and sanitation needs of each country.	World Health Organisation
Water for African Cities	2001	To tackle the urban water crisis in African cities through efficient and effective water demand management, build capacity to mitigate the environmental impact of urbanisation on freshwater resources and boost awareness and information exchange on water management and conservation.	United Nations Environment Programme and UN Habitat
Water, Sanitation and Hygiene for all (WASH)	2002	Advocacy and communications campaign to mobilize political awareness, support and action to end the suffering of the 1.1 billion people without access to safe water, and the 2.4 billion without adequate sanitation	Water Supply and Sanitation Collaborative Council (WSSCC)

APPENDIX E – Large Scale Water Projects in Zambia

Water Projects Funded by the World Bank

Project Title	Objective(s)	Amount	Years of Operation	Sector
Mine Township Services Project	To facilitate the completion of the privatization of ZCCM (Zambia Consolidate Copper Mines) by supporting the provision of efficient and reliable water supply services, wastewater services and solid waste management in five mine townships during a transitional period following the privatization	**US $37.7 million Credit**	**2000-2004**	**Water and Sanitation**
Power Rehabilitation Project	To enhance the ability of Zambia's electricity supply industry to provide electricity at least cost and in an efficient, sustainable manner to stimulate more and inclusive growth in the Zambian economy.	**US $75 million Credit (Only partial funding as total project costs Us $203 million)**	**1998 - 2002**	**Energy and Mining**
Urban Restructuring and Water Supply Project	1) Provide immediate solutions to the most severe water and sewerage infrastructure deficiencies in nine key urban areas 2) Test out community-generated and managed water and sanitation demonstration projects which meet articulated needs at an affordable price while strengthening local councils capacities to support community based initiatives in Lusaka and the participating Copperbelt councils 3) Initiate broader institutional and financial reforms required for providing organizational incentives for investing in, operating and maintaining infrastructure based on residents' perceived needs and willingness to pay.	**US $33 million**	**1995 - 2001**	**Water and Sanitation and Flood protection**
Rural Water Supply Project	Assist the Government to improve and expand water supply services in six districts in Northern Zambia and to strengthen the Department of Water Affairs (DWA) and the district	**US $16 million**	**1983 -1991**	**Water sanitation and flood**

	councils as the principal sector institutions charged with carrying out the country's water supply programs and policies.			**protection**
POWER KARIBA-NORTH		**US $42.1 million**	**1974 -**	**Electric Power and Energy**
Kafue Hydroelectric Power/Second Stage Project	(1) Construct a storage dam across the Kafue River at Itezhi Tezhi (2) Extend the Stage I Kafue power station located 250 km downstream from the dam (3) Install a 330 kv single circuit transmission line, 60 km in length, connecting the Kafue power station to the Central African Power Corporation (CAPC) grid at Kafue town.	**Us $ 115 million**	**1973 -1982**	**Electric Power and Energy**
Kariba North Power Project	1) Construction of the Kariba North power station 2) The expansion of the 330 KV transmission system in Zambia and Southern Rhodesia 3) The installation of additional sub-station capacity.	**US $40 million**	**1970 -1980**	**Electric Power and Energy**
Power I		**US $ 3.8 million**	**1964 -**	**Electric Power and Energy**
Power II		**US $ 40 million**	**1956 -**	**Electric Power and Energy**

Projects Funded by Africa Development Bank

Project Title	Objective(s)	Amount	Years of Operation	Sector
Water Supply and Sanitation Study in Seven Centres in Central Province	1) Development of plans for water and sanitation services in seven centres; Kabwe, Kapiri-Mposhi, Mkushi, Serenje, Chisamba, Chibombo and Mumbwa 2) Feasibility studies and detailed designs of the first phase of the project and institutional study	UA 1.97 million	**1998 - 1999**	**Water Supply and Sanitation**
Health Sector Support Project	1) Improved primary health care infrastructure 2) Provision of safe water 3) Establishment of preventive maintenance 4) Support to the human resources development program 5) Capacity building 6) Project management In twenty Districts of Zambia	UA 10.20 million	**1999 - 2001**	**Health**

APPENDIX F – Water Sector Budget Allocations in Zambia

Overall National Budget: 1996 - 2005

YEAR	Total Budget	Donor	GRZ	GRZ/Donor Supplementary	Releases
1996	1,161,532,875,283	304,436,311,930	857,096,563,353	104,377,721,882	612,100,029,474
1997	1,480,806,902,447	356,877,730,821	1,123,929,171,626	134,409,229,171	913,283,204,142
1998	1,823,457,078,144	511,075,806,409	1,312,381,271,735	151,496,816,126	1,049,453,793,734
1999	2,230,103,363,099	665,722,564,003	1,564,380,799,096	267,076,364,408	1,162,519,496,422
2000	2,956,989,935,617	1,004,989,935,617	1,952,000,000,000	304,971,857,577	2,025,628,218,379
2001	5,015,050,011,500	2,558,647,455,643	2,456,402,555,857	410,577,008,553	2,801,613,850,972
2002	5,676,754,293,934	2,247,005,645,563	3,429,748,648,371	449,659,048,554	3,106,482,490,625
2003	6,930,550,010,142	2,956,561,625,124	3,973,988,385,018	913,144,740,548	4,240,236,627,720
2004	8,328,703,419,450				
2005	9,779,025,370,413				

Note:

1. Total budget is colum "total budget" w hich is Donor + GRZ, supplementary is for both. Releases is for your interest:
You may ignore this column to avoid too many explanations that border on credibility of the budget (this has been improving), infact cut out the 4 columns altogether.
2. 2004/2005 do not have the other columns due to the source of information and change of classifications.

Ministry of Energy and Water Development Budget: 1996-2005

YEAR	Total Budget	Donor	GRZ	GRZ/Donor Supplementary	Releases
1996	35,402,305,012	21,756,700,000	13,645,605,012	-	
1997	28,937,326,504	21,113,160,000	208,502,500	208,502,500	
1998	35,493,090,270	27,044,328,000	8,267,239,005	181,523,265	
1999	34,347,502,007	21,646,736,000	12,700,766,007	-	
2000	20,888,384,262	9,394,269,662	11,494,114,600	-	
2001	57,224,167,532	36,841,975,429	20,382,192,103	-	
2002	35,901,205,720	-	35,901,205,720	-	
2003	31,919,573,956	16,900,000,000	14,436,706,490	582,867,466	
2004	38,991,182,229	-	-	-	
2005	35,862,607,313	-	-	-	

Notes:

1. 2004 & 2005 are totals w ithout breakdow ns. Classifications changed due to the introduction Activity Based Budgeting (ABB) under the Medium Term Expenditure Framev
(MTEF) Programme.
2. The expenditure for w ater and sanitation issues is also budgeted for under head 21 (Ministry of Finance and National Planning) e.g. **water supply programmes and p**
in various districts across the country in 2004 were K253,461,198,596. In 2005, it is K96,084,290,001.

Water Sector National Budget Allocations

APPENDIX G – NGOs in the Zambian Water Sector

Table G1 NGOs in Water Sector

NGO	Location	Project Areas	Aims	Comments
World Vision International	Over 20 Area Development Programs (ADPs) across the country in partnership with communities and local government	Food and agriculture security Water and sanitation Education Income generation Primary and curative health care	Promote quality programming that responds to the needs and aspirations of all community members Facilitate continued learning across ADPs: sharing of best practices, new monitoring tools Respond to emergency and immediate humanitarian needs Embrace policies in decision making, communication and human resource management that are participatory and affirming Demonstrate servant leadership	WVI is a Christian based organisation with a child focus. The work of the organisation reflects the focus of bettering a child's life. Water is recognised as one of the main elements in a child's life so access to clean and safe water is vital for good health. The funding for local WVI projects comes from overseas partners. The local teams carry out a needs assessment with the communities they work in to decide what projects to undertake in the communities. The communities prioritise their needs but these needs must meet the criteria set by WVI.
CARE International	The poor in urban and rural communities	Multiple aspects of poverty including the following: Renovations of water systems Operations and maintenance of water & sanitation systems Solid waste management Surface water drainage Improving surface	Promote the empowerment of individuals and organisations/partners by assisting them in enhancing their capacity to secure their livelihood and to improve their environments Link relief to longer term sustainable development activities intending to foster a capability for self-reliance Improve the accessibility to agri-inputs and other products in rural areas while reducing the real and opportunity costs of agri-inputs for farmers in remote rural areas	CARE is a livelihood and sustainable development focused NGO. They take a holistic view to life including the importance of access to safe and clean drinking water. The projects undertaken by CARE are funded through international funding mechanisms especially donor agencies. The work of the organisation is centred around the poor and vulnerable especially in the urban areas and surrounding peri-urban areas. The organisation carries out a needs assessment involving the community where a potential project will be undertaken. CARE

		drainage Hygiene education		also sets criterion that the community and proposed project must meet. The organisation usually makes use of line Ministry staff in their project areas.
Lutheran Worldwide Foundation	Eastern province	Improving water supply Promoting income generating activities	Implementing an integrated development programme. Looking at agriculture, health, HIV and AIDS, income generating activities etc. Interacting with the communities in these fields promotes awareness of the organisation and enables communities to approach the organisation when they need help in water supply and water related activities.	A Christian based organisation which has an integrated development approach through its rural development and motivational programme. The organisation mainly works with communities that use shallow wells and helps them in lining and re-deepening of wells. There is criterion set by the organisation which the projects and communities need to meet. Funding for projects is controlled centrally from Geneva where the organisation head quarters are located.
Irish Aid or DCI	Northern province and projects near the capital Lusaka, in the city of Kitwe on the Copperbelt, and in the south of the country in the town of Mazabuka. In partnership with the Zambian people at all levels, national, regional and community	Improving water supply and sanitation Health care Primary education Urban/community development.	To help address poverty and basic needs by supporting essential sectors such as health, education, water, sanitation and income generation, To build up the capacity of the Zambian people - at community, local and national level - and to maximise their involvement in their own development, thus helping to ensure that progress made can be sustained and further improved	Inter governmental aid agency with a strong hold in the Northern Province. The strong hold can be traced back to the white fathers who came to the region as missionaries. DCI has a development focus. Specifically regarding water the organisation offers financial and technical support in IWRM under the umbrella of meeting MDGs. DCI has a mandate which includes capacity building in communities and using a bottom up approach in development.
Water Aid	Urban and rural poor .	Dedicated exclusively to the provision of safe domestic water, sanitation and	Works by helping local organisations set up low cost, sustainable projects using appropriate technology that can be managed	Water Aid focuses on capacity building in government institutions and in improving community water supply especially in rural areas. They aim to influence policy in the

hygiene education to the world's poorest people	by the community itself. Water Aid also seeks to influence the policies of other key organisations, such as governments, to secure and protect the right of poor people to safe, affordable water and sanitation services	Zambian water sector acting as both a facilitator and a coordinator for donor activities. The funding for water aid projects is mainly provided by well wishers in the form of donations and good will. Water Aid is in effect a British charity organisation. .

Government Agencies in Water Sector

Body	Governing Act and Level	Roles and responsibility	Comments
Water Development Board (WDB) under MEWD	Water Act of 1948 National level	To control the use of all surface water resources in the country by allocating water rights to different users	Under staffed and has central control. Lacks resources as revenues are placed in central government coffers. Limited monitoring activities and weak at enforcing
Department of Water Affairs (DWA) under MEWD	Water Act of 1948 National level, Provincial level and District level	Provide technical support to the Water Development Board Monitoring development of water structures in the country Monitoring of water levels in national rivers Conducting Geophysical surveys Hydrological and meteorological data collection and analysis for public use Physical implementation of the National Water Policy	Undergoing restructuring and responsibility refocusing. Some posts at district level not filled. Machinery usually lies idle because of lack of contracts and funding for projects. Personnel not sure of full duties and responsibilities. Internal struggles with MLGH. Well placed to cover national concerns.
Environmental Council of Zambia (ECZ)	Environment Protection and Pollution Control Act of 1990 National and one Provincial level	Control of pollution in national water ways Issuing licences for effluent discharges Identifying areas that require Environmental Impact Assessments Setting standards for effluent before discharge Enforcing effluent discharge standards Policy formulation	Effectiveness affected by central control structure and lack of consistent funding. Revenues from licensing not sufficient. Potential overlap with NWASCO on effluent licensing
National Water and	Water Supply and	Regulate Water Supply and Sanitation	Effectiveness affected by central control

Sanitation Council (NWASCO)	Sanitation Act of 1997 National level	Supervise the operations of newly formed Commercial Utilities Enforcement of water quality standards Regulating the levels of capital expenditure associated with meeting water quality standards Evaluating efficiency levels Giving incentives for improved performance Penalizing defaulters for negligence.	structure and lack of resources for efficient monitoring of standards. Rely on feed back from water providers. Monitoring and inspection activities not efficient. Potential over lap in drinking water quality monitoring with MoH. Potential overlap with ECZ on effluent treatment for sewerage companies.
Water Resources Action Programme	National Water Policy	Institutional and legal reform of water sector	Conducted national consultation with all major stake holders but have remit to focus on economic exploitation of water resources thus the general public are not consulted on water resource management
Ministry of Health (MoH)	Public Health Act of 1978 National, Provincial and District Level	Enforcement of water quality standards Random checks on drinking water quality	Potential overlap in water quality monitoring with NWASCO. Erratic water quality monitoring unless disease outbreak. Record keeping not harmonised. Well placed to cover national concerns
Ministry of Local Government and Housing (MLGH)	Local Government Act of 1980 National, Provincial and District level	Service Provider in areas where Commercial Utilities have not been created Domestic water supply in rural and urban areas	Well placed to cover national concerns. Lacks human and capital resources to provide clean and safe drinking water to all citizens. In house squabbling with MEWD.

APPENDIX H – Sample Interview Guides

Guide 1: Urban Residents and General Public members

1. How long have you lived in this area?
2. What is the main determining factor of your choice to live in this area?
3. What is your main source of water supply?
4. Who is responsible for the water supply in your household?
5. How much water do you use on a daily basis?
6. What are your main uses of water?
7. Do you have the same water source for all your water uses?
8. What is the monthly cost of the water you use as a household?
9. Is there any further treatment required before you use your water from your source?
10. Do you have any alternative sources for water?
11. Are there any limitations on the amount of water available for use?
12. Do you have a constant water supply or is the supply disrupted?
13. Do you have any interactions with other water users in the area?
14. What form of communication or interaction do you have with your water provider in the area?
15. Have there been any changes in your water source since you have lived in this area?
16. Have there been any significant changes in the quality of water that you use since you have lived in this area?
17. Have there been any changes in the amount of water available for your use since you have lived in this area?
18. Do you have any knowledge of water projects that have occurred in this area?
19. Are there any limiting factors to water access?
20. How are the limiting factors dealt with?
21. Are there any conflicts for water use in the area?
22. Are there any other comments you would like to make?

Guide 2: Peri-Urban Residents and Rural Area Residents

1. How long have you lived in this area?
2. What is the main determining factor of your choice to live in this area?
3. What is your main source of water supply?
4. Who is responsible for the water supply in your household?
5. Who is the provider of your water source?
6. How much water do you use on a daily basis?
7. What are your main uses of water?
8. Do you use the same source of water for all your needs?
9. Do you have any alternative sources for water?
10. What is the monthly cost of the water you use as a household?
11. How much time is spent on water collection daily?
12. Are there any limitations on the amount of water available for use?
13. Have there been any changes in your water source since you have lived in this area?
14. Is there any further treatment required before you use your water from your source?
15. Have there been any significant changes in the quality of water that you use since you have lived in this area?
16. Have there been any changes in the amount of water available for your use since you have lived in this area?
17. Do you have any interactions with other water users in the area?
18. Do you have any knowledge of water projects that have occurred in this area?
19. Is your water source affected by seasonal changes?
20. Are there any limiting factors to water access?
21. How are the limiting factors dealt with?
22. Are there any conflicts in water use at the household level?
23. Are there any conflicts for water use in the area?
24. Are there any other comments you would like to make?

Guide 3: Institutions and Water utilities

1. What is the role of your institution regarding the access, allocation and use of water?
2. Does your institution have any interactions with other institutions or stakeholders?
3. What framework exists for the access, allocation and use of water in different areas in your jurisdiction?
4. What policies are used in determining water access, allocation and use?
5. How are the access, allocation and use monitored?
6. What is the role of common law in the formation of the framework or policies regarding water access, allocation and use?
7. What is the role of customary law in the formation of the framework or policies regarding water access, allocation and use?
8. What are the main hindrances you find in ensuring your institutions plays its role in the national water arena?
9. Who is responsible for the provision of water to your institution?
10. How much water does your institution use on a monthly basis?
11. What is the cost of water used by your institution on a monthly basis?
12. What is your view on ensuring access of water to the general public and equitable allocation?
13. Are there any changes you would like to see at the institutional level in the national water sector?
14. Are you aware of any International campaigns regarding water access and allocation?
15. What is the role of international conventions and campaigns for water as far as your institution is concerned?
16. Are there any other comments you would like to make on any issues raised?

Guide 4: Companies (Private Firms)

1. What type of business is your firm in?
2. How large is your firm in terms of number of employees?
3. How long has your firm been operating in this area?
4. What are the main determining factors of your firm's location?
5. What is the source of water used by your firm?
6. Do you use the same source of water for all your needs?
7. Who is the provider of your firm's water resources?
8. How much water does your firm require on a daily basis?
9. What are the main uses of water by your firm?
10. What is the cost of the water your firm uses on a monthly basis?
11. Does your firm have a constant water supply or is it disrupted?
12. Is there any treatment required to the water before it is used by your firm?
13. How important is water quality to your firms operations?
14. Are there any limiting factors to your firms water use?
15. How are these limiting factors dealt with by your firm?
16. Does your firm have any interactions with other water users or stakeholders?
17. Do you have any interaction or communication with your water supplier?
18. Are there any changes you would recommend to your water supplier?
19. Are there any changes you would like to see at the local level in the water sector?
20. Are there any changes you would like to see at an institutional level in the national water arena?
21. Do you have any comments to make on any other water related issues?

Guide 5: District Officials and Community heads

1. How long have you worked in this area?
2. Do you live and work in this area?
3. What role if any do you play in determining the allocation, access and use of water in the area?
4. What are the main uses of water in the area?
5. What are the main sources of water in the area?
6. Who is responsible for the provision of water in your area?
7. Have there been any notable changes in the quality of water from your different sources?
8. Are there any limitations to the amount of water an individual or a particular actor can use?
9. Do you have any interaction with water users or other stakeholders in your area?
10. Are there any factors that determine the availability of water in your area?
11. Is there a local strategy to ensure water access for the community and their livelihoods?
12. Are there any conflicting demands in the water access, allocation and use in the area?
13. Is there a framework for the resolution of these conflicts?
14. Are there any changes you would like to see in the allocation, access and water use in your area?
15. Are there any other comments you would like to make?

Guide 6: Farmers

1. How long have you lived in this area?
2. What is the main determining factor of your choosing to live in this area?
3. What is your main source of water supply?
4. How much water do you use on a daily basis?
5. What are your main uses of water?
6. Do you use the same source of water for all your needs?
7. Who is the provider of your water source?
8. What is the monthly cost of the water you use?
9. What is the maximum distance you have had to go to obtain water for daily use?
10. How much time is spent on water collection daily?
11. Do you have any alternative sources for water?
12. Is your water source affected by seasonal changes?
13. Do you have any interactions with other water users in the area?
14. Are there any limitations on the amount of water available for use?
15. Have there been any changes in your water source since you have lived in this area?
16. Is there any further treatment required before you use your water from your source?
17. Have there been any significant changes in the quality of water that you use since you have lived in this area?
18. Have there been any changes in the amount of water available for your use since you have lived in this area?
19. Do you have any knowledge of water projects that have occurred in this area?
20. Are there any limiting factors to water access?
21. How are the limiting factors dealt with?
22. Are there any conflicts for water use in the area?
23. Are there any changes you would recommend for your water supply?
24. Are there any changes you would like to see at an institutional level in the national water sector?
25. Are there any other comments you would like to make?

APPENDIX I – Sample Letter to Town Clerks

School of Geography, Politics and Sociology
University of Newcastle upon Tyne
Newcastle upon Tyne
NE1 7RU
United Kingdom

15th June 2003

The Town Clerk,
Kabwe District Council,
Kabwe,
Zambia.

Dear Sir/ Madam

RE: Water Management Research

I am a Zambian student currently studying at the University of Newcastle upon Tyne at post graduate level. I am part of a team that is looking at Second Order Water Scarcity issues in Southern Africa with a focus on Zambia and South Africa. The project is being funded by the Department for International Development (DFID) which is based in the UK.

The research will look at the availability, access and control of water as a resource in different parts of Zambia. Your district is one of the selected districts for the research i.e. a case study for the region. This initially means our team would like to conduct some interviews with different water users in your district to be able to compile the data.

The project will run for a length of three to four years and at the end of this a report will be produced. The results of the study will also be disseminated through different workshops to which stakeholders and the public will be invited.

The schedule of interviews in Kabwe is during the month of September 2003. We look forward to your assistance when the team arrives in your area and indeed to working with members of your community and district.

Yours faithfully,

Ms Paxina Chileshe

APPENDIX J – Institutional Contacts

Mr. T. C. Chanda and the technical team at Asset Holding Company (Kitwe)

Mr. A. Mwaba and the treatment plant employees at Nkana Water and Sewerage (Kitwe)

Mr. J. Sakala and Mr. B. Mwanza at Environmental Council of Zambia (Lusaka and Ndola)

Mr. A. Lusaka at Department of Water Affairs (Lusaka)

Mr. F. Sichilongo at Ministry of Local Government and Housing, DISS (Lusaka)

Mr. R. Mwasambili at National Water and Sanitation Council (Lusaka)

Dr. K. Maseka and Mr. Kanyembo at Institute of Environmental Management (Kitwe)

Appendices to South Africa case study

Appendix A: Preliminary Compilation of Water Maps in South Africa

Who	Site
DWAF	www.dwaf.gov.za/BI/Mapshop/
DWAF (Breede River Basin Study)	projects.shands.co.za/Hydro/Hydro/BRBS/main.htm
DWAF (Berg River Monitoring Programme	www.dwaf.gov.za/Projects/BergRiver/st_area.asp
DWAF (IWRM project)	http://www.dwaf.gov.za/iwrm/contents/about/what_is_iwrm.asp
DWAF (Orange River Project)	http://www.dwaf.gov.za/orange/default.htm
DWAF (LHWP)	http://www.dwaf.gov.za/orange/default.htm
DWAF(SEA Mhlathuze Catchment)	http://www.dwaf.gov.za/sfra/sea/mhlathuze%20pilot%20study/sea_mhlathuze.asp
DWAF (Thukela Water Project)	http://www.dwaf.gov.za/thukela/Requirements.htm
DWAF (Cape Metro water plan)	http://www.dwaf.gov.za/Projects/Capewaterplan/Page2.htm
Umgeni Water	http://www.umgeni.co.za/Operational%20Area242.aspx
Enchanted Learning	http://www.enchantedlearning.com/africa/rivers/outlinemaplabeled/
National State of the Environment Report	http://www.ngo.grida.no/soesa/nsoer/general/about.htm
South African Weather Service	http://metsys.weathersa.co.za
Oliphants River Basin Study	**Working Paper 18, Policies, legislation and organizations related to water in South Africa, with special reference to the Olifants River Basin**
Doing business in South Africa	http://www.southafrica.info/doing_business/economy/infrastructure/sa-lesothowaterproject.htm
DWAF Hydrological Services	http://www.dwaf.gov.za/Hydrology/
South African Explorer Travel Atlas	http://www.saexplorer.co.za/maps/
Rand Water	http://www.randwater.co.za/Education/Downloadable_Materials/dm_poster.asp
National Geographic	www.nationalgeographic.com/. ../soafr_2003.html
White River Country Club, South Africa Golf	http://www.southafricagolf.com/.../ maps/white-river.gif
Dept of Environmental Affairs & Tourism	http://www.environment.gov.za/Maps/PublishMaps/Maps_details.asp?MapID=44
West African workshop on Eco-systems & health	http://www.mara.org.za/eshaw.htm
Dept of Environmental Affairs & Tourism	http://www.environment.gov.za/
Dept of Environmental Affairs & Tourism	http://mapserver.dataworld.co.za/deatmapping/map.aspx?mapservice=ramsar
University of Texas Libraries	http://www.lib.utexas.edu/maps/africa/south_africa_reliefmap.jpg
The Universities Partnership for Transboundary Water	http://waterpartners.geo.orst.edu/mission.html
University of Oregan	http://www.transboundarywaters.orst.edu/publications/atlas/atlas_pdf/thematic_popDensity.pdf
Amatole Water Board	http://www.amatolawater.co.za/about.htm
Eskom	http://www.eskom.co.za/live/content.php?Category_ID=97
AWARD	http://www.award.org.za/AWARDannualreport03-04.pdf
Roundabout Playpump Ltd	http://www.roundabout.co.za/main_the_playpump.htm

Appendix B: Preliminary of Compilation for Social Worlds Map

Glossary, Abbreviations, Explanations & Key

ACSA: Anglo American Corporation of South Africa

AMREF: African Medical and Research Foundation

AWARD: Association for Water and Rural Development

AWIRU:

BEE: Black Economic Empowerment

BOTT: Build Operate Train Transfer

CBO: Community Based Organisation

CFA: Commission for Africa

CMA: Catchment Management Agency

CSIR:

CWSS: Community water supply and sanitation programme, initiated by DWAF in 1994, to achieve the constitutional right of all South African's to have access to sufficient water and a healthy living environment.

DALA: Department of Agriculture and Land Affairs

DPLG: Department for provincial and local government

DWAF: Department of Water Affairs and Forestry

EIA: Environmental Impact Assessment

ERWCC: East Rand Water Care Company, part of ERWAT group

FBWP: Free Basic Water Policy

ICM: Integrated catchment management

ICRC: International Committee of the Red Cross

IDP: Integrated Development Plan

IDT: Independent Development Trust

IHE: International Institute for Infrastructural, Hydraulic and Environmental Engineering (based in Netherlands)

International Federation: International Federation of the Red Cross and Red Crescent Societies.

ISD: Institutional and social development

IWRM: Integrated Water Resource Management (framework)

KZN: KwaZulu Natal

LED: Local economic development

LHDA: Lesotho Highlands Development Authority – manages the Lesotho side of the LHWP

LHWP: Lesotho Highlands Water Project

NEPAD: New Economic Partnership for Africa Development

NGO: Non-Governmental Organisation

NWIRA: National Water Resource Infrastructure Agency

PDG: Palmer Development Group

PPP: Public, private partnerships

PWP: Public Works Programmes

RAWSP: Rural areas water and sanitation programme

SADC: Southern Africa Development Community

SAAWU: South African association of water utilities

SALGA: South African local government association

SARAR: Self-esteem, Awareness, Responsibility, Action planning & Resourcefulness

SARCS: South African Red Cross Society

SAHRC: South African human rights commission

SC: Steering Committee

Compilation of Social World Maps

SERA: Southern Education and Research alliance

TCTA: Trans-Caledonian Tunnel Authority – manages the South Africa side of the LHWP

UDT: Urine diversion toilet

VIP: Ventilated improved pit latrine

WC: Water Committee

WEDC: Water and Engineering Development Centre (Loughborough University, UK)

WHIRL: Water, households and rural livelihoods

WINSA: Water Information Network South Africa

WRC: Water Research Council

WRM: Water Resource Management

WSA: Water Service Authority

WSDP: Water Service Development Plan

WSP: Water Service Provider

WSSLG: Water Services Sector Leadership Group

Organisational Key

A = National Parastatal Agency

B = Bulk water/wastewater supply (supplier to farmers, industry, catchment management agencies, municipalities…)

C = Catchment (bulk/intermediate) supply

D = NGO (Non for Profit)

E = Private Water Companies, which are suppliers in contracts

F = Private Research Consultancies

G = Private Consultancies and Engineering/Management/Construction firms active in the water sector

H = Private Companies which are bulk water users.

Major Discourses always appear first, minor/sub discourses appear later.

A) Department of Water Affairs and Forestry (DWAF)

Representation of self	**Custodian water resources, responsible, policy maker**
Representation of people	**Educate, co-operate**
Scalar level	**Catchment**
Representation of water	**Resource, manage, protect, economic value, social worth, human right**
Drivers of change	**Increase access, National Water Act, decentralise, FBWP**
Water Use	**Reduce poverty, inequality, national development, policy debate**
Access modalities	**From national govt, legislator, regulator, grants licenses to extract**
Allocation/Transmission	**Dams, reservoirs, reticulation systems**

Representation

DWAF is the **custodian of** South Africa's **water** and forestry **resources**. They manage these in the spirit of Batho Pele (people first). Mandate is to ensure that people have equal access to water and sanitation. They have **overriding responsibility for water services** (provided by local government) and **formulate national policy**. DWAF is a partner in many water projects including: water resource development, infrastructure development, research, consultation forums and PWP.

People need to be **educated to understand, protect and manage water**, they can **work together co-operatively**.

There are many scalar levels, from national to community but WRM is being restructured around management at **catchment** level by CMA's.

Water resources need to be **managed, protected and conserved for future generations.** Water has **economic value** and **social worth**; value appears to take precedence as cost-effective, efficient and productive are used and 'social' uses are not described. There is a discourse on **human rights, equity and social justice,** the **FBWP** is an attempt to operationalise this. Water brings **benefit to people and the nation**; visions of a beautiful, prosperous South Africa are evoked, contributing to the 'African renaissance'. There are minor discourses on **conservation** and **environmental sustainability,** water is linked to **sanitation** and **good health**. Used wisely, water resources can **create employment** and **reduce poverty**.

Change over time

The democratic government inherited a fragmented water services system with large service provision backlogs. There was a drive to increase access to water (1994-199?), aim was to provide water within 200m of every household. In some areas these persist but emphasis has now shifted. In 1998 National Water Act was passed which outlines a new structure for water services management: CMA's will perform water resource management functions, water services delivery will be passed to WSP's and regulatory functions will be carried out by WSA's (municipal/ district government). Infrastructure/service delivery management is being handed over gradually, reflecting the need to build local capacity. In future DWAF's role will be that of advice, support and monitoring.

Water use

DWAF uses water resources to reduce poverty, redress past inequalities and contribute to national development. Water is used as the entry point into key policy debates about the shape and direction of the future in South Africa.

Access modalities

As national custodian of resources and policy maker, DWAF has considerable power to influence how and whom gets access to water. Power is vested in DWAF (and funding received) from national government. DWAF has the power to override decisions/actions of WSA's when these are deemed not to be in the public interest. Bulk water suppliers and water users (who do not get water from a bulk

supplier) must apply to DWAF for a license to extract and/or discharge water and wastewater. DWAF decides when and what new water infrastructure/investment is needed.

Key relationships are with: WSA's (support, monitor, regulate) WSP's (support, monitor, regulate), research institutes (e.g. WRC) and other infrastructure/service providers (e.g. LHWP, soon to be formed NWIRA).

Allocation/transmission

DWAF are a vital 'link in the chain' of water resource management. They are withdrawing from direct allocation/transmission and role is more advice/monitor/regulate. National policy outlines a framework for how water resources should be allocated (with provision for an environmental and basic human needs 'reserve'. Key technologies are major infrastructure e.g. dams, reservoirs, pipelines, reticulation systems.

C) Umgeni Water

Representation of self	**Successful water resource manager, bulk water supplier**
Representation of people	**Clients/customers or poor communities**
Scalar level	**Catchment**
Representation of water	**Scarce resource, business, human right, livelihoods, environment, water quality**
Drivers of change	**Water service provision backlog, Municipal Structures Act**
Water Use	**Bulk water service provider, core business, employment**
Access modalities	**Supplies water/wastewater services to WSA's, Water Services Act**
Allocation/Transmission	**Dams, reservoirs, reticulation, sanitation technologies, playpumps**

Representation

Umgeni Water is one of Africa's 'most successful' water management organisations, the largest bulk water supplier in KZN. Vision is to be "the number one water utility in the developing world", a leader in water cycle management. As well as water supply and management, Umgeni engages in water forums, international 'initiatives', offers consultancy and has a community development programme.

People are portrayed as clients/customers with needs which must be responded to or as poor communities who must be helped to gain access to water (albeit on a cost recovery basis).

Umgeni is a 'catchment-based' supplier and advocates integrated catchment management.

Dominant discourse is that water is a scarce resource, needing careful management. Water resources are unevenly distributed (in relation to need) and intervention is required to redistribute them. Water is precious, resources are 'undervalued', water supply is a business and water is sold to customers. The current paradigm is 'water for life' but we should be moving to 'water for economic development'. There is a discourse around the right to water and water in relation to livelihoods. There are minor 'environmental' and 'scientific' discourses: environmental/ecological management is important and water quality must be monitored.

Change over time

Umgeni Water was founded in 1974 out of Durban Metro, is one of the largest bulk water suppliers in Southern Africa and is poised to expand into other African countries. In 1980s Umgeni addressed service provision backlog in KZN through its RAWSP. Umgeni's role in water service delivery is changing, in line with the Municipal Structures Act (1998) the RAWSP is being transferred to municipal management and Umgeni is focusing on helping municipalities build capacity to address water service provision backlogs.

Water use

Umgeni manages water 'from source to sea'. Main role is to supply bulk water services (raw, potable, waste water) to WSA's, it manages 6 bulk/wastewater reticulation systems and 4 wastewater works. Water is supplied to myriad actors for different purposes e.g. individuals, schools, industry, farmers, animals. Water supply is Umgeni's business; water (infrastructure and management) is also used to create employment.

Access modalities

Umgeni manages water infrastructure, and supplies water and wastewater services to municipalities which are WSA's (WSA) in accordance with the Water Services Act (1997). It supplies 340,190,218 kl water (indirectly) to 4.8 million people a year. Umgeni is a business, but also a state organ. Access to water is a constitutional right; Umgeni is helping municipalities address service provision backlogs and reports to the SAHRC on progress towards the realisation of this right. Communities who do not have water are helped access it (on a cost-recovery basis) through social development programs.

Key relationships are with municipal WSA's (supplier), DWAF, Departments of Health & Education (partners in school hygiene education programmes) and Msini Holdings (subsidiary company, manages land surrounding infrastructure).

Allocation/transmission

Bulk water services are supplied to WSA's via infrastructure including dams, reservoirs and reticulation systems. A 'technical' discourse recognizes the key role of infrastructure in transmission. Umgeni are investing in/experimenting with new technologies for water treatment, different sanitation options (e.g. VIP's and UDT's) and roundabout playpumps (in association with DWAF) to provide water to schools.

D) AWARD (Association for Water and Rural Development)

Representation of self	**NGO, integrated approach**
Representation of people	**Rational actors, participation, build capacity, can manage wisely**
Scalar level	**Catchment, village, household**
Representation of water	**Finite resource, water security, adds value to livelihoods**
Drivers of change	**Decentralisation, National Water Act, lack of core funding**
Water Use	**Livelihoods, capacity building, environment, poverty reduction**
Access modalities	**Stream water, ground water, rain water, advocate (fairer) reallocation**
Allocation/Transmission	**'Appropriate', communal taps, borewells, handpumps, gravity supply, rain water harvesting**

Representation

An NGO, located in Sand River catchment (Northern Province), AWARD is the only NGO in South Africa to be integrating water supply and resource issues. The integrated approach involves balancing priorities e.g. access to water, conservation, awareness raising, capacity building & research. Vision is for the catchment to be a model of sustainable development. They carry out research and have community water projects, there are four strategic areas of work: policy; awareness/capacity building; sustainable development; environmental rehabilitation.

AWARD's constituency are the previously disenfranchised, they aim to give 'a voice to the voiceless' and use participatory methodologies. People are rational actors who lack capacity but can be empowered to manage water resources wisely; capacity development (social and institutional) is key. The unit of analysis is household or community; these are portrayed as co-operative and capable of managing water resources harmoniously. However, people view water from different perspectives.

The dominant scalar level is catchment, AWARD are involved through their Save the Sand project in an international ICM initiative; village and household levels are also important.

AWARD advocate integrated planning and management as the best way to manage water resources; water resources are finite and management must balance human and environmental needs. Water adds value and security

to the livelihoods of poor people. Conservation and ecosystem protection are important. Need to consider quantity and quality of water in the catchment.

Change over time

Founded in 1992, AWARD has evolved through stages, reflecting external conditions, local needs, and organizational change. Projects and research have always been driven by local needs. Currently (in the context of decentralization) they build capacity of communities and municipalities and research livelihood security; they are advocating that water for livelihoods be incorporated into IDP's. National Water Act provides a supportive policy/regulatory framework as it makes statutory provision for water reserve for basic human needs and the environment. Start up funding was provided by the Leon Foundation; currently there is no core funding and so AWARD works on a project basis.

Water use

Water is used to improve livelihoods, reduce poverty and build capacity of communities and institutions; it is used to protect the environment. AWARD advocate the livelihoods approach which recognises that water impacts on many areas of life (e.g. health, domestic productive) and focus on the importance of water for production. They recommend 30/40 litres water per person per day above basic needs, which would create opportunities for poverty reduction.

Access modalities

AWARD access water in the Sand River catchment for community water projects; they channel stream water, use groundwater and collect rainwater. They advocate a (fairer) reallocation of water and recognise that access is profoundly affected by the actions of other water users in the catchment. Communities should manage their own access to water.

Key relationships are with communities, local government water and agriculture departments (build capacity), DWAF (funder, input into policy making), DALA (funder), IDT and Leon Foundation were start up funders.

Allocation/transmission

Projects use 'appropriate' technologies to allocate and transmit water, these include: reservoirs; village reticulation systems; gravity supply lines; hand pumps; communal taps; borewells and rainwater harvesting systems.

A) Water Research Commission (WRC)

Representation of self	**Water-centred knowledge hub, builds research capacity**
Representation of people	**Stakeholders, empowered by knowledge**
Scalar level	**National, SADC, Africa**
Representation of water	**Can be 'known', sustainable management, scarcity, threat, right to water, health, eco-systems, technology**
Drivers of change	**Lack of water, water quality, National Water Act, globalisation**
Water Use	**Create information, determine national priorities**
Access modalities	**Water research act, 'levy' income, influence policy**
Allocation/Transmission	**Test and patent new and old technologies; internet for information**

Representation

WRC's mandate is to support water research and development, to build capacity to carry out water in South Africa. They are South Africa's water-centred 'knowledge hub' creating and disseminating information/ knowledge and working with stakeholders to find solutions to water related problems. Vision is to become a global leader in finding solutions to water related problems. WRC are aligned with the objectives of NEPAD.

People are represented as 'stakeholders'; knowledge can empower them to act.

Knowledge sharing takes place at the national, SADC and continental levels.

Water is something one can learn about, know, and manage in the national interest. The primary discourse is one of sustainable water management. Management needs to take place at national (as well as SADC and continental) level and balance the needs of society and the environment. South Africa is water scarce, this 'threatens' economic growth, quality of life and the environment; increased knowledge can counter this threat. There are minor discourses around the right to water, health, eco-system management and technology.

Change over time

WRC was established in 1971 following a period of serious drought. The aim was to promote and co-ordinate research on water issues - the most acute being lack of water - and build capacity for research in South Africa. Since then new water issues have come to the fore (e.g. water quality, availability). The National Water Act (1998) demands research to support water resource management (this is one key strategic area, for other see below) and recent multi-lateral initiatives/agreements (e.g. SADC/NEPAD) demand research to facilitate international water resource management.

Water use

WRC's core function is to create and disseminate information/knowledge about water. Water knowledge is used to shape policy at the highest levels as it helps determine national priorities. Beyond 'national interest' judgements are not made about *who* should be using water and *what* they should be using it for. Key strategic research areas are: water resource management; ecosystems; domestic and industrial water use/waste management; agriculture and knowledge support. Cross-cutting research 'themes' are: society/ economy/environment/health.

Access modalities

WRC operates in terms of the 1971 Water Research Act; their scope is further outlined in the National Water Act. By influencing the debate and formulation of policy, WRC indirectly influence how water is delivered and whom gains access to it. Information/knowledge is disseminated via research reports, website and newsletters (e.g. Water Wheel), most publications are sold. WRC also fund and builds capacity of students.

Key relationships are with DWAF (report to), Rand Water, Umgeni (these organisations collect 'levies' which make up the majority of WRC's funding), Mvula Trust (director of Mvula is Board member), researchers and students.

Allocation/transmission

Research informs policy, which ultimately determines allocation strategies. WRC research and test technologies, some new, some new uses of existing ones (e.g. rain water harvesting; microbiological water testing; solar distillation) some have been patented (e.g. BioSure, Petro). Internet is a key means of transmitting information/knowledge about water to stakeholders.

D) Mvula Trust

Representation of self	**Largest water & sanitation NGO in SA, capacity building, projects, training**
Representation of people	**Clients/customers, poor/disadvantaged communities, participation**
Scalar level	**Community**
Representation of water	**Integrated water management, economic value, LED, health, right to water, free basic water, environment**
Drivers of change	**CWSS, BOTT, Water Services Act, FBWP**
Water Use	**Capacity building, community development, health, LED**
Access modalities	**Facilitate partnerships, delivery, influence & help formulate policy, community water committees**
Allocation/Transmission	**Low cost, locally chosen e.g. trickle-feed, VIP's, UDT's, solar panels, tube wells, radio**

Representation

Mvula Trust is the largest water and sanitation NGO in South Africa. Mission is to improve the health and livelihoods of poor people. Head/policy office is in Johannesburg and there are eight regional offices. Mvula facilitate service delivery partnerships between public/private/community organisations to bring water to communities and build capacity (of communities, institutions and local government) to manage water resources better. They involved in community water and sanitation projects and offer training in institutional and social development.

People are represented as clients/consumers or in the context of 'community' as poor/disadvantaged. Mvula use participatory approaches (SARAR methodology) and train others in how to use them.

Scalar level is community

Need for an 'integrated approach' to water management and are investigating ways to integrate water and sanitation into rural development. Water has economic value, water service delivery is a 'business', albeit one with social objectives, the need to achieve cost recovery is flagged. Water has the potential to contribute to local economic development, through job creation and water being available for productive activities.

Engagement in water projects builds the capacity of all stakeholders involved. Minor discourses on water/health interface, the right to water, free basic water and water for the environment.

Change over time

Mvula was founded in 1993 by the Kagiso Trust (with EU funding), it was set up as a water project implementing organisation and input into policy making. Mvula was heavily involved in the CWSS programme and a service agreement was signed with DWAF in 1995. Mvula was involved as an ISD consultant in the BOTT consortia, has been involved extensively in policy development at national and local levels and is increasingly supporting/capacity building for local government (to understand their roles/responsibilities as WSA's), community based WSP's and helping CBO's to become WSP's.

They are also now looking at how water and sanitation can be integrated into rural development and participating in the roll out of FBWP.

Water use

Mvula use water for capacity building, community development, improving health and local economic development.

Access modalities

Mvula help communities gain access to water by facilitating partnerships between private/public/community actors. They were involved in DWAF's CWSS initiative and the BOTT consortia. In 1995 they signed a service agreement and in 1996 became an 'implementing agent' for DWAF, which gives them power to appoint consultants/contractors etc. They have also input into and influenced policy debates and helped WSA's formulate WSDP's. Mvula set up community 'water committees' (30% female quota aims to ensure women's interests are represented) and help CBO's grow capacity to become WSP's. Advocate for multiple water sources e.g. rainwater (for drinking/cooking), groundwater, surface water (for washing, cleaning, production). Thus Mvula have power over *how* people (especially in rural areas) gain access to water.

Key relationships are with DWAF (79% of funding), EU (19% funding), IDT, Kagiso Trust, DBSA, WRC, communities (build capacity, help access water) WSA's (build capacity, facilitate), private sector (facilitate) and contractors/consultants (appoint).

Allocation/transmission

Advocate low cost infrastructure with different options for different contexts, choices made by communities e.g. trickle feed systems, gravity fed groundwater systems, boreholes, standpipes, PVC line tubewells, solar panels, VIP's, UDT's. Also technology for water quality testing e.g. e-coli test kits and technology for hygiene promotion e.g. radio, billboards.

D) World Vision in South Africa

Representation of self	**Christian development/relief NGO, child sponsorship, rural development**
Representation of people	**Partnership with communities**
Scalar level	**Community**
Representation of water	**Precious resource, essential to life, livelihoods, community development, right to water, health, (fairer) reallocation, 'user pays' disadvantages poor**
Drivers of change	**1980 water projects started, 1990s drought, integrated rural development**
Water Use	**Community development, health, better life for children**
Access modalities	**Rainwater, surface, groundwater**
Allocation/Transmission	**Borewells, rainwater harvesting, VIPs, hygiene education**

World Vision is an international Christian development and relief NGO. Aim is to create a better future for children, through partnership with poor communities. Child sponsorship is a major focus, also rural development, including water development projects in communities.

World vision works in 'partnership' with the poor, people are represented as having potential which can be unlocked with help and through education.

Major discourse is on water for community development. Water = precious resource, essential to life, scarce and under pressure. Access to water affects health, development, food production, peace/security and the environment. Major discourse is underpinned by social justice, attitude change needed, advocate (fairer) reallocation and more careful use; 'user pays' disadvantages the poor. Minor discourses on the right to water and water/health.

World Vision was started in South Africa in 1965 in the Eastern Cape as the part time activity of a Baptist minister. It was a branch of World Vision US until 1975 when it was subsumed by the Southern Africa office. The network is international, but decisions are made mostly at national level. Funds were raised mainly through and for child sponsorship. Water development projects began in 1980, flood relief provided in Orange Free State and KZN at various times, 1990's following serious drought, focus on integrated rural development including rural water and sanitation.

Water is used for community development water projects. Recommend at least 20-40 litres water per person per day close to home for good health and other benefits.

World Vision helps communities gain access to water. Water projects capture rainfall, surface water and groundwater. They are active in 14 areas in South Africa; in many of which people still do not have access to water and sanitation. World Vision currently sponsor 27,974 children and claim to have (indirectly) reached 1 million South Africans through projects; 400 communities have been assisted and 125 are being helped.

Key relationships are with District/Local Government (especially health depts), churches, communities, community leaders and NGOs.

Advocate community management of simple, low-cost technologies which transmit and allocate water e.g. boreholes, rainwater harvesting, VIP's and hygiene education programmes as channels for better health.

A) African Water Issues Research Unit (AWIRU)

Representation of self	**Non-for profit research institute, build African research capacity**
Representation of people	**Stakeholders, capacity building, dialogue**
Scalar level	**Transboundary, catchment/basin**
Representation of water	**Security e.g. health, food, environment, politics, international relations, law, policy making, institution building, infrastructure, cooperation & conflict**
Drivers of change	**Not specified**
Water Use	**Research, enter debates around co-operation/conflict**
Access modalities	**Influence national/international policy, build stakeholder capacity to dialogue**
Allocation/Transmission	**Dialogue, capacity building, interface between technology/socio-political**

Representation

A non-for profit research organisation based at the centre for International Political Studies, University of Pretoria. Receive funding from various sources to carry out research. Objective is to build African capacity to understand African development and water management issues. They are aligned with the goals of NEPAD and aim to strengthen 'transboundary' water governance.

People are represented as 'stakeholders' operating in a specific context. There is a need for dialogue; this can lead to co-operation and win-win scenarios. Local knowledge is important; some stakeholders need support/capacity building to enter dialogue.

Focus is on transboundary management, regional scalar level e.g. Southern Africa. Allocation happens at catchment/river basin level.

Water is key to human security. There are many layers to this discourse – health, food-security, environment, national politics and international relations - water plays a pivotal role in achieving security in each arena. Minor discourses on law, policy making, institution building and technology/infrastructure.

Co-operation over water resource management can lead to greater regional integration and economic growth. The converse of co-operation is conflict.

Change over time

Does not specify when AWIRU was founded, how it has evolved or how the context has changed over time.

Water use

AWIRU uses water security to justify research (& therefore their reproduction) and enter into debates around co-operation and conflict. Recognise that people in Africa use water to secure livelihoods (e.g. for health, food security, domestic and productive use). On a larger scale, regions and countries also use water to secure livelihoods (e.g. for agriculture, environment, industry and development).

Access modalities

Research carried out/funded by AWIRU aims to feed into national/international policy debate and making and thereby influence the context in which people access water. Access is affected by actions of users upstream, therefore dialogue and co-operation is critical. AWIRU build capacity of less powerful stakeholders to participate in dialogue.

Key relationships are with WRC, USAID, EU, Dutch Ministry for Development Co-operation (funders)

ARCUS GIBB (hosts Cape Town branch), other research institutions e.g. CSIR, SERA, UPTW, researchers and various partner organisations on research projects.

Allocation/transmission

Dialogue is needed to resolve allocation conflicts. Conflict can be converted into co-operation by overcoming obstacles and sharing goals, objectives. Water scarcity in Southern Africa is largely 'economic', caused by poor governance and lack of financial/human resources, capacity building therefore is key. AWIRU are interested in the interface between technology and socio-political context.

A) South African Association of Water Utilities (SAAWU)

Representation of self	**Non-for-profit membership org, represents water boards & utilities**
Representation of people	**Context of orgs/institutions, education/information**
Scalar level	**South Africa**
Representation of water	**Public good, human right vs economic good commodity, water rights, massive service delivery backlog handicapped by lack of capacity**
Drivers of change	**Business environment, service delivery backlogs, members needs**
Water Use	**Capacity building of WSP's and WSA's, entry into policy debate**
Access modalities	**Strengthen 'links' in water service delivery chain**
Allocation/Transmission	**Capacity development, international partnerships**

Representation:

A non-for profit membership organisation, SAAWU represents the interests of South Africa water boards and public sector water utilities. SAAWU lobbies on behalf of members, promotes integration/co-operation within the water sector, builds capacity of WSP's and WSA's, creates/disseminates information on water related issues. Projects include voluntary benchmarking for water utilities and 'twinning' of water utilities in South Africa and overseas.

People are represented in the context of organisations/institutions they belong to or as subjects to be informed/educated.

Scalar level is national

There are competing discourses: Water is a public good, access to water is a human right, access and affordability are political issues. Water is an economic good, needs to be accurately priced, valuable global 'market', services need to be run in a businesslike manner. SAAWU's seeks to position itself between both discourses e.g. businesslike water service delivery can increase access to water for all. There is a minor discourse around water rights. Massive service delivery backlog exists, lack of capacity handicaps this; therefore other actors have to step in to fill the gaps.

Change over time

SAAWU was formerly the South African Association of Water Boards. It changed in March 2001 in response to changes in the 'business environment' of the water sector and the challenges created by service delivery backlogs. SAAWU will continue to evolve, in response to the needs of member organisations.

Water use

SAAWU represents the interests of members (bulk water/waste water service suppliers), therefore they benefit indirectly, from water resource management and sales. SAAWU engages in capacity building of WSP's and WSA's and lobbying around water issues.

Access modalities

SAAWU builds capacity of WSP's and WSA's to manage water services. They claim to be improving quality of life and increasing access for all, by strengthening links in the chain of water service delivery.

Key relationships are with DWAF, member organisations (water boards and public water sector utilities, SAAWU is funded by membership dues), and WSA's.

Allocation/transmission

SAAWU build capacity of water suppliers and a twinning program (South African water utilities paired up with overseas) encourages international technology/innovation exchange.

A) Development Bank of South Africa (DBSA)

Representation of self	**Leading dev finance institution, also advisor & partner on dev projects**
Representation of people	**Clients or poor communities**
Scalar level	**Southern Africa**
Representation of water	**Affordable basic service, contribute economic development, sustainable**
Drivers of change	**Private sector investment unit, refocus as advisor and partner on dev projects**
Water Use	**Investment, local, national & regional economic development**
Access modalities	**Access to finance, influence investors, private investment needed**
Allocation/Transmission	**Large-scale high-tech e.g. dams, reservoirs…**

Representation

DBSA is Southern Africa's leading infrastructure development finance institution. It has a mandate to accelerate socio-economic development by providing funding and catalysing for private sector investment. DBSA has a three-fold role as financier, advisor and partner on development projects. It represents itself as an agent for integration and development in Southern Africa. DBSA is aligned with the aims of NEPAD and supports recommendations of the CFA.

People are represented as 'clients' needing advice/advocacy/consultancy or as 'communities' needing infrastructure to gain access to basic services.

The scalar level is Southern Africa.

The overarching discourse is around economic development. Water should be 'an affordable basic service' for people and can contribute to regional economic development. Technical assistance and greater investment in infrastructure are needed; the private sector needs to be persuaded to invest. There are minor discourses on the need for sustainable development, social investment and institutional capacity building.

Change over time

DBSA was established by the South African Government in 1983. It is the largest of five development finance institutions in South Africa. A private sector investment unit was added in 1996 and a non-for profit 'development fund' in 2001. Focus has recently expanded, from solely that of financier to that of advisor and partner on development projects. The aid package proposed by the CFA is seen (if it comes off) as an opportunity to attract more investment and expand operations. DBSA has been an active participant in African Summits organised by the World Economic Forum.

Water use

Water is one component needed for socio-economic development in SADC. It can be used to promote local, national and regional economic growth. Investment in water and sanitation infrastructure is an important part of DBSA's remit as a development bank.

Access modalities

DBSA provides finance (and access to finance), for infrastructure development projects which brings water and sanitation to people, institutions and organisations; DBSA also influence other investors by 'promoting' projects. Thus DBSA have power over what projects are approved and *how* people gain access to waterwho gains access to water and how they gain access to it.

Key relationships are with 'clients' (WSP's and WSA's), funders, and other investors.

Allocation/transmission

DBSA invests in construction and upgrading of large-scale infrastructure (for example loan of R78 million given to Ilembe District Municipality to construct 3 reservoirs and upgrade pipelines). Bias towards large-scale, hi-tech solutions. Infrastructure and technology prioritised as means to address water and sanitation services backlogs.

B) Lesotho Highlands Water Project (LHWP)

Representation of self	**Largest infrastructure project in Africa, store and transfer water, mutually beneficial**
Representation of people	**National interest rather than people**
Scalar level	**Lesotho & South Africa**
Representation of water	**Natural resource, exploit, Lesotho excess, SA scarce, industry, economy, human needs, environment, social development**
Drivers of change	**Drought, water demand in Gauteng, contractual agreement**
Water Use	**Lesotho: electricity, income, socio-economic development in underdeveloped areas. SA: industry, economic development, human consumption**
Access modalities	**Contract, royalties, infrastructure, resettlement and lack of access in Lesotho**
Allocation/Transmission	**Reservoirs, dams, weirs, hydro-electricity generators, road, bridges**

Representation

LHWP scheme to store and transfer water from Lesotho to South Africa is Africa's largest infrastructure project. It is a massive engineering feat. The project involves the South African and Lesotho governments and management authorities in both countries who report to a bi-lateral commission. Project is represented as operating in a mutually beneficial way.

Countries are represented as actors rather then people.

The scalar level is Lesotho and South Africa.

Water is a natural resource, which can be exploited. It is the only resource Lesotho has in abundance and supply far exceeds possible future requirements. South Africa needs extra water to support industrial/ economic development in Gauteng and meet the thirst of Johannesburg. Thus water can be sold from Lesotho to South Africa, to the mutual advantage of both. There is a minor discourse on the need to investigate and minimise environmental and social disruption and to redress them e.g. through training and employment creation, re-settling, re-housing and a social development fund.

Change over time

In 1950s the British High Commissioner to Lesotho commissioned a survey into the potential to export Lesotho's water to South Africa; the Oxbow project was conceived. Drought in 1960s led to renewed interest in the project. Feasibility studies were commissioned in 1970s and completed in April 1986. In October 1986 a contract was signed between Lesotho and South Africa outlining design, construction, operation and maintenance and the export of water. Phase 1A (giant dam at Katse, 82km transfer tunnel, Muela hydropower station) was completed ??? which delivers 17m/3 water per second to South Africa. Phase 1B (dam at Mohale on Senqunyane river, 32km transfer tunnel to Katse, diversion weir on

Matsoku river, 5.6km transfer tunnel) began ??? and is due for completion ??? , it will divert an additional 11.7m/3 water per second. Three further phases are planned which will bring the total water exported to 70m/3 per second.

Water use

Lesotho uses water to generate electricity, income and promote socio-economic development in 'underdeveloped' regions and LHWP creates employment. South Africa channels water to Gauteng for industrial, economic and human use.

Access modalities

South Africa pays a royalty to Lesotho, related to volume of water transported, and pays water-transfer costs. Lesotho pays the cost of the hydroelectricity generation. Terms are set in a treaty (1986). The majority of project funding was raised by loans; the World Bank played an instrumental role, providing funding, guidance, credibility and co-ordinating fund mobilisation from other sources A proportion of 'royalties' go to a 'social fund' to benefit people affected by the project. More than 50% of households in Mohale and Katse do not have access to water or sanitation facilities.

Key relationships are with South African and Lesotho governments, World Bank, funders, contractors (mainly European, also some South African firms including Concor).

Allocation/transmission

Water is stored in, allocated and transferred through reservoirs, hydro-electricity generators, weirs and pipelines, managed by LHDA and TCTA (components of the LHWP). LHWP led to other 'related' infrastructure being built e.g. roads, bridges.

A) Water Information Network-South Africa

Representation of self	**Network, SA water sector orgs, improve knowledge management**
Representation of people	**Organisations not people**
Scalar level	**National network**
Representation of water	**Improves qual of life, economic growth, effective/co-operative management,**
Drivers of change	**Fragmentation of water service delivery, stakeholder workshops**
Water Use	**Information can promote collaboration and build capacity**
Access modalities	**Operate information network, control access to information/knowledge**
Allocation/Transmission	**Internet, website, publications, workshops, briefings**

Representation

Established by the WSSLG, WIN-SA is a **network** of **organisations in the South African water sector**. Its Mandate is to **improve knowledge management** and sharing within the sector, particularly to make sure pertinent information reaches local government and other decision makers. WIN-SA will facilitate improved decision making and lead to more effective water and sanitation delivery in South Africa. They have a website, web-portal, e-newsletter and organise training.

Organisations not people are represented. It is **believed actors can work together and share knowledge** to improve service delivery.

The scalar level of interest is **national**.

Access to water improves quality of life and contributes to economic growth. Water service delivery needs to be managed effectively and co-operatively. Research themes are many but include: Free Basic Water; Water Resource Management and Productive Water Use.

Change over time

WIN-SA was established in 2002 by WSSLG, in response to the fact that fragmentation of water service delivery had led to the fragmentation of knowledge. Stakeholder workshops were held to define WIN-SA's role. An office was established at WRC and in 2004 a co-ordinator was appointed. Focus in 2005/06 will be on promoting networking, sector collaboration, benchmarking and lesson learning on institutional reform.

Water use

WIN-SA uses information about water to promote collaboration and build capacity of organisations working in the South African water sector.

Access modalities

WIN-SA operates an information network. They accesse information/knowledge from actors and disseminates it to others. WIN-SA was established by WSSLG, which was formed to fulfil the mandate of the Strategic Framework for Water Services. Thus they influence how others access information/knowledge about water and what information/knowledge they access. This is freely available of the web.

Key relationships are with WRC (hosts WIN-SA), organisations on the steering committee (WRC, CSIR, government orgs e.g. DWAF, SALGA, DPLG, Mvula) and in the reference group (SA Cities Network, Umgeni, Amatole Water Board, DBSA, HSRC, EU…) and member organisations.

Allocation/transmission

WIN-SA collates and disseminates water information to stakeholders via the web, publications, workshops and briefings.

F) WHIRL (water, households and rural livelihoods)

Representation of self	**International research project, action research and advocacy for IWRM**
Representation of people	**Livelihoods context**
Scalar level	**Catchment, community, household**
Representation of water	**Sustainable livelihoods (see previous), scarcity, competitions, IWRM needed**
Drivers of change	**Pressure on water resources, IWRM, strategic alliances**
Water Use	**Investigate livelihoods, community development, promote IWRM**
Access modalities	**Action research helps communities access water in their catchment**
Allocation/Transmission	**Reallocation & demand management, low-cost simple technologies**

Representation

WHIRL is an **international research project** to **improve access to water of poor people** in water scarce areas by promoting IWRM. The project aims to develop operational and institutional strategies to promote IWRM. The project is co-ordinated by the University of Greenwich and funded by DFID. Action research is being carried out in rural areas in India and South Africa and collaboration promoted between organisations in these countries.

People are represented in the context of livelihoods as having multiple needs.

Important scalar levels are household, community and **catchment**.

Water and sanitation contribute to sustainable livelihoods, they are **crucial** to **health** and **wellbeing,** contribute to **food security, income generation** and affect **ecosystems**. Human pressures are creating **water scarcity; competition over use reduces water quality and quantity**. **Demand management** and more equitable resource allocation are necessary. Actors in the water sector should adopt the IWRM framework to achieve more sustainable water resource management.

Change over time

Increasing (and competing) pressure on water resources means that an alternative management paradigm is needed – IWRM. WHIRL started in xxxx and will run for x years. It is intended to produce papers, guidelines, training and advocacy materials around IWRM and form strategic alliances to promote IWRM in other countries and regions.

Water use

WHIRL uses water to investigate household and community livelihood strategies (especially productive water use), promote community development and advocate for the adoption of the IWRM framework. They recognise that people use water to meet many different needs.

Access modalities

Action research projects help communities gain access to water resources in their catchment. They are funded through DFID's *'Integrating drinking water needs in watershed projects'* research programme.

Key relationships are with University of Greenwich, UK (co-ordinating the project), DFID (funder), researchers and NGO's in UK, South Africa and India. AWARD is their research partner in South Africa.

Allocation/transmission

Water stress is such that constructing dams and exploiting new aquifers is 'often no longer an option'.

WHIRL advocate low-cost simple technologies to provide access to water for poor rural communities. Projects make use of: rain water harvesting, communal taps, gravity supply, handpumps etc.

D) South African Red Cross Society

Representation of self	**Humanitarian/development NGO, health care & disaster management**
Representation of people	**Basic needs & dignity, members of communities**
Scalar level	**Community**
Representation of water	**Essential for health, wellbeing, reduce spread of diseases, poverty reduction**
Drivers of change	**SARCS, International Federation, financial difficulties, SA govt**
Water Use	**Disaster relief, community dev, improve health, empower, build capacity**
Access modalities	**Context specific, different disaster relief & development**
Allocation/Transmission	**Pit latrines, boreholes, water pumps, hygiene education**

Representation

The SARCS is a **development and humanitarian disaster relief NGO** aligned to the principles of the Red Cross and Red Crescent movement. It is **active in health care and disaster management**. Mission is to prevent and alleviate human suffering and foster human dignity through addressing basic needs and empowering communities.

People are represented as members of communities with dignity which should be respected and basic needs. Projects involve community participation.

The relevant scalar level is **community**.

Clean water is essential for health, wellbeing and to prevent the spread of communicable diseases. **Access to water is a key health issue**. Health is often undermined by poverty.

Change over time

SARCS dates back to 1896 when four South African doctors formed an ambulance corps which later became a Red Cross Society. In 1921 Red Cross entities in South Africa amalgamated founding SARCS. SARCS was recognised by the International Committee of the Red Cross in 1928 and admitted into the International Federation of Red Cross and Red Crescent Societies in 1929. Financial problems 1996-1999 caused programmes to be scaled back. There are 5 regional offices (including Head Office in Cape Town), numerous branches, committees and an external relations unit in Johannesburg. In 2001 SARCS established a water and sanitation project for communities affected by a cholera outbreak. SARCS is strengthening its relationship with the South African government. Focus areas are currently: disaster management; health and care; humanitarian values and organisational development, HIV/AIDS is a major concern.

Water use

SARCS use water in the context of disaster relief and community development. Clean is used to **improve the health and dignity of communities** (particularly to prevent the spread of cholera). Community water projects are also used as a tool to **build capacity and empower communities**.

Access modalities

SARCS helps rural community's access water using basic technologies (see below). SARCS mode of accessing water appears to be context specific e.g. in the case of KZN cholera outbreak, provincial government asked SARCS to establish a project.

Key relationships are with the **ICRC and International Federation**; various levels/sectors of **South African Government (**particularly **Provincial** level**, health care and disaster management** sectors where service agreements have been signed); **health care professionals**; and **National Lottery** (significant funder). SARCS is interested establishing partnerships with the corporate sector.

Allocation/transmission

SARCS construct pit latrines, boreholes and water pumps (with community participation) and target communities with information on personal and environmental hygiene. Technology can be used to improve health but technological failure threatens the livelihoods and development capacity of poor people.

D) African Medical and Research Foundation AMREF

Representation of self	**Africa's leading health development NGO**
Representation of people	**Have basic needs and human rights, can become agents for change**
Scalar level	**Community**
Representation of water	**Good health, free time for productive activity cleanliness, hygiene, dignity**
Drivers of change	**Consultancy, South African office, water expenditure to double**
Water Use	**Improve health and livelihoods, employment, health/hygiene promotion**
Access modalities	**Help communities build their own water supply systems, integrate water with health care**
Allocation/Transmission	**Pumps, wells, boreholes, latrines, tippy taps., management/maintenance systems, hyealth/hygiene promotion**

Representation

AMREF is **Africa's leading health development NGO**. Its mission is to **improve the health of disadvantaged people in Africa**. Safe water and basic sanitation is one of six priority intervention areas. AMREF's main role in South Africa is focused on supporting the development of an integrated, equitable and efficient primary health care system. There are water and sanitation projects as access to water is a key health issue. Work is in rural areas of Eastern Cape and KZN.

People are represented as disadvantaged, with basic needs and human rights. People can benefit from access to information and education and can become 'agents for change'.

Community is the scalar level of interest.

Clean water is essential for good health. Lack of clean water and sanitation cause and spread disease. Furthermore, access to water can **free up time for productive activity**. There are minor discourses around **cleanliness, hygiene and dignity**.

AMREF has 40 years experience in the water and sanitation sector in Africa. In 1991 it began working on a consultancy basis with organisations in South Africa and AMREF South Africa was opened in 1995; current projects include water, sanitation and hygiene education programmes in schools. In 2002 water and sanitation expenditure was 10% of AMREF's annual budget (US $1,400,000); expenditure is expected to double by 2007.

AMREF use clean water to improve the health and livelihoods of disadvantaged communities. Local artisans are provided with training and employment and water provides an entry point for community discussions which lead to health and hygiene promotion.

AMREF helps rural communities build their own water systems and train them in maintenance. They believe water and sanitation programmes should be integrated into health care programmes.

Key relationships are with other **AMREF offices**, **Department of Health** (donor), **DWAF**, **Municipalities** and **Village Headmen.** They work on health projects with WHO and some pharmaceutical companies.

AMREF advocate simple, locally appropriate technologies including **pumps, wells, boreholes, latrines and tippy taps** (these are taps made out of jerry cans). After technologies have been tried and tested they are advocated for. Maintenance and management are as important as physical infrastructure hence a scheme to **promote local administration and ownership of technology**. Health/hygiene education is an integral part of the clean water/good health discourse, **health/hygiene messages** are **transmitted to communities and in schools**.

A) National Water Resource and Infrastructure Agency NWIRA

Representation of self	**Parastatal financier, developer and operator of national water infrastructure**
Representation of people	**None**
Scalar level	**National**
Representation of water	**Strategic resource, national security, management, competing demands**
Drivers of change	**White paper on National Water Policy, National Water Agency Act (forthcoming), restructuring**
Water Use	**Collect, channel, sell, strategically to promote national interest**
Access modalities	**National Water Agency Act (forthcoming), direct access, right to channel and sell water, source finance for infrastructure**
Allocation/Transmission	**Manage major infrastructure, dams, transfer schemes, source new…**

Representation

NWIRA will be a **parastatal** responsible for **financing, developing and operating South Africa's major water infrastructure**. It will also be '**a major business** in its own right' as it will **sell bulk water** and manage assets valued at R40 billion.

People are not represented.

The relevant **scalar level** is **national**.

Water is a strategic resource and is **essential for national security**. **Effective management is necessary**. There are **increasing and competing water demands** from all sectors of society.

Change over time

The establishment of NWIRA was approved by cabinet and announced in August 2005. The 1998 White Paper on a National Water Policy recommended that the best institutional arrangements for management of national water resource infrastructure be determined. NWIRA will TCTA (see glossary) absorb responsibility for major infrastructure currently managed by DWAF. The aim is that NWIRA be established by April 2008; in order to achieve this a National Water Agency Act will need to be promulgated and DWAF will need to be restructured.

Water use

NWIRA will **collect, channel and sell** water to WSPs. They will **use water strategically to promote the national interest** (as outlined in the National Water Resource Strategy). Turnover is expected to be at least R2 billion annually.

Access modalities

NWIRA will have the right to **access water directly via major infrastructure** (see below) and **channel water to other users**. NWIRA has been approved in principle by cabinet, a National Water Agency Act (expected 2006) is necessary to legalise its power.

Key relationships will be with the **Minister for Water Affairs and Forestry** (decide what infrastructure is needed), **DWAF, LHWP** (managing infrastructure), **Bulk Water purchasers** including **CMAs** and **funders** (NWIRA is mandated with sourcing commercial finance for infrastructure developments).

Allocation/transmission

NWIRA will be responsible for **managing** South Africa's **major water infrastructure** e.g. **dams and water transfer schemes** and for financing and developing new infrastructure. There is a need for new infrastructure to meet technical, social and environmental standards.

F) Universities Partnership for Transboundary Water (UPTW)

Representation of self	**International consortium of universities, applied research, outreach, training**
Representation of people	**Stakeholders with interests**
Scalar level	**Transboundary, national, catchment, watershed**
Representation of water	**Global governance, co-operation & conflict, WRM, policial, social, cultural factors, law, ecosystems**
Drivers of change	**Population growth, urbanization, land degradation = increased water stress**
Water Use	**Research, international collaboration, dialogue, co-operate, enhance security, promote peace**
Access modalities	**Influence stakeholders, change the way people view water**
Allocation/Transmission	**Treaties, law, information via IT, publications**

Representation

UPTW is an international consortium of universities seeking to promote peace, environmental protection and human security through investigating transboundary water issues. Work includes: applied research, outreach, education and training. Membership spans five continents.

People are represented as **stakeholders with interests**; they have different needs, diverse values and **can act co-operatively or conflict** over water resources.

There are **multi-scalar discourses**, transboundary, national, watershed and catchment.

Dominant discourse is around **global water governance, co-operations and conflicts thereof.** Water crosses boundaries, both national and of sector interest groups. UPTW seeks a greater understanding of **political, social and cultural factors which affect water resource management**. There are minor discourses around **law and ecosystems**.

Change over time

The world is becoming more water stressed due to population growth, urbanization and land degradation. There is a greater need for understanding about and co-operation over water use.

Water use

Water is the subject of research; there is international collaboration between researchers in north-south and east-west. Water is used to engage in dialogue, increase co-operation, build partnerships, promote peace and enhance human security.

Access modalities

UPTW aims to influence sector stakeholders through research, education and outreach; to change the way they view water and increase co-operation over water resource management. Thus they have some level of abstract/indirect influence over how people access water.

Key relationships are with **researchers and member universities** (in South Africa this is the **University of Pretoria**), **AWIRU** and **CSIR.**

Allocation/transmission

Technologies are not mentioned. Treaties and law affect how water is allocated and transmitted; these are areas of research. UPTW use networks, IT and publications to transmit information and increase understanding of co-operation and conflict over water resource use.

G) East Rand Water Care Company (part of ERWAT group)

Representation of self	**South African wastewater company, treatment, management, conveyance**
Representation of people	**Clients/customers, shareholders**
Scalar level	**Drainage district**
Representation of water	**Wealth generation, industry quality, technology, environment, people**
Drivers of change	**Demand for water, new technologies,**
Water Use	**Treat & manage bulk wastewater, sell biosolids**
Access modalities	**Treat & manage bulk wastewater for municipalities and industry**
Allocation/Transmission	**Invest in new wastewater treatment technologies e.g. sludge processes, nutrient removal, filtration, aerators, irradiation and filters**

Representation

ERWCC is a **South African wastewater company** (part of ERWAT group) which is visionary and a leader in its field. They use cutting edge technology to find economic solutions for water and wastewater management. Services include **bulk wastewater conveyance, treatment and management of**

wastewater works. Their operations cover three drainage districts: Jukskei River, Blesbokspruit and Klip River.

People are represented as **clients/customers** and **shareholders**.

The primary scalar level is **drainage district**.

(**Waste)water** is represented as **an industry**, with **potential to generate wealth** by exploiting business opportunities. Minor discourses are around **water quality, technology, concern for a healthy environment, water for people and industry**.

Change over time

ERWAT group was founded in 1992, operations have expanded considerably since. ERTEC, a wholly owned subsidiary contracting and maintenance service provider, was established in 1996. In 2002 an environmentally friendly state-of-the-art wastewater works was opened at Welgedacht to meet future demand in the region. There is a research and development programme into new technologies to meet future demand for wastewater management.

Water use

ERWCC **earn money from treating and managing bulk wastewater**. They have signed service agreements with **municipalities and industries**. They also make money from **sale of biosolids**.

Access modalities

ERWCC transport and treat bulk wastewater supplies. They manage 20 wastewater treatment works, treat 550 megalitres of wastewater per day and handle 270 tons of dried biosolids per day, providing services for municipalities (servicing 3.5 million people) and 2000 industries. Biosolids are sold to agriculture, horticulture and mining industries for fertiliser and rehabilitation. They also manage sewers, assist with pollution and control and are researching technologies to treat wastewater from mining and agriculture.

Key relationships are with **Ekurhuleni, (majority shareholder/owner** of ERWAT**, partner in service agreement), Johannesburg (**also **shareholder, partner in service agreement) and other municipalities, other shareholders, industries** including African Products & Chloorkop (treat wastewater) and the **University of Pretoria** (ERWAT sponsor a chair in wastewater management).

Allocation/Transmission

Technologies play a **key role** in **transporting and treating wastewater**; emphasis is on the newest and most **technologically advanced**, ERWAT group **invest in developing new ones**. Technologies include: **activated sludge processes, biological nutrient removal, biological filtration, surface aerators, UV-irradiation, electro-osmotic filters and vacuum assisted filters**.

G) Arcus Gibb

Representation of self	**Engineering consultancy operational in SADC, consulting, design & management to commerce and industry**
Representation of people	**Consumers**
Scalar level	**SADC**
Representation of water	**Valuable resource, harness for human use, manage rationally, quality**
Drivers of change	**BEE, NEPAD**
Water Use	**Construct water infrastructure, manage resources, contractor to municipalities, industry & agriculture**
Access modalities	**Contracted to provide infrastructure and expertise, by WSP's and commercial users, to meet needs outlined in National Water Act (1998).**
Allocation/Transmission	**Dams, stormwater drainage, pump stations, canals, rising mains, sludge systems, computer modelling, GIS, water meters.**

Representation

Arcus Gibb is an **Engineering consultancy**, part of Mvelaphanda companies group. They offer multi-disciplinary **consulting, design and management to commerce and industry**. They are operational in **South Africa and SADC**. Water and sanitation services include dam construction and upgrading, flood runoff and management, water resource management, water supply and water and wastewater treatment.

People are represented as **consumers**.

Water is represented as a **valuable resource which can be harnessed** for human use. It should be managed rationally e.g. using cost benefit analysis to determine best use. There is a **minor discourse** around concern for **water quality.**

Change over time

Arcus Gibb originated in 1956. A major change took place in 2000 when Arcus and Gibb Africa combined, creating the largest black owned (71%) engineering consultancy in South Africa. During 1994-2002 the South African operation was part of an international consulting group and gained from international exposure; during this period business ownership was transferred back to Africa. NEPAD is seen as creating new opportunities for African owned businesses.

Water use

Arcus Gibb makes money from setting up irrigation projects, constructing water infrastructure, water and wastewater treatment, strategic planning and management of water resources. Customers include municipalities, industry and agriculture.

Access modalities

Arcus Gibb is **contracted by Water Service** Providers and **commercial water users** to **provide infrastructure** to **help** them **access and manage water and wastewater**. Furthermore '**expertise**' is called on to **develop Water Service Development Plans** and model water development scenarios. These services are outlined in the National Water Act (1998). They were involved in Johannesburg municipality's water meter installation program.

Key relationships are with **shareholders and customers** (include **municipalities, water service providers and commercial water users**). Arcus Gibb hosts the Cape Town office of **AWIRU**.

Allocation/Transmission

Dams are represented as the **first** vital step to **harnessing water resources** for **human use**. Other technologies of note are reservoirs, stormwater drainage systems, pump stations (including solar powered), rising mains, canals, filtration systems, ultraviolet irradiation, aerobic and anerobic digestion, sludge systems, batch reactors. Computer modelling is used as a planning aid. GIS and water meters are used to locate customers and extract payment.

G) Africon

Representation of self	**South African owned, international engineering consultancy**
Representation of people	**Clients or communities, respect values**
Scalar level	**Multiple, 'African renaissance'**
Representation of water	**Scarce resource, manage, protect, people, social, economic, environment, security, right to water**
Drivers of change	**Socio-economic dev, company re-structuring, PPPs, municipal restructuring**
Water Use	**Profit from infrastructure dev, technological research, employment, training**
Access modalities	**Infrastructure to transport water/wastewater, PPPs, contractor, planning**
Allocation/Transmission	**borewells, water pumps, prepay meters, reservoirs, roads, bridges, sewage composting, groundwater exploration**

Representation

AFRICON is a South African owned international engineering, infrastructure development and management consultancy with 1100 staff, 17 offices in South Africa, and in 14 other countries worldwide. Mission is to become an internationally recognised infrastructure provider. Water and sanitation services fall under 'Civil Engineering Services'; AFRICON are involved in developing water and wastewater reticulation and treatment systems, water resource planning and stormwater drainage.

People are represented as '**clients**' or as '**communities' whose traditions and cultural preferences** should be **respected**.

There are various scalar levels, AFRICON is positioning itself internationally and intends to participate in the 'African Renaissance'.

Water is represented as a **scarce resource**, which should be **managed carefully and protected for the future**. Water is **needed for people (social and economic needs**) and **the environment**. There are **minor discourses** on **water security** and the **right to water.** Technological advances will be needed to manage water resources in future.

Change over time

AFRICON was founded in 1960s. 1980s were a major growth period; subsidiary companies were established, AFRICON became more involved in socio-economic development projects and operated in the 'homelands' of Bophutatswana, Ciskei, Transkei and Venda. In 1990s subsidary companies were transformed into divisions, creating a 'fully integrated one-stop service'; AFRICON began international marketing, took advantage of public-private partnerships with government and encouraged black professionals to become shareholders. In future AFRICON hopes to become a truly international South African owned company. Has 50 years experience in the water and sanitation sector in South Africa; it has increasingly become involved in service provision for municipalities (planning, infrastructure, management).

Water use

AFRICON uses water and sanitation management to earn an income and expand operations. At the community/village level water is used to meet basic needs (RDP 25l per person per day), create employment and transfer skills. Water scarcity is a reason to invest in technological research and development.

Access modalities

AFRICON plans, builds and operates **infrastructure** which **transports bulk water and wastewater**. They are also involved in **smaller rural and township water projects** and **developing municipal plans** which outline how people will gain access to water. They are party to several **public-private partnerships** with national and local government.

Key relationships are with **shareholders, DWAF** (water projects), **LHWP** (contractor in Mohale Dam phase 1B), **World Bank** (accredited) and other **multilateral and bilateral funding agencies**.

Allocation/Transmission

Infrastructure designed by AFRICON transmits water to people. Technologies include: borewells, water pumps, prepay meters, reservoirs, reticulation networks, roads, bridges, earthworks, stormwater drainage, sewage composting and groundwater exploration techniques (environmental isotopes and radon emanation). They are involved in research and development of new technologies.

H) Anglo American

Representation of self	**Company which is global leader in mining & natural resources**
Representation of people	**Customers/consumers or community members**
Scalar level	**Community, catchment, international**
Representation of water	**Natural resource, manage wisely, economy, quality, social, environment, biodiversity**
Drivers of change	**Market opportunities, transition to democracy, BEE, merger**
Water Use	**Mining, industry, producer consumer goods**
Access modalities	**Purchase bulk water, discharge wastewater, environmental impact**
Allocation/Transmission	**Technologies to reduce water use, discharge controls, wastewater recycling**

Representation

Anglo American is an international company (majority UK owned, listed on the London Stock Exchange), a 'global leader' in mining and natural resources. They operate in 60 countries and have 8 product-based businesses: platinum; gold; diamonds; coal; base metals; industrial minerals; paper and packaging; ferrous metals and industries. They have a stake in more than 50 South African businesses. Aim is to be a world class business performer and 'add value' for shareholders, customers and communities.

People are represented as **customers/consumers** or as **members of communities** who may be impacted by Anglo American's business.

Scalar levels are **community, catchment and international.**

Water is represented as a **natural resource** which must be **managed and used wisely**. **Concern** is expressed for **water quality** and the **social and environmental impact of businesses on people and biodiversity**.

Change over time

Anglo American was formed in 1999 through the merger of Anglo American Corporation of South Africa (AACSA) and Minorco. AACSA was founded in 1917 by Ernest Oppenheimer using UK and US capital, focus was on gold and diamonds. In 1920s/30s AACSA was involved in chemical industries, 1960s saw investment outside South Africa and entry into steel and paper/pulp industries. AACSA is portrayed as adversarial to the apartheid state; they were the first mining house to recognise black trade unions, met with ANC in 1985, assisted with the transition to democracy and completed the biggest BEE deals in corporate history in 1996. In 1998 decision was made to combine with Minorco and relocate primary listing to London. Recently the company has invested in cutting edge technologies to minimise environmental impact (see below).

Water use

All Anglo American's product-based businesses (industry and mining) use water-intensively. They use water to convert raw materials into products ('essential parts of modern life') which are sold to consumers. Their representation of 'sustainable development' is using natural resource base to: create jobs, build skills and develop social and physical infrastructure.

Access modalities

Anglo American **purchase bulk water and discharge wastewater**. They experiment with technologies to reduce wastewater discharge and minimise environmental impact.

Key relationships are with **shareholders, businesses** in which they **have a stake, national** (e.g. DWAF working on controlled discharge scheme) **and local government** (e.g. eThekwini, waste water recycling project) **and communities**.

Allocation/Transmission

Anglo American is experimenting with technologies to reduce water use and minimise environmental impact, these include: waste water treatment technologies, monitoring and controlled discharge systems and irrigating crops with gypsiferous mine water.

F) Palmer Development Group

Representation of self	**Development research, policy, planning & management to mainly public sector, specialise in water/wastewater issues**
Representation of people	**Clients, aim to improve quality of life**
Scalar level	**Various**
Representation of water	**Improve quality of life, regulate, institutions, management**
Drivers of change	**Not mentioned**
Water Use	**Research/policy/planning/management = means of reproduction**
Access modalities	**Contracted by govt, research has impact on local & national policy**
Allocation/Transmission	**Investigate infrastructure & institutional alternatives: IDPs, WSDPs, PPPs, concessions, water services contacts, cost benefit analyses, financial modelling and water pre-payment meters**

Representation

PDG is a consulting and research company specialising in development-related issues. They carry out research, policy advising, planning and management support work; within all areas there is a focus on water and sanitation issues (amongst others). They provide 'innovative' solutions to difficult problems. Main client base is the public sector. Aim is to facilitate infrastructure provision to improve the life of all South Africans.

People are represented as 'clients' and improving people's quality of life is the stated aim.

There are various scalar levels: studies have taken place at (and for) municipality (metro, district & province), water service authority, water service provider, catchment and national levels.

Access to **water improves quality of life**. Appropriate **legislative, policy and planning frameworks** are **needed to regulate water services**, and **institutional and management support** are key. Potential water conflicts are not mentioned, the implicit assumption is that access to water is mainly an institutional/management issue.

Change over time

PDG has been active since 1990. They have 16 professional and 6 support staff. Currently research makes up 15%, policy advice 20%, planning 45% and management support 20% of work. They have undertaken a limited amount of international work.

Water use

Research and consultancy on water issues is the mainstay of PDG's work. Thus water issues are their means of reproduction.

Access modalities

PDG is contracted by clients (mainly national and local government) to research water issues. Thus they gain access to information about water and stakeholders. They are involved in and have considerable influence over policy making at national and municipal level. They have for example: investigated options to meet water demand in Cape Metro; assisted DWAF with finalising policy position, roll out strategy and supported local municipalities to implement FBWP; produced commercial and industrial water tariff guidelines and investigated ways to promote the needs of the poor in PPPs.

Key relationships are with clients: **DWAF, DBSA, WRC, Mvula, provincial and municipal (particularly metro) government**, **WEDC** (Loughborough University, UK) and with stakeholders researched e.g. **water service providers** such as **Umgeni and Rand Water**.

Allocation/Transmission

PDG investigate (and advocate on behalf of) infrastructure and institutional alternatives for water transmission and allocation. These include: IDP's, WSDP's, PPP's, concessions, water services contacts, cost benefit analyses, financial modelling and water pre-payment meters.

G) Concor

Representation of self	**South African building/construction company**
Representation of people	**Not represented**
Scalar level	**Southern Africa**
Representation of water	**Technical, control, environment, community development**
Drivers of change	**Mining, LHWP**
Water Use	**Income from infrastructure construction, hydro-power**
Access modalities	**Contractor for water service delivery e.g. LHWP**
Allocation/Transmission	**Dams, tunnels, waterworks, power stations, gates/penstocks/stoplogs, hydro power drillrigs**

Representation

Concor is a South African based building and construction company, it has a turnover of R1.3 billion per year and aims to become the best and most respected such company in Southern Africa. Fields of focus include: Civils (bridges, dams, tunnels, power stations, waterworks etc); engineering (project management, design supply & erection of specialised equipment for dams and hydro projects); Underground and Opencast mining.

The website is very technical, it does not represent people.

The dominant scalar level is regional (Southern Africa).

The major (in fact only) discourse around water is technical, water is something which can/should be controlled. There are minor discourses around environmental standards and contributing to community development.

Change over time

Concor was established in 1948, a building division was added in 1964 and an opencast mining division in 1980s. In 1984 Concor signed a R38 million 7 year contract with LHWP for the Katse mechanical dam.

Water use

Concor makes money from designing and building water infrastructure. Recently Concor has been experimenting with using hydro-power drilling technology for development.

Access modalities

Concor designs and builds the infrastructure that brings water to people e.g. LHWP. Therefore they have some indirect influence over how people access water; furthermore, Concor designs and builds infrastructure for mining industries (underground and opencast), which use a great deal of water.

Key relationships are with clients e.g. **LHWP** (Katse Dam contract), the **public sector** and **mining industries**.

Allocation/Transmission

Concor designs and builds some of the technologies which bring water to users, key technologies include: dams, tunnels, waterworks, power stations, gates/penstocks/stoplogs for hydro projects and hydro power drillrigs.

C) Amatola Water Board

Representation of self	**Essential services provider, public water utility, regional actor**
Representation of people	**Need water to improve quality of life**
Scalar level	**Eastern Cape**
Representation of water	**Improve quality of life, WRM, quality, environment, industry**
Drivers of change	**CWSS, address service delivery backlogs, restructuring WRM to CMAs**
Water Use	**Improve quality of life, enhance basic services, socio-economic development**
Access modalities	**License to extract raw water (Water Service Act), treat, transport, sell in bulk, manage infrastructure, implement community water projects**
Allocation/Transmission	**Modern tech, affordable & locally suitable e.g. dams, water treatment plants, tunnels, canals, river linkage systems, water treatment chemicals**

Representation

Amatola is a state owned, non-profit making public water utility; an 'essential services provider' supplying 100 million litres of potable water per day, which is used by 2.47 million people. It has close relationships with local government and is a 'regional role player' in Eastern Cape. Primary operations are abstraction, purification and bulk water supply; Amatole also supply untreated water in bulk, reticulate water, facilitate community projects, manage infrastructure, projects and influence policy makers.

People are represented in need of water to improve their quality of life. Amatola aims to achieve full cost recovery, but is committed to poverty reduction and socio-economic development.

The dominant scalar level is regional (Eastern Cape).

The major water discourse is around **using water to improve poor people's quality of life**. There are also discourses around **water resource management**, **water quality**, managing **environmental impact** and **water for industry**.

Change over time

Amatola was established as a Water Board in Eastern Cape in 1997; the process was funded and facilitated by EU. Prior to this there were no large scale water service providers operating in the area and many people were living without clean water and sanitation. They are the main water supplier for an area 43,400 km/sq, this is 4x larger than was originally envisaged. In future; infrastructure managed on behalf of catchment services' will be handed over to 'catchment management agencies'.

Water use

Water and wastewater services are Amatola's business; they are a non-profit making entity. Water is used to improve people's quality of life, enhance basic services and contribute to local socio-economic development.

Access modalities

Amatola operates within the policy parameters of South African Water legislation. They have (purchase) a **license from DWAF** which gives them **authority to extract raw water** from **dams and other sources** in their area of jurisdication. The main water sources are the **Buffalo and Nahoon rivers.** It is believed these sources provide enough water to meet the need of the region until 2012. Amatola extract, treat and transport water, which they sell in bulk to municipalities, institutions and other customers, municipalities provide water to people (2.47 million). They also manage infrastructure on behalf of DWAF and catchment services and are involved in community water and sanitation projects.

Key relationships are/were with DWAF (established start up, service agreements), EU (facilitated and funded start up), SAAWU (member), munuicpalities (service agreements with district: Amatola, Chris Hani, Ukhahlamba & Western and metropolitan: Buffalo City), other bulk water customers, catchment management agencies and communities.

Allocation/Transmission

Focus is on modern technologies, which are affordable and suited to local needs e.g. dams, water treatment plants, tunnels, canals, river linkage systems and water treatment chemicals.

H) Eskom

Representation of self	**SA's leading energy company, balance econ, social, pol & environ pressures, equate Eskom with 'national interest'**
Representation of people	**Shareholders & energy users**
Scalar level	**South Africa**
Representation of water	**Scarce resource, renewable source of energy, environment**
Drivers of change	**Expansion into Africa, development of energy intensive industries**
Water Use	**Generate electricity which is sold, reuse, store electricity,**
Access modalities	**Extract from rivers/dams, treat before use, (recycle), discharge**
Allocation/Transmission	**To convert water into steam (& electricity): generators, turbines, boilers, pipes, superheaters, condensers, cooling towers, sand filters, softeners**

Representation

Eskom is South Africa's leading energy company, their core business is electricity. They have 24 power stations in South Africa, 90% of which are coal fired. They deliver high quality, low cost electricity to customers. The environment is challenging, they have balance financial, social, political and environmental pressures. Aims are to become Africa's leading Energy Company, achieve global stature and grow shareholder value. They are aligned to the aims of NEPAD and equate their interest with the 'national interest'.

People are represented as shareholders, customers and energy users.

The scalar level is national (South Africa) with aspirations beyond.

Water is represented as a **scarce resource**. It is also a **renewable source of energy.** There is a **minor discourse** on **environmental impact**.

Change over time

Eskom plans to expand operations in South Africa and into other African countries. A new business development department helps energy-intensive industries identify investment opportunities in South Africa.

Water use

Eskom use water is used to **generate electricity**, which is **essential to modern society**. In a coal fired power station (90% are…) water is heated and converted into steam, which drives a turbine converting heat energy into rotating mechanical energy, coupled to the turbine is a generator where electrical energy is produced. Water is demineralised (to prevent corrosion), because this is expensive, steam is condensed in order to be used time and time again. Nevertheless energy generation is water-intensive. Additionally hydro-electric power is used to 'store' electricity, meet unexpected energy demands and in case of breakdowns at 'baseload' power stations.

Access modalities

Power stations often extract water directly from rivers/dams in their local area, which is treated (clarification, filtration, demineralisation) before use.

Key relationships are with customers (including bulk electricity e.g. industry and individual users), potential investors and government departments (e.g. dept of minerals & energy; public enterprises; environmental affairs & tourism).

Allocation/Transmission

Infrastructure and technology is used to transmit water and energy (including hydro-electricity) and to purify water for use. These include: dams; generators; turbines; boilers; pipes; steam drums; pressured superheaters; condensers; cooling towers; sand filters; water softeners and anion exchangers.

D) Capnet

Representation of self	**International network capacity building in IWRM, support & strengthen local/regional networks & institutions**
Representation of people	**Agents in partnerships for WRM**
Scalar level	**Local, river basin, catchment, national, regional, global**
Representation of water	**Limit resource, manage sustainably, IWRM,**
Drivers of change	**IWRM, UNDP symposium on water sector capacity building, funding ???**
Water Use	**Build capacity of people, institutions, networks & countries, poverty reduction, sustainable development, partnerships, conflict resolution**
Access modalities	**Networks & technology produce & disseminate information/knowledge**
Allocation/Transmission	**Information Technology, free resources**

Representation

Cap-Net is an international network for capacity building in IWRM. It is made up of autonomous international, regional and national institutions and networks committed to capacity building in the water sector. They have a website, e-newsletter, produce and disseminate (free) 'water management tools' and training materials, organise courses and support members to participate in networks, advocacy forums and events. Aim is to facilitate strengthening of local networks and build local capacity to manage water resources better.

People are represented as agents who can participate in partnerships for water resource management.

Scalar levels are local, river basin, catchment, national and regional, the context is local but alliances are global.

Water is a limited resource which must be sustainably managed. Water is represented in the context of IWRM; this framework recognises water for health, food, livelihoods, economic growth and the environment.

Change over time

The principles of IWRM were formulated at the Dublin conference on Water and the Environment (1992). At the 2nd UNDP symposium on Water Sector Capacity Building (1996) there was a recommendation to create an international network for water sector capacity building. The groundwork for Cap-Net was laid in 1999 by the UNDP Water Programme and the IHE. In 2000 Cap-Net was supported by UNDP and the Netherlands Ministry for Development Co-operation. Cap-Net was running in 2002. Initial goals were to establish a global network; develop and strengthen regional water networks; raise awareness on IWRM and develop materials and tools for education and training. Cap-Net's funding is guaranteed until December 2005, an evaluation took place Dec 2004-Feb 2005 and a

new proposal is being drafted for the next stage of Cap-Net's organisational development. A need has been identified to document IWRM in practise and assist/facilitate Cap-Net members to access funding.

Water use

Cap-Net **uses water to build capacity**, of people, institutions, networks and countries. It can be used for **poverty reduction** and **sustainable development**. Water issues can bring people from different backgrounds together to form partnerships. Water has the potential to resolve conflict.

Access modalities

Cap-Net uses networks and technology to produce and disseminate information about IWRM and water issues to people. Thus they can influence how people gain access to information about water.

Key relationships are with: UNDP (donor, founder, SC), IHE (founder, SC, hosts secretariat), Dutch Government (donor), member institutions, local and regional networks (e.g. Gender and Water Alliance, WaterNet - Southern Africa capacity building network), EU (levers funding for members), Development Banks (e.g. DBSA), World Bank.

Allocation/Transmission

Information technology plays a key role in capacity building and sharing knowledge and information about water. Technology/communication advances create new opportunities, but increase the 'knowledge gap' between those who can access information and those who cannot. Cap-Net resources are available for free on the website.

A) Council for Scientific and Industrial Research (CSIR)

Representation of self	Global Centre of Water Excellence
Representation of people	Clients/Stakeholders
Scalar level	South Africa, Southern Africa, Africa
Representation of water	Water needs to be managed sustainably
Drivers of change	Est.1945; Increase in private funding
Water Use	Research to promote sustainable water use
Access modalities	Controlled by an Act of Parliament
Allocation/Transmission	Aims to provide management/technology solutions for sustainable development

Representation:

CSIR is one of the leading research and development, technology and innovation institutions in Africa. It is the largest community and industry directed scientific and technological research, development and implementation organisation in Africa. CSIR currently undertakes approx. 10% of all research and development work in the African continent.

CSIR aims to be a 'global centre of water excellence'. The goal of CSIR's water programme is to be the leader within southern Africa in innovation regarding the biophysical aspects of water as well as the integration of water in sustainable development to provide solutions to the people of the subcontinent. The scalar level is Southern Africa, CSIR describes itself as playing a key role in the development of South Africa as a Nation and the Southern African Development Community by being a key provider in information and technology solutions. People are represented as clients and stakeholders, which are said to be integral to CSIR's success. Water needs to be managed sustainably.

Drivers of change:

The CSIR was established in 1945. Prior to 1987, CSIR was almost completely dependant on government funding. Since, CSIR's private sector funding has risen to 60% of its total revenue.

Water use:

CSIR's water related research is used to promote sustainable water resource utilisation solutions.

Access modalities:

The CSIR is controlled by an Act of Parliament. CSIR's aims, mission, basic research policies and priorities are set by the CSIR Board. The Board members are appointed from the private sector by the Minister responsible for administering the Scientific Research Council Act, 1988. The executive responsibility of the organisation belongs to the Executive Management, which consists of a President and five Executive Vice-Presidents. The CSIR is funded by %60 percent external revenue from the private sector and also by a parliamentary grant from South Africa's government (amount not specified). When 'appropriate', CSIR establishes relationships with stakeholders and collaborates with partners.

Allocation & transmission:

CSIR aims to 'provide innovative waste management solutions and process technologies regarding water reclamation, protection and reuse'. It also aims to be the hub of support for transfer of technology to promote sustainable development.

B) Rand Water

Representation of self	Managing water for the future
Representation of people	Consumers/clients
Scalar level	Catchment
Representation of water	water is precious and scarce
Drivers of change	Est.1903, diversified services provided since.
Water Use	Domestic & Industrial; cost recovery, not profit
Access modalities	Buys water from DWAF, draws from Vaal Dam
Allocation/Transmission	Pump from dam, purification and storage in reservoir

Representation:

Rand water is "one of the largest water utilities of the world", and has been the sole bulk supplier to Gauteng since 1903 supplying water to more than 10 million people across 18 000 square kilometres. Rand Water has played a key role in shaping South Africa's industrial production, which %50 takes place between the largest two cities – Johannesburg and Pretoria. On average 3 000 million litres of water are pumped every day to consumers throughout Gauteng and as far as Rustenburg and Carltonville in the North West Province, Bethal in Mpumalanga and Heilbron in the Free State.

Rand Water sees itself as contributing in "managing water for the future", it advocates "wise use of water will result in water saving". Water is represented as being 'precious and scarce'. People are represented as 'consumers/clients'.

Drivers of change:

Rand Water was founded in 1903. Over the past decade, Rand Water has diversified into other areas to fulfil its 'responsibilities' towards the communities it serves. These activities include: "fixing leaks and old or damaged infrastructure, promoting water-saving devices, monitoring the environment, helping improve water and sanitation delivery by helping train local authorities with necessary skills (needed for successful private public partnerships), etc."

Use made of water:

The water that Rand Water delivers is used by local authorities for domestic purposes and by industries as well as mines for productive use. One of Rand Water's policies is that the rate of water is only to recover costs and is not to yield any profit.

Access modalities:

Rand Water buys its raw water from the Department of Water Affairs and Forestry (DWAF) and draws it from the Vaal Dam, which is supplied by the Katse, Sterkfontein, Grootdraai and Woodstock Dam. The water is then filtered and cleaned at two purification plants.

Allocation & Transmission:

Rand Water first uses pumping technologies to acquire water from the dams.

The raw water is cleaned and disinfected through a process using sedimentation tanks and by means of rapid-gravity filtration. The resulting water is then sterilised by chlorination. After this water is delivered to Local Authorities reservoirs and Rand Water reservoirs via pipelines for domestic, industrial and public use by about 10 million people in a 18 000 km2 supply area.

B) Bloem Water

Representation of self	Major discourse 'serving people'
Representation of people	Costumers/clients; our people; communities with limited resources
Scalar level	Catchment
Representation of water	Water needs to be conserved
Drivers of change	Est. 1991, reviewed to meet national priorities
Water Use	Supply to communities; profit
Access modalities	Schedule 3 National Government Business Entity
Allocation/Transmission	Purified and unpurified bulk water and contract services

Representation:

Bloem Water was established in 1991 in order 'to give effect to the Water Act and Water Services Act'. The company's principal business is to provide water services and guidance to Water Services Institutions within their service area. The current service areas of Bloem Water include the "Lower Modder Catchment area and Xhariep District Municipality; the Upper Caledon Catchment area and the Thabo Mofutsanyane District Municipality; and the Upper Orange Catchment area and Bo-Karoo District Municipality".

The major discourse is about serving people. Bloem Water prides itself on the role it plays in delivering water to the inhabitants of the areas it services and the company holds itself 'accountable to the people of South Africa'. People are represented as 'costumers/clients', as 'our people' and as communities that have "limited resources". Water services to clients should be 'reliable and affordable'; Bloem Water provides 'value for money'. The company also funds numerous community-oriented projects. There is a minor discourse of 'Water Conservation' and the company is ISO 14001 certified.

Drivers of change:

Bloem Water was established in 1991. In 2000, the function and purpose of the organisation was reviewed to meet the national priorities and additional functions were allocated to the organisation in order to further assist the Department of Water Affairs and Forestry to achieve priorities set in water services. Services were extended to inhabitants of rural areas, in addition to the formal urban areas. New options in terms of service delivery and revenue generation were explored (which ones? Not specified).

Water use:

Water services are supplied to communities in partnership with local and district municipalities. Water is used through provision of water-related services that extend beyond bulk service provision and includes reticulation, sanitation, catchment management, effluent treatment/disposal, water quality reporting as well as a range of other consulting services. Bloem Water also makes monetary profits from the water services it provides.

Access modalities:

Bloem water is a "Schedule 3 National Government Business Entity", which reports to parliament via the Minister of Water Affairs who is the Executive Authority of the organisation (in terms of the provisions of the Public Finance Management Act 1999 and Water Services Act 1997). The organisation is also subject to the provisions of the 1998 National Water Act. Partners include local and district municipalities.

Allocation & transmission:

Basic services include provision of purified water to consumers (inc. 6000 litres/month of free basic water in accordance to the government's programme). For bulk orders, purified and unpurified water is supplied to the Water Services Authorities. As a retail agent, Bloem Water supplies Water Services Authorities and consumers directly with a contracted service provider that is responsible for reading, billing, etc. The technologies that are used are not described.

F) Municipal Services Project (MSP)

Representation of self	Undertaking 'critical' research
Representation of people	As people, in a range of ways
Scalar level	Southern Africa
Representation of water	Water is a basic service
Drivers of change	Est. 2000, 2 project phases; plan to inc. more countries; Service delivery changed b/c of decentralisation and policy reforms
Water Use	Central to the project's research
Access modalities	Funded by IDRC; various partners
Allocation/Transmission	Aims to provide info that would improve service delivery

Representation:

"The Municipal Services Project (MSP) is a multi-partner research, policy and educational initiative examining the restructuring of municipal services in Southern Africa. The Project's central research interests are the impacts of decentralization, privatisation, cost recovery and community participation on the delivery of basic services to the rural and urban poor, and how these reforms impact on public, industrial and mental health".

MSP is doing 'critical' research in order to promote 'equity' and explore 'power' relationships between citizens and the state. People are represented as 'people', 'women', 'children', 'disabled', 'households', etc. MSP research takes into consideration 'socio-economic status/class', 'income', 'gender', 'ethnicity', 'disability' and 'geographic categories'. Water is represented as a 'basic service'. Attempts are made to link the impacts of service delivery restructuring such as privatisation on health status. The scalar level is Southern Africa.

Drivers of change

During the first phase of the Project (2000-2003), the primary focus of the research was on impacts of policy reforms such as privatisation and cost recovery on the delivery of basic municipal services (specifically water, sanitation, waste management and electricity). During the second phase of the

project these reforms will continue to be explored, but the research will be expanded to look at health issues and to include more countries of the Southern African region. Basic service delivery has changed due to decentralization and policy reforms including privatisation and cost recovery.

Water use:

Water is not used directly by MSP. However, water is one of the basic services that is researched by MSP and is a central of the Project.

Access modalities:

The MSP does not access water directly. The Project is funded by the International Development Research Centre (IDRC) of Canada. Project research partners are the International Labour Research and Information Group (Cape Town), Queen's University (Canada), the University of the Witwatersrand (Johannesburg), the Human Sciences Research Council (Durban), Equinet (Harare), the South African Municipal Workers Union, and the Canadian Union of Public Employees.

Allocation & transmission:

MSP does not directly allocate and transmit water. Their research would help raise information on municipal service delivery models that are pro-equity, participatory and health oriented.

A) National Community Water and Sanitation Training Institute (NCWSTI)

Representation of self	Leading national water/sanitation training Institute
Representation of people	Clients
Scalar level	South Africa
Representation of water	Water has to be provided in a sustainable, effective and efficient manner
Drivers of change	Est.1996, starting gender-related training in 2000
Water Use	Aims to enhance client capacity in delivery water/sanitation
Access modalities	DWAF, UNDP/World Bank support
Allocation/Transmission	Training should contribute to sustainability

Representation:

The National Community Water and Sanitation Training Institute (NCWSTI) is a non-profit organisation that was established in 1996. It is based at the University of the North and was established as a National Centre of expertise and research in adult training in water and sanitation. The Institute focuses on addressing the needs of rural people in accordance with the White Paper policy emphasising a 'shift to creating centres of expertise in the historically under resourced universities which are well-placed to address the needs of rural people around the country".

The NCWSTI "envisions itself as being the leading national community water and sanitation training support centre in South Africa and to function as the first port of call for all water and sanitation related training needs". The NCWSTI also describes itself as a water supply and sanitation resource centre specialising in sector gender issues.

The NCWSTI refers to its trainees as 'clients'. The scalar level is South Africa.

Drivers of change:

NCWSTI was established in 1996 as a result of the White Paper on Community Water and Sanitation Policy (1994). The NCWSTI started the GEMSA Project (Building Capacity for Mainstreaming Gender in Water Supply and Sanitation in South Africa) in 2000 in response to the demand for more training in

awareness of gender and gender approaches. In 2001, the NCWSTI expanded its services to offer a BSc Degree in Community Water Supply and Sanitation with the University of the North.

Water use:

Water is not used directly by NCWSTI. However, NCWSTI hopes to enhance its clients' (organisations responsible for, or involved in the provision of water and sanitation services) capacity in delivering water and sanitation services to their communities in a sustainable manner. The NCWSTI promotes the idea that gender consideration plays a critical role in the ultimate sustainability of water and sanitation projects.

Access modalities:

The NCWSTI does not access water directly. The Institute was established as a directive from then Water Affairs and Forestry Minister, Professor Kader Asmal, in the White Paper on Community Water and Sanitation Policy of 1994. It was also established within the framework of the International Training Network for Water and Waste Management (ITN), the human research development component of the Water and Sanitation Programme of the UNDP/World Bank.

Allocation & transmission:

The NCWSTI does not allocate or transmit water, but offers training to local government and water board officials who are responsible for provision of water and sanitation services to their community. Additionally, the NCWSTI describes its BSc Degree graduates as a group of people that will contribute to sustainable development in water and sanitation.

A) Water Institute of Southern Africa (WISA)

Representation of self	Non-profit Institute that provides a forum for exchange
Representation of people	Consumers; disadvantaged people
Scalar level	Southern Africa
Representation of water	Water for all; water is a primary need
Drivers of change	Est.1987 after Water Pollution Control was disbanded
Water Use	Not by WISA, but in many ways by members
Access modalities	Patronage from various companies; member of various international orgs
Allocation/Transmission	Members are committed to knowledge/technological advancement in water field

Representation:

The Water Institute of Southern Africa (WISA) was formed in 1987. The non-profit Institute provides a forum for exchange of information and views to improve water resource management in Southern Africa. The Institute currently has approx. 1800 members of all spheres of employment and varying disciplinary backgrounds including groups and individuals from public authorities, industry, suppliers, consultants, development organisations and research organisations. WISA embraces a multidisciplinary approach.

WISA members are committed to working towards the 'equitable' and 'beneficial' use of 'water for all'. Members 'will not cause or permit the discharge of matter into the natural cycle that would impair the quality of the water for beneficial use by others'. Water is seen as a 'primary need' for the 'health of the nation'. An abuse of water would 'endanger public health'. WISA also states that 'water is life'. WISA disseminates knowledge and information related to the delivery of water supply and sanitation to the 'disadvantaged people of Southern Africa'. People are also referred to as 'consumers of the end product' from the 'tap user' to the 'angler'. The scalar level is Southern Africa.

Drivers of change:

The WISA was formed in 1987 when the Southern African Branch of the Institute of Water Pollution Control (formerly the institute of Sewage Purification), that served the water industry of Southern Africa for 50 years, was disbanded.

Water use:

Water is not used directly by WISA, however, it is used in a myriad of ways by its members.

Access modalities:

WISA does not access water directly. The Institute reports to a Board of Directors, which is appointed by the Council (comprised of a Register of Members). The following companies are Patron Members of WISA: Brooke Pattrick (Pty) Ltd, Department Water Affairs and Forestry, ERWAT, ESKOM, eThekwini Municipality, Johannesburg Water, NCP Chlorchem (Pty) Ltd, Rand Water, SAME Water, Sedibeng Water, Süd-Chemie Water and Process Technologies (Pty) Ltd, Umgeni Water, Water & Sanitation Services SA, Zetachem. As a 'member association' WISA is represented on the Board of Control of the Water Environment Federation (USA), is a member of the American Waste Water Association, is represented on the National Committee of the International Water Association. WISA has agreements with the Australian Water Association and is also a member of the Chartered Institute of Water Environmental Management in Britain.

Allocation & transmission:
WISA does not allocate or transmit water directly, however, all its members are committed to advancement of knowledge and technology in the water field.

D) Geasphere - Southern African Water Crisis (SAWAC)

Representation of self	To gather info and raise awareness about the environment
Representation of people	Must drastically limit our impact; respect all life forms
Scalar level	Southern Africa
Representation of water	Natural Resources are finite
Drivers of change	Est.2001
Water Use	Strives to protect water quantity and quality
Access modalities	Funds from GGF and SSNC
Allocation/Transmission	N/A

Representation:

Southern African Water Crisis (SAWAC) is one of Geasphere's projects which mission reads: "To gather information about the sate of our environment; to create public awareness about the state of our environment; to combat further destruction, to the state of our environment; and together, to rehabilitate the state of our environment". Part of their mission is to offer information on the state of rivers (quality/quantity) of water, however, no such information is available on the website.

The major discourse is that 'natural resources are finite'. In order to reverse the current trend, 'we' must 'drastically limit our impact', protect, manage and restore natural ecosystems. 'We must respect all life' and recognize that 'all is connected' and 'interdependent'. The 'health of our people' depends on 'the health of our environment'. The scalar level is Southern Africa.

Drivers of change:

In 1999 a group hosted a meeting called 'SAWAC' – Southern African Water Crisis. In 2001 an SAWilderness campaign was launched by the group. The same year the group registered as

'Geasphere', a section 21 not for profit organization in order to facilitate the two campaigns: SAWAC and SAWilderness.

Water use:

Water is not used directly by Geasphere, however, the organization strives to protect the quantity and quality of water in Southern Africa.

Access modalities:

Geasphere has obtained funds from the Global GreenGrants Fund (GGF) and from the Swedish Society for Nature Conversation (SSNC).

Allocation & transmission:

Geasphere/SAWAC does not mention allocation and transmission of water on their website.

G) WaterWise Consultants

Representation of self	Best in product and services, committed to excellent service
Representation of people	Costumers
Scalar level	South Africa
Representation of water	Tap water is not safe; purify using reverse osmosis technology
Drivers of change	N/A
Water Use	Gain from selling their water purifying technology.
Access modalities	N/A
Allocation/Transmission	Reverse osmosis technology is promoted to purify water

Representation:

Waterwise Consultants specialise in reverse osmosis (R/O) water purifiers. "Reverse osmosis is a process in which water is forced by pressure (at least 35psi) through a semi-permeable membrane. The good water passes through the membrane while the dissolved and particulate material are sent down the drain". Their website states that they also provide a variety of other products to suit most purification requirements (these products are not specified).

The major discourse is that 'tap water is not safe'. From their website, Waterwise Consultants seek to highlight 'the dangers of drinking water straight from your tap'. Various links are included to provide information concerning 'drinking water, chemical additives to water and ways to remove them'. South Africa websites are also included to provide information on 'what actually goes into our water'.

The scalar level is South Africa. People are represented as costumers.

Drivers of change:

This information is not available on Waterwise Consultants' website.

Water use:

Waterwise Consultants gain from selling water-purifying technology.

Access modalities:

This information is not available on Waterwise Consultants' website.

Allocation & transmission:

Waterwise Consultants do not allocate or transmit water directly, but advocate the use of reverse osmosis purifiers to all.

H) Siza Water Company (formely Dolphin Coast)

***Note Siza Water Company does not have a website**

Representation of self	Service provider with social responsibilities
Representation of people	Costumers and communities
Scalar level	Communities of the Dolphin Coast area
Representation of water	N/A
Drivers of change	Since 2004 Siza is owned by Bouygues rather than Saur
Water Use	Monetary gain from concession agreement
Access modalities	Bulk water from Umgeni Water
Allocation/Transmission	To communities by a reservoir and pipeline system

Representation:

Siza Water Company was established in 1999 in Dolphin Coast, South Africa. A public-private partnership concession agreement was signed between the Dolphin Coast Local Council and the, at the time, SAUR-controlled Siza Water Company in 1999. At inception, Siza Water Company was responsible for delivering several levels of service (water/sanitation) including: Maintenance & operation and rehabilitation & expansion of work assets. The company was also responsible to ensure relationships with costumers and different communities as well as to uphold internal and external social responsibilities.

Siza Water Company describes itself as a service provider that holds social responsibilities. People are referred to as costumers and communities. The scalar level is 'communities of the Dolphin Coast area'.

Drivers of change:

Bouygues has retained businesses formerly operated in Africa by Saur including Siza Water Company (sold to PAI partners on 19 November 2004).

Water use:

Siza Water Company profits from the concession agreement.

Access modalities:

Umgeni Water provides bulk water to the Siza Water Company. In 1999, when the concession agreement was signed, SAUR held 58% of Siza water, Metropolitan Life Ltd. held 23%, Women's Development Bank Investment Holdings held 5% , the Investment Progress Group Holdings (IPG) held 5%, NANO Investment Holdings (Pty) Ltd held 5% and an employee share scheme held the remaining 4% (information on the current shareholding structure was not found).

Allocation & transmission:

Water is allocated and transmitted to 30 000 inhabitants off peak and 80 000 during peak season through a system of 13 storage reservoirs and 157 km of pipeline.

H) SUEZ and Water and Sanitation Services South Africa (WSSA)

Representation of self	Environmentally friendly
Representation of people	People are costumers/communities
Scalar level	South African communities
Representation of water	Water is an essential service
Drivers of change	WSSA became ISO 9001 certified
Water Use	For poverty alleviation and profit
Access modalities	WSSA operates under Suez Environment
Allocation/Transmission	Through BoTT systems

Representation:

Water and Sanitation Services South Africa (WSSA) is a water service company, which has been operating in the South Africa for over 15 years. WSSA currently operates in six provinces of South Africa: Limpopo Province, North West Province, Kwa-Zulu Natal, Eastern Cape, Western Cape and Gauteng. WSSA has implemented the BoTT (Build Operate Train Transfer) system, a form of public-private partnership, in Eastern Cape and Limpopo.

WSSA describes itself as being 'environment friendly'. 'Partnerships' build the 'sustainability' required for bringing water services to poor urban, peri-urban and rural areas. It is made explicit that only the private sector can offer 'project management skills', 'resources' and 'flexibility'. Only a 'public-private partnership' could 'eradicate backlog' in service delivery with urgency.

People are represented as 'costumers', 'rural disadvantaged communities', 'low income communities' and 'poor populations' whose needs in water and wastewater services have to be met. There is a major discourse of 'serving the poor'. Their statistics depict the number of poor people they serve in comparison to the population as a whole and a quote in their presentation reads 'Serving the poor is not charity, it is part of our normal business'. The output of a BoTT is measured by 'the number of poor people getting access to potable water'.

Water is described as an 'essential service' that should be provided to 'improve living conditions of poor populations'.

Drivers of change:

WSSA was the first South African water services company to obtain the dual ISO 9002 and ISO 14001 SABS certifications for its entire operations, and has successfully converted to ISO 9001 in 2000.

Water use:

Access to water is needed for poverty alleviation. WSSA profits from the BoTT contracts it operates.

Access modalities:

WSSA operates under Suez Environnement (Ondeo) and accesses water for the BoTT systems through a contract tendered by DWAF.

Allocation & transmission:

The BoTT system is used to allocate and transmit water to communities. Technologies are not specified.

H) BiWater South Africa

Representation of self	World-class reputation includes costumer care, ethics, environmental care
Representation of people	Costumers
Scalar level	Various scalar levels
Representation of water	Natural resource that must be efficiently managed
Drivers of change	Est. 1968
Water Use	For profit through a 30 year concession
Access modalities	Through the signed concession agreement
Allocation/Transmission	Makes use of latest information technology

Representation:

Biwater aims to earn a world-class reputation in all of the company's business activities including highest standard of customer care, ethics and environmental care. The company's head office is in the United Kingdom, it operates as a group of companies in over 30 countries. Biwater South Africa signed a 30 year concession called the Nelspruit Water Treatment Works. The water supply and sanitation system for the Greater Nelspruit area comprises four existing water treatment plants and three sewage treatment plants serving a population of 260,000, current population 320,000.

People are referred to as 'costumers'. The scalar level is any water project 'big or small' and 'anywhere in the world'. Water as a natural resource must be efficiently managed.

Drivers of change:

Biwater was established in 1968 in the United Kingdom.

Water use:

Biwater South Africa profits from the 30 year water concession agreement it signed for the Greater Nelspruit area.

Access modalities:

N/A

Allocation & transmission:

Biwater utilises the latest information technology and communication systems to share the company's wealth of information and specialist expertise.

F) The International Water Management Institute (IMWI)

Representation of self	Non-profit scientific research organisation
Representation of people	Poor people/communities
Scalar level	Various
Representation of water	Scarce Resource
Drivers of change	In 2000 est. Africa Regional Office in Pretoria, SA
Water Use	For research: inform government policy and alleviate poverty
Access modalities	Govt, govt agencies, development banks and foundations
Allocation/Transmission	Develop best management practices and technologies

Representation:

The International Water Management Institute is a nonprofit scientific research organisation that focuses on the sustainable use of water and land resources in agriculture as well as on the water needs of developing countries. IWMI works with its southern partners to development tools and methods to help these countries eradicate poverty through more effective management of their water and land resources. Its research is organized around four main activities: mapping water productivity; mapping water poverty; analyzing high potential interventions and assessing impacts. IWMI is said to provide 'research based knowledge' and 'impartial policy recommendations'.

People are represented as 'poor people', 'the rural poor' or 'poor rural communities' which have water-related problems that need to be understood/studied for poverty alleviation. Water is represented as a 'scarce resource' that needs to be managed effectively. Managing water in an effective manner will lead to 'poverty alleviation'. Water is needed to 'grow food', to 'sustain rural livelihoods' and for the 'environment'. IWMI does most of its work in Asia and Africa and runs projects in 21 countries.

Drivers of change:

In November 2000, IWMI opened its Africa Regional Office in Pretoria, South Africa.

Water use:

Issues resulting of water scarcity are used to support the need for IWMI's research. The research is then used to inform government policy and poverty alleviation.

Access modalities:

IWMI aims to influence government policies with respect to water access and so they can potentially influence on how people access water. IWMI's funding support is provided by governments, government agencies, development banks and foundations. Some of these are the: African Development Bank, Food and Agriculture Organization, Ford Foundation, IDRC, South Africa Government, UNEP, UNESCO and the World Bank (see website link for full list). Since 1998, IWMI has developed partnerships with several South African institutions including universities, research institutes, NGOs and government agencies (see website link for list).

Allocation & transmission:

One of IWMI's objectives is to develop, test and promote management practices and tools that can be used by governments, institutions to manage water and land resources more effectively, and address water scarcity issues. Additionally, one of IWMI's current activities includes developing strategies and options to upscale the adoption of low-cost irrigation and water-harvesting technologies. This said, their research might potentially influence the way water is transmitted and allocated.

H) Vivendi Water and Durban Water Recycling

Representation of self	N/A
Representation of people	Industrial clients/ poor communities
Scalar level	EThekwini Water Services area
Representation of water	Water resources are finite and must be managed efficiently
Drivers of change	BOOT signed in 1998
Water Use	As a financial investment
Access modalities	Through partnership with eThekwini Water Services
Allocation/Transmission	Purifies and reclaims water transmitting more to people and for less $ to industry; using the BOOT system

Representation:

In 1998, eThekwini Water Services (then Durban Metro Water Services) signed a 20 year build-own-operate-transfer (BOOT) public private partnership contract for a water recycling plant with Durban Water Recycling (DWR). DWR is a company whose principle shareholder is a subsidiary of Vivendi Water. The partnership is called the 'Reclaimed Sewage Water Project' and it produces near-potable quality water from domestic and industrial wastewater and sells this water to industrial clients for re-use through its Durban Water Recycling Plant which opened in 2001.

The major discourse is that 'water resources are finite' and, therefore, must be 'managed efficiently'. The Reclaimed Sewage Water Project is a means to ensure 'sustainable management' of Durban Metro's water. People are either referred to as industrial clients or poor communities.

Drivers of change:

The BOOT was signed in 1998.

Water use:

Durban Water Recycling guarantees water at a lower cost to its main clients: Mondi Paper mill, Sapref Refinery and Sasol textile factory. For Durban Water Recycling, the project as an investment opportunity is 'financially attractive' and 'sustainable in the long term'.

Access modalities:

Durban Water Recycling gains reclaims industrial and domestic water through its partnership with eThekwini Water Services.

Allocation & transmission:

The project includes treating primary sewage and repurifying the reclaimed water, which creates 47,500 m3 of drinking water per day. Therefore, the partnership provides 8% more potable water for Durban Metro and creates affordable water supplies in poor informal settlements. It also guarantees lower water costs to industry, costing 30% less than potable water. There is no mention of the technology used.

Appendix C - Preliminary List of SA's Key Water Organisations*

*see detailed descriptions in the Draft Hydropolitical Map

Government Departments, Sponsored Groups and Parastatals

- **CSIR – Council for Scientific and Industrial Research**

CSIR is a South African institution, focusing on scientific environmental and forestry scientific research and technological innovation for sustainable development in Southern Africa. It is an institution for operation research and strategies in technology with a track record spanning 60 years.

http://www.csir.co.za/

- **DBSA – Development Bank of South Africa**

DBSA is Southern Africa's leading infrastructure development finance institution. It was established in 1983 by the government of the Republic of South Africa. It has a mandate to accelerate sustainable socio-economic development in the region by funding physical, social and economic infrastructure. Having refocused its mission, the bank stands as a key national development institution, having a three-fold role as financier, advisor and partner.

http://www.southafrica.info/doing_business/investment/oppurtunities/public-private.htm

- **DWAF - Department of Water Affairs and Forestry**

The Department of Water Affairs and Forestry is the overall custodian of South Africa's water and forestry resources. It is primarily responsible for the formulation and implementation of policy governing these two sectors. It also has overarching responsibility for water services provided by local government. *http://www.dwaf.gov.za/*

- **LHWP - Lesotho Highlands Water Project**

Africa's largest infrastructure project, the Lesotho Highlands Water Project (LHWP) is a massive, multi–dam scheme built to divert water from Lesotho's Maloti Mountains to South Africa's industrial Gauteng Province. The first phases of the World Bank–supported project involved the construction of three large dams. http://www.irn.org/wcd/lhwp.shtml

- **NCWSTI - National Community Water and Sanitation Training Institute**

The NCWSTI offers training, information and support to the water and sanitation sector in South Africa. It collaborates with the University of the North in providing courses and training.

http://www.ncwsti.co.za

- **NWRIA - National Water Resource Infrastructure Agency**

NWRIA is a new institution approved by the government of South Africa, to be established in 2008. The aim of the agency will be to take responsibility for developing and operating South Africa's major national dams and water transfer schemes that are currently managed by the DWAF. The agency will also integrate TCTA, the parastatal agency responsible for funding the Lesotho Highlands Water Project.

http://www.mg.co.za/articlePage.aspx?articleid=247155&area=/breaking_news/breaking_news__national/

- **SAAWU - South African Association of Water Utilities**

The South African Association of Water Utilities is a Section 21 Company (organisation not for profit) that evolved from what was previously the South African Association of Water Boards. It was formally established in March 2001 following the ongoing changes in the business environment of the water services sector and the challenges created by the massive backlogs in service delivery. This created the need for the establishment of a formal institutional structure to represent, promote and co-ordinate the interests of all public sector institutions involved in the provision of water services. The main business of SAAWU is to promote the interests of water boards and other public sector water utilities in South Africa and to ensure effective integration and co-operation within the water sector. http://www.saawu.co.za/

- **SANTAG – KwaZulu-Natal Sanitation Task Group (SANTAG)**

SANTAG is an organisation made up of representatives of separate agencies working in KwaZulu-Natal to improve sanitation.

http://www.santag.org.za/

- **South African Red Cross Society Water and Sanitation project in the rural communities of KwaZulu Natal, South Africa.**

This project was established as a result of a cholera outbreak in KwaZulu-Natal in 2000. The South African Red Cross Society was allocated two areas by the Government - the Dlangubo/Lower Umfolozi (Northern KwaZulu-Natal) area and the Qwabe/Ugu South Coast area. These were the most affected areas. The aim of the project is to reduce the incidence of cholera, water-borne and diarrhoea diseases through: a) Improving hygiene conditions and safe water supply to rural communities and schools through pit latrine education and construction and borehole/pump construction, and b) providing knowledge and expertise to reduce the risk of water-borne diseases through hygiene promotion.

http://www.pwa-web.org/data/IFRC/latest/IFRC_08.asp

- **TCTA** (Trans-Caledon Tunnel Authority)

TCTA was established by the water Act of 1956. In the terms of the 1986 treaty on the LHWP (Lesotho Highland Water Project) and South Africa SA was obliged to establish the TCTA to implement the project on the South Africa side. Since the completion of phase 1A of the project, the TCTA's functions have being limited to the operation and maintenance of the project on the South Africa side. It does not require full-time staff. The main business of TCTA is to raise funds and manage liabilities on behalf of government in respect of the project and financing of water infrastructure with direction from minister of water affairs and forestry. TCTA is governed by a body of directors.

www.dwaf.gov.za/Documents/AnnualReports/2004/AnnualReport04Part1.pdf/

- **WISA - Water Institute of Southern Africa**

WISA was formed in 1987, when the Southern African branch of the Institute of Water Pollution Control (formerly the Institute of Sewage Purification), which had served the water industry in Southern Africa for a period of 50 years, was disbanded. The Institute keeps its members abreast of the latest developments in water technology and research through its national and international liaison, links and affiliations. The Water Institute of Southern Africa provides a forum for exchange of information and views to improve water resource management in Southern Africa. http://www.wisa.org.za

- **WIN – SA - The Water Information Network South Africa**

WIN is a newly established network of organisations in South Africa focusing on improving knowledge management and sharing in the water and sanitation sector; and particularly to improve access and use, targeting local government and other decision-makers.

http://www.irc.nl/page/25092

- **WRC – Water Research Commission**

The WRC operates in terms of the Water Research Act (Act 34 of 1971). The mandate is to support water research and development as well as the building of a sustainable water research capacity in South Africa. The WRC serves as the country's water-centred knowledge 'hub', leading the creation, dissemination and application of water-centred knowledge, focusing on water resource management, water-linked ecosystems, water use and waste management and water utilisation in agriculture. http://www.wrc.org.za/

Bulk Suppliers

- **Amatole Water**

Established by government in 1997 to operate and manage bulk water supply and provide potable water services to the local and district municipalities in the greater Buffalo City area in the Eastern Cape. www.buffalocity.gov.za

- **Rand Water**

Rand Water has been a bulk water supplier to the Gauteng area since 1903. Responding to recent changes in the social and political environment in South Africa, Rand Water expanded its activities into operating beyond the traditional role as bulk supplier, and now provides technical assistance in the water sector. *http://www.randwater.co.za/*

- **Umgeni Water**

Umgeni Water was established in 1974. It is involved in a broad range of water services, but its core business lies in bulk storage, treatment and supply of water. Umgeni Water is the largest bulk water supplier in KwaZulu-Natal. Its activities are centred on the Greater Durban and Pietermaritzburg Metropolitan areas. It is one of the largest catchment-based water utilities in Southern Africa. *http://www.umgeni.co.za/*

Non-Governmental Organizations

- **AMREF – African Medical and Research Foundation**

AMREF is the continent's leading health development organisation, with offices in five Eastern and Southern African countries: Ethiopia, Kenya, South Africa, Tanzania and Uganda. AMREF each year trains health professionals from countries all over the African continent. The headquarters are in Nairobi, Kenya. In South Africa, AMREF has trained local artisans to construct and expand wells, boreholes and latrines, and has introduced community programmes that use education and skills-sharing to increase access to clean water and encourage public sanitation and health.*http://www.amref.org/*

- **AWARD - Association for Water and Rural Development**

AWARD claims to be the only NGO in South Africa working in an integrated way with regard to water resources and water supply. It is unique in that it seeks to embed issues of water supply within the broader context of water resources and their sustainable use. It argues that water projects cannot be undertaken without considering the water resource base (quantity and quality) and the key policy frameworks that govern its use and protection. AWARD also

attempts to build interface in implementation, research and policy in the water sector. http://www.award.org.za/

- **Mvula Trust**

The Mvula Trust is the largest water and sanitation non-governmental organisation (NGO) in South Africa with 10 years of experience. Mvula has established itself as the leading water services delivery NGO and is currently piloting approaches to integrated rural development. It has a track record and expertise in working with poor communities and facilitating service delivery partnerships between communities and municipalities. The Head Office and Policy Unit are in Johannesburg, and there are eight Regional Offices in Durban, East London, Empangeni, Kokstad, Nelspruit, Polokwane, Rustenburg and Umtata. http://www.mvula.co.za/pages/who.html

- **SAWAC - Southern Africa Water Crisis**

SAWAC focuses on the gathering and dissemination of information about the environment, aiming to combat destruction of, and rehabilitate the environment. http://www.sawac.co.za/

- **WHiRL – Water, Households and Rural Livelihoods**

This project is supported by the UK Department for International Development (DFID) through the Infrastructure and Urban Development Division's Knowledge and Research programme. It provides guidance for local water management. It is targeted at water sector professionals who are actively engaged in the implementation of 'Integrated Water Resources Management' (IWRM). http://www.nri.org/WSS-IWRM/

- **World Vision**

World Vision's work in South Africa began in 1965. In the 1990s, one of World Vision's main focuses was on rural development, which included training programmes and the provision of water supplies to communities. http://www.isisa.co.za/isisa/worldvision/default.htm

University-Based Networks and Other Research Units

- **AWIRU – African Water Issues Research Unit**

The African Water Issues Research Unit (AWIRU) is a not-for-profit applied research organisation based at the University of Tshwane (Pretoria). It was established to develop an African capacity in African water management and development. AWIRU is aligned with the goals of the New Partnership for Africa's Development (NEPAD) which aims to strengthen trans-frontier water governance at all levels throughout Southern Africa. AWIRU's stated objective is to generate water management solutions that are politically, socially, economically, environmentally and culturally sustainable in Africa. www.up.ac.za/academic/libarts/polsci/awiru

- **Building Partners for Development**

BPD Water and Sanitation is an informal network of partners who seek to demonstrate that strategic partnerships involving business, government and civil society can achieve more at the local level to improve access to safe water and effective sanitation for the poor than any of the groups acting individually. http://www.bpd-waterandsanitation.org

- **Capnet**

Cap-Net is an international network for capacity building in IWRM. It is made up of a partnership of autonomous international, regional and national institutions and networks committed to capacity building in the water sector. http://www.cap-net.org/

- **International Water Management Institute (IMWI)**

IWMI is a non-profit scientific organization funded by the Consultative Group on International Agricultural Research (CGIAR). IWMI's research agenda is organized around four priority themes covering key issues relating to land, water, livelihoods, health and environment. The Institute concentrates on water and related land management challenges faced by poor rural communities. http://www.iwmi.cgiar.org/africa/index.asp

- **INTERWATER (formerly WENDY) Water Supply and Environmental Sanitation Electronic Network for Developing Country's Needs.**

INTERWATER is a collaborative electronic network of partner institutions in the water and sanitation sector, operating under the auspices of the Water Supply and Sanitation Collaborative Council. It acts as a gateway to sources of water and sanitation information which are accessible through the Internet, and is undertaken by the Pollution Research Group of University of KwaZulu-Natal-Durban, together with the Department of Civil Engineering, of the University of KwaZulu-Natal-Westville. *http://www.thewaterpage.com/south_africa.htm*

- **MSP - Municipal Services Project**

The Municipal Services Project (MSP) is a multi-partner research, policy and educational initiative. It examines the restructuring of municipal services in Southern Africa. The central research focus of the Project is assessment of the impacts of decentralization, privatization, cost recovery and community participation on the delivery of basic services to the rural and urban poor, and how these reforms impact on public, industrial and mental health. It has an explicit participatory and capacity-building focus involving graduate students, labour groups, NGOs and community organisations in data gathering and analysis. With particular emphasis the research, it also introduces critical methodologies such as 'public goods assessments' into more conventional cost-benefit analyses. The research results are disseminated in the form of an occasional papers series, a Project newsletter, academic articles/books, popular media, television documentaries and the internet. Research partners are the International Labour Research and Information Group (Cape Town), Queen's University (Canada), the University of the Witwatersrand (Johannesburg), the Human Sciences Research Council (Durban), Equinet (Harare), the South African Municipal Workers Union, and the Canadian Union of Public Employees. The Project is funded by the International Development Research Centre (IDRC) of Canada. http://www.queensu.ca/msp/

- **Universities Partnership for Transboundary Water (UPTW)**

UPTW is an international consortium of universities seeking to promote peace, environmental protection and human security through investigating transboundary water issues. Work includes: applied research, outreach, education and training. Membership spans five continents. http://waterpartners.geo.orst.edu/

- **Water and Sanitation Programme (WSP)**

The Water and Sanitation Program (WSP) is an international partnership of the world's leading development agencies concerned with improving sector policies, practices and capacities to serve poor people. Our goal is to alleviate poverty by helping the poor gain sustained access to water and sanitation services. It is administered by the World Bank and is working to meet the Millennium Declaration Goals. www.wsp.org

Multinational Water Firms

- **Biwater**

Established in 1968 in the United Kingdom, Biwater employs over 11 000 people worldwide. Biwater provides water and waste water treatment services to millions of people around the world. The business focus is on water treatment; waste water treatment; water infrastructure investment and operation; water asset management and consultancy services; water leisure facilities. In South Africa Biwater has obtained a 30-year concession contract in Nelspruit, Mpumalanga province, the concession started in November 1999. The concession company was later renamed Greater Nelspruit Utility Company (GNUC). No official website, see: *http://www.citizen.org/cmep/Water/general/majorwater/biwater/*

- **SAUR**

The French company, SAUR, was established in 1933 and became a subsidiary of the Bouygues Group in 1984. In 1999, Saur, was awarded a 30-year contract to provide water supplies and purification services to the resort town of Dolphin Coast (currently Ilembe Municipality), worth FFr/R 33 m. per year. The area covers also the mostly peri-urban villages serviced by the Joint Services Boards. SAUR was preferred to a bid from a Suez-Lyonnaise-Ondeo's WSSA, and a bid from a joint venture between Umgeni Water – the regional bulk water supply parastatal – and Vivendi-CGE. After winning the bid, SAUR formed a local Company, Siza**.** Other partners on the contract include; Metropolitan Life Ltd, Women Development Bank Investment Holding, The Investment Progress Group and NONO Investment Holding. No official website, see www.medrc.org/new_content/industry_news/jan02/story1.html http://www.citizen.org/cmep/Water/general/majorwater/saur/index.cfm

- **Siza Water Company**

Siza Water Company (SWC) is a water consortium of five partners with controlling interest held by SAUR Services of France with 58% share. It also includes four other South African empowerment partners who own the remainder of shares, viz.: Metropolitan Life Ltd. (23% of shares); Women's Development Bank Investment Holdings (5% of shares); The Investment Progress Group Holdings (IPG) (5% of shares); NANO Investment Holdings (Pty) Ltd (5% of shares). The major work undertaken is a contract with the Borough of Ilembe (formerly Dolphin) in 1999. The contract is for SWC to oversee, manage and implement the provision of water and sanitation services within the Borough of Dolphin Coast Municipal boundary, on a concession basis for a period of 30 years. http://www.citizen.org/documents/saurprofile.pdf

- **SUEZ – Lyonnaise –Northumbrian Water Group**

SUEZ is an international industrial and services Group working in provision of environmental services (water, sanitation and waste services) to industrial and individual customers around the world. Suez obtained a 5-year water management contract in Johannesburg. The contract provides for "the management of water and wastewater services, billing and customer services as well as extensive training and capital expenditure programs". The contract covers the six municipal water and wastewater structures of Johannesburg and its 3 million inhabitants. The six municipal structures are united into a single utility named Johannesburg Water. Johannesburg Water employs over 2500 staff and has annual sales of Rand 1.3bn. Northumbrian Water group is also involved in the provision of bulk water supply in Northern Province. *http://www.suez.com/*

- **Vivendi**

Vivendi is the current name of the French company previously called Compagnie Générale des Eaux (CGE) established in Paris in 1853. Vivendi's water engineering division won a BOT contract in 1999 for a water purification plant in Durban providing for up to 200,000 people. The contract is a 20 year concession worth Euros 76m. This consortium is known by Vivendi-

OTV Treatment Plant – Durban Water Recycling. *www.dbsa.org/PrivateSector/PrivateMain.htm*

Local Consultants, Engineering, Management and Construction Firms

- **AFRICON - AFRICON Engineering International (Pty) Ltd**

AFRICON is a South African consultancy providing multi-disciplinary professional services in engineering, infra-structure, related development, and contract and project management and information technology. Africon has operated for over half a century in more than 40 countries worldwide and has approximately 1 200 employees. AFRICON has become an international customer-focused consultancy. *http://www.bstglobal.com/casestudy_africon.htm*

http://www.cbn.co.za/buslist/engineer/AFR317.htm

- **Arcus Gibb**

Arcus Gibb is an Engineering consultancy, part of Mvelaphanda companies group. They offer multi-disciplinary consulting, design and management to commerce and industry. They are operational in South Africa and SADC. Water and sanitation services include dam construction and upgrading, flood runoff and management, water resource management, water supply and water and wastewater treatment. www.**gibb**.co.za/

- **CONCOR**

CONCOR is an investment company involved in civil engineering, building, earthworks, underground mining, open cast mining, mechanical engineering, concrete products, electrical engineering, road construction, and construction equipment. Its construction, engineering and allied operations are conducted in seven operating divisions: Concor Civils, Concor Building, Concor Roads, Concor Engineering, Concor Mining, Concor Facility Management and Concor Technicrete. *http://www.concor.co.za*

- **East Rand Water Care Company (ERWAT)**

ERWAT is an indigenous South African wastewater company and a leader in the wastewater industry. ERWAT provides bulk wastewater conveyance and a highly technical and proficient wastewater treatment for a host of industries and more than 3, 5 million people who have access to sanitation services. It is regarded as a leader in the water industry, using the latest technology and the advances of science. ERWAT offers a world-class, yet economic solution to water and wastewater management. http://www.erwat.co.za

- **Palmer Development Consulting (PDC) and Palmer Development Group (PDG)**

PDC was established in 1999 when Palmer Development Group was restructured after 11 years of research and consulting in the water, education and energy sectors. PDC is a registered partnership, with Richard Palmer and Marlett Wentzell as the two partners. They have offices in Randburg, Pretoria and Cape Town. PDC's work can be divided into four broad areas: research, policy, development planning and management support.
http://db.sparknet.info/goto.php/PDCSouthAfrica

- **Waterwise Consultants**

Waterwise is a consultant company run by Rand Water. It is specialised in reverse osmosis (R/O) water purifiers. Reverse osmosis is a process in which water is forced by pressure (at least 35psi) through a semi-permeable membrane. The good water passes through the

membrane while the dissolved and particulate material is disposed of. In addition to consultancy, it supplies a variety of other products to suit most purification requirements. http://www.waterwise.co.za/

Some Major Water Users

- **Anglo American**

Anglo American is an international company (majority UK owned, listed on the London Stock Exchange), a 'global leader' in mining and natural resources. They operate in 60 countries and have 8 product-based businesses: platinum; gold; diamonds; coal; base metals; industrial minerals; paper and packaging; ferrous metals and industries. They have a stake in more than 50 South African businesses. Aim is to be a world class business performer and 'add value' for shareholders, customers and communities. http://www.angloamerican.co.uk/

- **De Beers - Waste Management and Water Recycling**

It has been estimated that a typical De Beers mine, using conventional water recovery methods, consumes on average about 0,7 m3 of fresh water per ton of ore treated. Diamond-mining company De Beers has implemented a new water-conservation system at its Combined Treatment Plant (CTP) in Kimberley, Northern Cape.
www.engineeringnews.co.za/eng/features/waste/?show=39607

www.mbendi.co.za/codb.htm

- **Eskom**

Eskom is South Africa's leading energy company, their core business is electricity. They have 24 power stations in South Africa, 90% of which are coal fired. They deliver high quality, low cost electricity to customers. The bulk of Eskom's electricity comes from coal-fired power stations, which as the name implies, are fuelled by coal. Extremely large quantities of coal are required - approximately 85 million tons in 1996 - and for this reason these power stations are located on or close to coal deposits sufficient to supply the stations for at least 50 years. The water required for cooling is generally not available at these locations and has to be transported to the stations from sources further a field. Due to the importance of electricity generation to the economy of South Africa, this water has to be supplied at very high assurance, i.e. the risk of the water not being available has to be very low. Also, the water has to be of a specific quality to ensure efficient operation of the power stations.www.**eskom**.co.za/

Municipal and Sub national Bodies and Stakeholders

Currently, the delivery of water and sanitation services involves a large number of institutions ranging from national government bodies such as the Department of Water Affairs and Forestry (DWAF), through, district and local municipalities, private companies, non-governmental organizations, to community-based institutions such as the Water Committees (WC). These are meant to operate – in time - at the Municipal level as well as the catchment level. Below is a list of some of the municipal water bodies, sub-national bodies and major actors/stakeholders key stakeholders in the water delivery and regulatory system in South Africa.

Municipal Bodies

- **Metropolitan or District Municipalities**: These include major metropolitan or district municipalities that regulate (Water Service Authority) and/or supply water (Water Service Provider) within the municipal boundary. For instance Buffalo City Municipality and Amatole District Municipality oversee the management of water as well as the provision of water services to several local municipalities including East London and King Williams (Buffalo City Municipality), Stutterheim, Kei Road and Keiskammahoek (forming Amahlati Municipality), Peddie and Hamburg (forming Ngqushwa Municipality), and Alice and Middledrift (forming Nkonkobe Municipality. Most of the metro or district municipalities have been accorded the water authority status by DWAF.
- **Local Municipalities:** These are smaller municipalities within the large metro or district municipalities. Most of these bodies have been granted the status of local water service providers. Tzaneen Local Municipality in Limpopo Province is an example.
- **Local Water Service Providers:** These are institutions that are directly involved in the provision of water to the consumers. These include most local municipalities and some district municipalities (e.g., Buffalo City or eThekwini Metro). Often the water service authority and provider are one in the same, however, the WSA may contract with a separate water service provider.
- **South African Local Government Association**: It is a government institution that oversees matters of local governance, including water management and service delivery.
- **Traditional Local Councils** (TLCs): These are traditional institutions that operate within the municipal areas especially in rural district municipalities.
- **Tribal Authorities**: Although not direct providers of water services, the Tribal Authorities participate in the cost recovery exercises, needs identification, planning, settling disputes, policy formulation, credit control and management of the water system in rural areas.
- **Water Committees (WC):** These are community based organizations that can be are responsible for operating and maintaining water services mostly in rural areas

Sub-National Bodies

- **Bulk Water Utility Companies**: These are semi-private companies that operate in more than one municipality. Examples include bulk water companies such as Rand Water in Gauteng and Western Cape provinces, Umgeni Water in KwaZulu Natal, Amatole Water in the Eastern Cape Province, Megalies Water in Gauteng (Tshwane), etc.
- **Catchment Management Agency (CMA)**: These are regional or sub-national institutions that are responsible for the management of water resources within the catchments areas. There are 19 catchments areas in South Africa, and each CMA is responsible for one of these 19 catchments areas.
- **NGO**: These are non-governmental organizations that operate in more than one municipality, but not in all the regions. Examples:

    - ✓ **Mvula Trust** - operates in five of the nine provinces in South Africa is one the major stakeholders in water provision.
    - ✓ **AWARD** (Association of Water and Rural Development) - NGO in South Africa working in an integrated way with regard to water resources and water supply

- **Sub-Catchment Areas:** Institutions that focus on small projects within the large catchments areas. Example: Sand River Sub-Catchments Area, which conducts research projects within the Sand River Catchment.
- **Water Boards**: These are water institutions created by the government with the responsibility of managing water infrastructure (water dams, pipelines, reservoirs, purification plants etc) on the catchments or regional level. For example the Lepelle Northern Water

Board in Limpopo Province. Water Board are can also take up the responsibility of supplying water. Examples:

- ✓ **Amatole Water Board**: In East London, the Amatole Water Board was established as a bulk water supply for the Amatole region covering an area of 11000 square kilometres stretching between the Kei River in the east and the Fish River in the west, and from the Indian Ocean in the south to areas around Stutterheim, Keiskammahoek and Alice in the north. The board provides management services, training and other support services to water service institutions, provides catchment management services, supplies water directly to major industrial users, accepts industrial effluent, and perform water conservation functions. Amatola Water Board was established to initially take responsibility for 10 regional water supply schemes operated by the Department of Water Affairs and Forestry. These include Nahoon, Wriggleswade, Gubu, Sandile, Rooikrantz, Mnyameni, Ngwekazi, Debe, Binfield and Laing.

- ✓ **Bushbuckridge Water Board**: (Sand River Catchment) Bushbuckridge Water Board is a statutory bulk supply authority. The Stakeholders provide a multi-village bulk water supply.

- ✓ **Lepelle Northern Water** is a service provider, which furnishes water to both large cites and local rural areas. It started in 1966 as the Phalaborwa Water Board and is presently involved in water supply for Limpopo Province.

- ✓ **Nkwaleni Irrigation Board** is involved in the water allocation, regulation and control in Nkwaleni valley located in the Umhlatuza River in the Northern KwaZulu Natal. Farmers are required to place water with the water bailiff of the NIB each Monday morning for a certain volume of canal and/or river water is extracted from a specified pump during the following week. The existing framework of NIB control provides for a highly organized water management structure that could support the development of a water market.

- **Water Service Authorities:** These are the local water regulatory bodies, mainly district municipalities, appointed by DWAF to ensure an integrated water development programme and enhanced access to water. WSA are the custodians of water policy formulation, implementation and evaluation in their respective regions. Examples:

  - ✓ **IMT** - **Irrigation Management Transfer:** IMT aims to increase irrigation performance and reducing constraints on public budget. The process is a strategy to improve economic conditions by reducing the role of the state or it's agents through privatisation and empowerment of local communities. The underlying principles of this to encourage farmers and local communities to take responsibility for the management local resources, and thereby limit external interventions to the provision of information and institutional support services that enhances efficient resources allocations.
  - ✓
  - ✓ **Komati River Basin Water Authority:** The main business is utilization of water resources of the Komati River Basin. The purpose of the project is to promote rural development and alleviation of poverty of the lower Komati valley by increasing the productivity of the land through irrigated agriculture. They also involve in water transfer between Swaziland and South Africa.

Stakeholders

There are various civil society organisations that play different roles in the water resource management and delivery and constitute actors in the sector. The roles played by civil society include direct service provision, advocacy to ensure that those with the responsibility to deliver water do so, awareness raising among the general public on issues such as right to water and conservation. The stakeholders include:

- **Domestic users**: household consumption as well as community entities in areas where there are communal taps.
- **Non-Water Private Companies:** These are institutions which are not directly involved in the delivery of water, but have a stake in that they do need water to carryout their daily businesses.
- **Other Government Bodies**: Government Institutions such as the Department of Public Works, the Water Research Commission, the Department of Health, etc have stakes in the management and delivery system of water.
- **Traditional Authorities**: Traditional authorities such as chiefs and headmen/women are interested in how the water resource is managed. These local and relatively longstanding institutions present community interests, usually in association with traditional norms, values and livelihoods.
- **WUA** (Water Users' Associations): Operate at local level with a dedicated authority from the CMA (Catchment Management Agency). They comprise cooperative associations and individual water users who wish to undertake water related activities for their mutual benefits. The role of the WUA is to enable a community to pool financial and human resources in order to carry out more effective water related activities. Irrigation on a commercial or subsistence scale is a common concern of WUA and in such cases would include, inter alia, farmers and rural communities. The WUA is also involved in control and monitoring the abstraction of water by its members. The WUA applies for water right through licensing, which gives them more power in management of water resources within their domain. Non-members of WUAs may have difficulty accessing water for small–scale farming.

Examples:

- ✓ **Du Roi Precision Farming**: Located in Olifant Catchment. It was established in 2000 to provide advice to farming committees in terms of irrigation techniques, pest control, markets, mechanics, and human resources management.

- ✓ **PIA** (Programme Implementation Agent); formed to undertake and manage BoTT (Build, operate, Train and Transfer) over its life cycle. It activities include project conceptualism, environment scooping, project planning, design and construction, community consultation and social empowerment, institutional development to ensure long term sustainability, operation and maintenance, training of the community based operators, transfer of the scheme to the local municipality, and mentorship following transfer for a agreed period. Water stakeholder in PIA partner includes Northumbrian Water Group in the **Northern Province, Amanz'abantu Services in the Eastern Cape, Metsico in Pietersburg and Aquamanzi in Pietermaritzburg.**

- ✓ **SPP** (Surplus People Project): Also present in the Olifant Catchment. The SPP regulates the demand for water and monitors allocation. They regulate the use and demand for water. They monitor the water allocation cycle. Most of the strategy of SPP is suggestion on strategically water use and allocation.

- ✓ **WUA in Olifants Catchment**: There are several WUA in the Olifants Catchment, including: LORWUA (Lower Olifant Water Users Association); LWUA (Letabe Water User Association in Limpopo Province); Emerging Farmers Association; VHWUA (Vaalharts Water User Association); VSB (Vredendal Small – Scale Farmers); Farm Workers Union; Canal Committee Members; Krugar National Park; Ebenheazer Small-Scale Farmers, Murchison Mine

WUA in Sand River Catchment: There are several WUA in the Sand River Catchment, including: VWC: Village Water committee; CDF: Community Development Forum; representing multiple villages-based committees; WC: Ward Committee.

Appendix D - Preliminary Working Annotated Bibliography*

*Sections constituting examples of type

Government Literature

a) National

- **Department of Water Affairs and Forestry (2003) Strategic Framework for Water Services**

Key Words: *Planning, Implementation, norms and principles*
This Strategic Framework, approved by cabinet, sets out the national framework for the water services sector (water supply and sanitation). The strategic framework will inform the development of detailed strategies to give effect to the framework. The purpose of the Strategic Framework is to put forward a vision for the water services sector in South Africa *for the next ten years*, and to set out the framework that will enable the sector vision to be achieved.

This Strategic Framework is the *umbrella framework* for the water services sector. It addresses the full spectrum of water supply and sanitation services and all relevant institutions. The White Paper on Basic Household Sanitation (2001), which focuses specifically on basic sanitation services, will be amended where necessary to ensure full compatibility with this Strategic Framework. This Strategic Framework replaces the 1994 White Paper.

http://www.polity.org.za/pdf/waterstrat.pdf

- **Republic of South Africa (2000) *Municipal Systems Act* 32 of 2000.**

Key Words: *Transformation of Municipal Water Services*

The Municipal Systems Act envisions the transformation of local government structures in South Africa. It seeks to align local governance to the new political dispensation. As a tool in the transformative process, the MSA seeks to provide for mechanisms that ensure an effective governance system guided by the principle of co-operative governance as required by section 41 of the Constitution.

The main objective of the Act is to achieve progressive social and economic improvement of local communities with a view to securing “universal access” to essential services for all, especially the poor and disadvantaged. To achieve these goals, the Act provides for among other things: i) municipal powers and how they can be exercised; ii) mechanisms that build the capacities of local public administration; iii) empowerment of local authorities and communities; iv) structures that enable municipalities to create efficient service delivery systems as well as structures that enable effective tariff and credit control; v) community participation and resource mobilization; vi) a regulatory framework that promotes harmonious relationships among municipalities and with other spheres of government. The Act emphasises the distinctiveness and autonomy of municipal authorities without diluting the principle of co-operative governance.

www.dwaf.gov.za/documents

b) Metro and City Water

Buffalo City (2003/2004) "Water Supply Infrastructure"

Key Words: *Water supply System in the Greater Buffalo City*

This article gives a brief overview of the bulk water supply system in the Greater Buffalo City Area which comprises of **East London**, adjacent coastal and inland settlements and **King William's Town**. The major water service provider in the area is Amatole Water.

www.buffalocity.gov.za.

- **Ethekweni Municipality (2003 – 2007) "Basic Water and Sanitation Programme"**

Key Words: Water/*Sanitation Delivery in eThekwini Municipality*

eThekweni Municipality (ETM) has embarked on a Basic Water and Sanitation Programme (BWSP) in the rural and peri urban areas within its jurisdiction. The ETM will provide basic water and sanitation services under a single programme. The 5 year target as set out in the Integrated Development Plan (IDP, 2003 – 2007) is to reduce the sanitation services backlog by 25% and to reduce the backlog of potable water supply by 100%.The ETM piloted a Basic Water and Sanitation Programme in the **Mzinyathi** Area in early 2002. Since then a further 19 projects have been identified and are in various stages of development. The programme involves community participation equal gender representation, training and labour intensive.

www.durban.gov.za/eThekweni/service/water_and_sanitation

- **Johannesburg Municipality (2005) "City Water supply"**

Key Words: *Water source and management*

The source of water in Johannesburg municipality is from **Vaal Dam**. The Vaal dam also supplies water to **Mpumalanga** and **Northern Cape Provinces**. The Vaal dam is being fed by the Lesotho Highlands Water. In Johannesburg, residents have the right to sink boreholes on their properties, but only with the permission of the director of city planning, who decides in conformity with town planning regulations. Borehole water may only be used for watering gardens, unless a special certificate is obtained from the city's health department, which must be renewed annually.

http://www.johannesburgwater.co.za

c) Bulk Water Providers

- **Buffalo City (2003/2004) "Water Supply Infrastructure"**

Key Words: Amatole *Water supply System in the Greater Buffalo City*

Amatole Water is a bulk water provider, which was established by the government in 1997 "to operate and manage bulk water supply and provide potable water services to the local and district municipalities" in the greater Buffalo City area in the Eastern Cape. Capacity and Service Coverage: Amatole Water has 12 treatment plants and the capacity of 106 million litres per day. The following municipalities derive their water from Amatole: **East London** and **King Williams** (Buffalo City Municipality), **Stutterheim, Kei Road** and **Keiskammahoek** (forming **Amahlat**i Municipality), **Peddie** and **Hamburg** (forming Ngqushwa Municipality), and **Alice** and **Middledrift** (forming **Nkonkobe Municipality**). Since 2000, Amatole Water has been authorized to provide water services to an area of about 45 794 $KM^{2,}$ which covers **Amatole** and **Chris Hani Districts** and parts of **Ukhahlamba** and **Cacadu Districts**.

www.buffalocity.gov.za.

- **Rand Water Services (2001). "Bulk Water and Sanitation Services"**

Key Words: *Rand Water Services: structure, coverage, activities and capacity*

This document provides information on the operational and organizational arrangements of Rand Water. Rand Water was established in 1903 to provide water services to the commercial and domestic entities in the **Gauteng** area. Rand Water's primary activities are to provide bulk water and sanitation, and provide advisory forums for major stakeholders. It has a capacity of 963 965 mega litres per year or 3 400 million litres per day. It Supplies water and sanitation to more than 10 million people in Gauteng province. It has 2 purification plants, and receives water from 5 dams (**Vaal, Katse, Sterfontein, Grootdraal and Woodstock** dams). Rand Water buys water from DWAF. The customers include local authorities (Metropolitan, district and local municipalities), Industries and mines. In terms of structure, Rand Water is run by a board appointed by the minister of water affairs from stakeholder groups such as municipal, mines, commercial and provincial managers. Other activities of Rand Water include maintenance of infrastructure in communities, environmental management of catchments areas and improving service delivery through training.

www.randwater.co.za

- **Umgeni Water (2004)**

Key Words: *Umgeni Water Services: structure, organization and partners*

This document provides a brief description of the structural organisation, cooperating partners, other actors, infrastructural components and services offered by Umgeni water. The primary activities are to provide bulk water and sanitation services and it is a statutory body established as an organ of the state in 1974. Umgeni provides water and sanitation services to about 4.8 million people in **KwaZulu-Natal**. The capacity is of 340 million kilolitre per year, 10 storage dams, 14 water works plants, 4 waste works plants and supplies 100 to 720 kilolitres per day, and employs about 900 workers. Its customers include: **eThekwini, Illembe**, **Sisonke, Umgungudlovu** and **Ugu district municipalities** plus parts of **Msunduzi** and **Mngeni** local municipalities. The subsidiaries of Umgeni water are: Durban Water Recycling Pty Ltd, (recycling), Turngo Pty Ltd (Water and waste treatment), Watertite Pty Ltd (Water services and billing), Umgeni Water Services Pty Ltd (Analytical Tests), Msinsi Holding (Environment, Dams safety + Eco-tourism), and Umgeni Water Share Incentive Trust (Employment retention).

www.umgeni.gov.za

d) Water Tribunal Cases

- **Water Tribunal: O.T. Beneke (Reheivo Boerdery Pty Ltd) vs Director General (DWAF) Case No. WT/B1**

Key Words: *Court Decision on water use disputes*

The applicant (Beneke) applied for a "Stream Flow Reduction Activity Licence" in 2001 for afforestation purposes. The respondent (Director General of the Department of Water Affairs and Forestry) refused to issue the licence on the grounds that the applicant's property was situated in a catchment area where licences for afforestation could no longer be issued. The applicant challenged the Director General's decision on the basis that the Director General did not apply his mind to the matter at hand before taking the decision. In other words the Director General failed to exercise his discretion powers properly to grant the applicant the right to administrative justice.

Court's Decision: The Tribunal held that the Director General did not apply its mind to all the factors surrounding the license application, and did not do administrative justice" and that "the

refusal of the license was not in line with the recommendations of the technical adviser, who did a thorough investigation of all relevant factors, and who recommended the issue of the license if the final Reserve determined that water is available for this development. Thus, the Director General's decision was withdrawn and an order instructing him to issue the licence was served.

www.dwaf.gov.za

- **Water Tribunal (2002) Komatipoort Golf Club vs Chief Director (Water Use and Conservation) Case No. WT18/K3,**

Key Words: *Court Decision on water use*

In 2000, the Appellant (Komatipoort Golf Club) applied to the Chief Director OF Water Use and Conservation (WUC) to declare the use of 3 468 960 cubic metres per annum (m^3/a) as a lawful use of water. The Chief Director declared the use as lawful since the appellant had been using the same amount of water two years before coming into effect of the Nation Water Act, in particular section 32. In 2001, the appellant applied for a licence to use 3 468 960 (m^3/a) and store 200 000 m^3 on the farm. In February 2002, the Chief Director issues a licence to the applicant to use only 227 017 m^3/a and allowing 200 000 to be stored on the farm giving the reason that issuing a licence to use 3468 960 m^3/a on the farm would not be beneficially used on the property and therefore was inconsistent with section 27 of the National Water Act (NWA).

The Appellant appealed against this decision on the ground that the Chief Director erred in his consideration of section 27 of NWA, arguing that the golf course was going to have socio-economic spin-offs in an area with high unemployment and low economic growth. He also argued that his farm being close to the border making him the last user of the water resources before the water flowed into Mozambique, using the requested amount of water was not going to disadvantage anyone.

The Tribunal held that golf was an elitist activity with minimal economic spin-offs, and that since the appellant was going to use the water in order to sell, such use would be inconsistent with the "purposes of the NWA set out in section 2" that calls for "promoting equitable access to water" and "promoting the efficient, sustainable and beneficial use of water in the public interest".

The Court concluded that the Chief Director correctly applied his mind to Section 27 and all the surrounding factors, that "the licensing of an abstraction of 227 017 m^3/a and storage of 200 000 m^3 is reasonable in the circumstances", and therefore dismissed the appeal with costs.

www.dwaf.gov.za

Academic Published

a) Privatization/Public-Private Partnerships

- **Bakker, K., Hemson, D., (2000) Privatizing Water: BoTT and Hydropolitics in the new South Africa.**

Keywords: *Deprivation, Basic Services, public-private partnership*

Focuses on the development of Build-Operate-Train and Transfer (BoTT) projects in South Africa. Deprivation of basic services to rural areas; Initiation of public-private sector partnerships in rural water supply in four provinces; Evaluation of BoTT projects on the basis of cost effectiveness and sustainability in the province of **KwaZulu-Natal**. Examines the debate over public-private sector partnerships through a case study focusing on cost

effectiveness and sustainability of the Build-operate Train and Transfer programme in KwaZulu/Natal.

South African Geography Journal 1, 3–12.

- **Beall, J., Cranksha, O. and Parnell, S. (2000) Victims, Villains and Fixers: the Urban Environment and Johannesburg's Poor.**

Keywords: *Johannesburg; Water supply; Sanitation; Electricity*

Urban water supply, sanitation and electricity have been identified as basic needs by the post-apartheid government and the **Greater Johannesburg Metropolitan Council** (GJMC). This article explores the relationship of Johannesburg's poor to the urban environment and, in particular, these three key urban services. On the basis of survey data, case studies, textual analysis and in-depth interviews with policy makers and planners, it reviews how poorer citizens were, for a long time, seen as victims under apartheid urban planning.

During the rent boycotts that characterised urban struggle politics during the era of late apartheid in Johannesburg, they were often represented as villains. This perception persisted well into the post-apartheid period, where refusing to pay for services was seen as tantamount to a lack of patriotism. Today, Johannesburg's poorer citizens are increasingly being seen as fixers. The GJMC in its policy document, iGoli 2002, is committed to establishing the commercial viability of service delivery. Cost recovery is seen as important for solving the tension that exists between maintaining established service levels (in historically white areas) and extending services to new and historically under-serviced (mainly black) areas. They conclude that there are opportunities to address urban poverty, inequality and environmental management in an integrated way. However, these are predicated on the GJMC and its advisers understanding the ways in which pro-poor and social justice strategies interface with urban services and the urban environment.

Journal of Southern African Study, Vol 26, No.4.

- **Deedat, H. and Cottle, E. (2002) "Cost Recovery and Prepaid Water Meters and the Cholera Outbreak in KwaZulu-Natal: A Case Study in Madlebe"**

Key Words: *Cholera outbreak linked to water supply*

This case study tries to establish the link between the outbreak of cholera in **KwaZulu-Natal** in August 2000, and the introduction of cost recovery measures (prepaid meter water services) in the water sector. The study brings out the challenges that the introduction of prepaid water services brought to both water services providers and the poor communities. Issues ranging from lack of community participation to affordability are raised by the community, while the service providers advance the sustainability and responsible use of water resources. The conclusion arrived at by the study was that the issues of affordability, community awareness and maintenance contributed to the outbreak of cholera.

In McDonald, A. David and Pape, John, Cost Recovery and the Crisis of Service Delivery in South Africa. London/NewYork: Zed Books/HSRC. Chapter4, 81-97.

- **Kotze, R., Fergusson, A. and Leigland, J. (1999) Nelspruit and Dolphin Coast: Lessons from the First Concessions Contracts**

Keywords: *Private-Public Partnerships (PPPs); Nelspruit; Dolphin Coast*

South Africa's first two long-term concession contracts for water and sanitation were signed in early 1999. These two private-public partnerships in **Nelspruit and Dolphin Coast** will use private sector management expertise, as well as huge amounts of private capital investment, to address service delivery in both areas. Especially important will be the extension of essential services to previously disadvantaged residents of both municipalities. The process

of preparing and negotiating these deals has been long and difficult. Councillors and officials have had to overcome a series of obstacles on their way to closing the deal, including fundamental misunderstandings about how such projects work on the part of unions, the general public, other government officials, even some members of South Africa's financial services community. This article provides an account of how and why these PPP projects were developed, and offers some of the key lessons learned regarding how to improve the process in the future.

Development Southern Africa. Vol. 16, No 4.

- **Loftus, A. (2005) 'Free Water' as a Commodity: the Paradoxes of Durban's Water Service Transformations.**

Key word: *Free Basic water; eThekwini (Durban) Water Services*

This chapter looks into **eThekwini**'s free basic water policy as a mixed blessing. Although the policy guarantees a minimum of water per month to all households, it has also resulted in severe surveillance of supplies and severe restrictions on the amount a family can consume. It is claimed that the commercialization of the city's bulk water supplier - Umgeni Water - and the spectre of privatization have had a profound influence on the city's water policies. This research is based on three in-depth case studies of the city's neighbouring areas, which have extremely high levels of unemployment and poverty: **KwaMashu, Mzinyathi and Inanda**. The picture provided of what residents feel about their water services is contrasted with the media's spin on Durban's successes as a provider of service delivery.

The age of commodity – water privatization in Southern Africa. David MacDonald and Greg Ruiters (eds.) *Earthscan, London. Pages 189-203.*

- **Smith, L. *et al*. (2005) Public Money, Private Failure: Testing the Limits of Market Based Solutions on Water Delivery in Nelspruit.**

Keywords: *Greater Nelspruit Water Concession;*

In 1999, **Nelspruit** Local Authority contracted Biwater to provide its water services for 30 years. The resulting "Greater Nelspruit Water Concession" was the first contract of its kind in South Africa. This chapter assesses the concession as "an advanced form of privatized". The authors begin by providing a background to the concession, and then highlight some of the achievements of the concession prior to discussing its downfalls, particularly related to regulation and cost-recovery. It is argued that, despite claims that private capital was necessary for the service delivery objective, the bulk of the capital for the concession came from the public sector and that the bulk of the risk (political and financial) was borne by the public sector.

The age of commodity – water privatization in Southern Africa. David MacDonald and Greg Ruiters (eds.) *London: Earthscan (Pages 130-147)*.

b) Decentralization and Management

- **Armitage, R. M., Nieuwoudt, W. L., Backeberg, G. R. (1999) "Establishing Tradable Water Right: Case Studies of Two Irrigation District in South Africa**

Key Words: *Water right, Water Market, Water Economy, irrigation*.

Area: ***Lower Orange River*** *Catchment and* ***Nkwaleni Valley****:* The paper explains how water market leads to efficient water allocation and use. The issue of water tenure is discussed as well as how it affects water right. It shows the relationship between water right and irrigation properties, and how water right can be transferred and the politics that undergone when water right or tenure are transferred. The paper explained that water right is likely to gravitate to the most effective users of water for which the estimated return per unit of water applied is

expected to be highest. The paper describes the discrimination analysis between buyers and non-buyers of water right along the **Lower Orange River**. It explains the potentials of water market trading along the Umlatuza River, and that water right was facilitated through the market functions.

Water South Africa Vol. 25 No.3 301

- **Galvin, M. and Habib, A. (2003) The Politics of Decentralisation and Donor Funding in South Africa's Rural Water Sector**

Keywords: *Donors; Community-oriented decentralisation; State-centric decentralisation; Donor agencies; Rural water sector; KwaZulu-Natal*

Decentralisation appeals to actors across the political spectrum (social groups, state technocrats, business leaders, etc.) and has become a cornerstone of development orthodoxy. Even though the new South African government has adopted a range of policies that promote decentralisation in water governance, competing tendencies toward decentralisation have become increasingly evident. This article examines how donors have supported decentralisation in South Africa, how they have affected the implementation of decentralisation policies, and what impact, if any donors have had on the form of decentralisation. The implementation of decentralisation is considered in the context of the rural water sector, which has been a priority arena for decentralisation. Based on key informant interviews with 47 government, donor and NGO officials, the authors outline three donor-supported programmes in **Northern Province** and **KwaZulu-Natal** (DFID, USAID and the EU). The authors conclude that through financial and technical support, donors have influenced the process of decentralisation in South Africa. Although, donors claim to support community oriented decentralisation, in practice they promote state-centric decentralisation. Recent initiatives by some donors to promote a more inclusive community-oriented form of decentralisation have not yet borne fruit. Not only does this reinforce the institutional bias of government, but it also undermines the original motivation and rationale for decentralisation. In the absence of strategies to overcome these structural realities, both participatory development and sustainable delivery in South Africa might have to be postponed for the foreseeable future.

Journal of Southern African Studies, Vol. 29, No. 4, 866-883.

- **Harvey, E. (2005) Managing the Poor by Remote Control: Johannesburg's Experiments with Prepaid Water Meters. In: The Age of Commodity – Water Privatization in Southern Africa.**

Keywords: *Pre-paid water meters; Orange Farm; Soweto*

This chapter overviews the conception of prepaid water meters with reference to the British experience. It includes a case study of two of Johannesburg's townships: **Orange Farm** and **Soweto**. It concludes with a discussion of current battles around prepaid water meters between residents and Johannesburg Water, the corporatised entity that runs the city's water and sanitation services.

The age of commodity – water privatization in Southern Africa. David MacDonald and Greg Ruiters (eds.) *Earthscan, London. Pages 120-127*

- **Joubert, Alison, Stewart, J. Theodor & Eberhard (2004) "Evaluation of Water Supply Augmentation and Water Demand Management Options for the City of Cape Town."**

Key Words: *Water resource demand management; priority interventions; alternative policy*

This study explores the implementation of Multi-Criteria Decision Analysis (MCDA) in the management of water in **Cape Town**. To understand the problem of increasing water

demand, the study identifies various interest groups. The study considers the various demand management options with the intention of identifying high priority alternatives which are recommended as policy alternatives.

Journal of Multi-Criteria Decision Analysis, Vol.12, No.1

www3.interscience.wiley.com

- **McInnes, P. (2005) Entrenching inequalities: the impact of corporatization on water injustices in Pretoria.**

Keywords: *Commercialization; Policy contradictions; Water and sanitation; Tshwane*

This chapter focuses on the provision of water and sanitation services in newly formed Council of **Tshwane Metropolitan Municipality** (CTMM), formerly known as Pretoria. Under the commercialization of these services, various tensions and contradictions are observed. Contradictions can be seen on the one hand in the aggressive cost recovery and service cut off practices, and, on the other hand, through a language of rights, social equity and through 'positive' policies such as progressive block tariffs, free basic water services and indigent policies. The main purpose of the chapter is to look into the influence of the contradictions on the delivery of water services in Tshwane. It is concluded that the commitment to full cost recovery in water and sanitation services in South Africa conflicts with the government's commitment to a "better life for all". The author makes recommendations to alleviate some of the burden on low-income households, such as an adequate amount of free basic water (at least 50L per person/day instead of 25L), a reduction in the price of kilolitre of water for the portion used directly above the free basic allocation, etc.

The age of commodity – water privatization in Southern Africa. David MacDonald and Greg Ruiters (eds.) *London: Earthscan (Pages 99-117).*

- **Ruiters, G. (2005) The political economy of public-private contracts: urban water in two Eastern Cape towns.**

Keywords: *Privatized water contracts; Eastern Cape*

This chapter looks at the company-municipal interface of privatization as structured by contracts. Two early 1990s cases in privatized water in the **Eastern Cape** are used to demonstrate ways in which companies adopt positions in order to profits, which can conflict with municipal objectives. This chapter assumes that privatization is driven by business interests. The author concludes "even if the road to privatization has been bumpy, commoditisation of water has intensified, offering easier routes to future privatization. The spectre of privatization and commoditisation continues".

The age of commodity – water privatization in Southern Africa. David MacDonald and Greg Ruiters (eds.) *London: Earthscan (Pages 148-165)*

- **Smith, L. (2005) South Africa: testing the waters of public-public partnerships.**

Keywords: *Public-public partnership (PUP); Rand Water; Harrismith local authority*

South Africa's first public-public partnership (PUP) was established three years ago between Rand Water and the Harrismith local authority. This partnership illustrates a potential solution in addressing water services to the poor by local governments. The partnership has had a few problems. For instance, the city remained dependent on an external provider as the transfer of skills from Rand Water to Harrismith local authority was not sufficient. Other issues include balancing cost-recovery with constitutional requirements. However, the overall resulting improvements of water service delivery have led to general support of this partnership. This means that there is hope for a growth in public-public partnerships as a preferred option to public-private partnerships by local authorities.

Reclaiming Public Water – Achievements, Struggles and Visions from Around the World Edited by Belén Balanyá, Brid Brennan, Olivier Hoedeman, Satoko Kishimoto and Philipp Terhorst Transnational Institute and Corporate Europe Observatory, January 2005 (1rst edition) March 2005 (2nd edition). Pages 159-169.

- **Smith, L. (2004) The Murky Waters of the Second Wave of Neoliberalism: Corporatization as a Service Delivery Model in Cape Town.**

Keywords: *Commercialization; Corporatization; Privatization; Service delivery; Water; Cape Town; Equity*

This article reviews how the process of corporatisation transforms public sector management by adopting private sector principles. It argues that corporatisation as an institutional form emerging from a second wave of neoliberalism, threatens to undermine the democratic accountability of local authorities by virtue of restructuring the state in ways that are invisible to the public yet with highly negative outcomes for low-income communities. The article provides a case study on the water sector in **Cape Town**, South Africa by tracing the local authority's adoption of three cost-recovery policies and their impacts on low-income households over a five year period (1997–2001). Engineers are the key agents in the promotion of cost-recovery policies in the efforts to deliver services more 'efficiently'. While these officials are highly skilled professionals in dealing with the technical side of the production process, they lack the social training necessary to deal with the politics of distribution. The prominence of the neoliberal agenda in urban management can be in part be attributed to the power of the technical over the political as engineers displace politicians in the deliberations over how to deliver services to poor areas of the city.

Geoforum 35: 375-393.

c) Traditional/Community Water Governance

- **Smith, P.A.H & Jacobs, A.J. (2004) "A Furrow Runs Through it: An Example of Sustainable Traditional Irrigation in Western Cape Province, South Africa."**

Key Words: *Hand-dug Furrows, sustainability, small farming communities*

In places where water scarcity limits what people can do, improvisation becomes inevitable. This applies to most of the **Western Cape** small farming communities that live in water stressed areas. This paper investigates how these small farming communities manage to get water for irrigation. Using **Leeukloof Farming Community** as a case study, the article, explores the traditional methods of extracting water and the accompanying farming practices.

Geojournal, Vol.6, No.2. www.springerlink.com

d) Conservation

- **Ashton, P.J. and Haasbroek, B. (2001) 'Water Demand Management and Social Adaptive Capacity: A South African Case Study'**

Key Words: *Adaptive capacity and Sustainability*

This article discusses the problem of growing water demand vis-à-vis the dwindling water resources. With the recent growth in population and industrial activity, the water resources in the country have continuously come under increasing pressure. And to be able to continue meeting the growing demand for water, there is need for urgent reform of the water sector and water laws.

The article emphasizes that in order to provide a satisfactory quantity and quality of water sustainability in South Africa, there should be a shift of focus from water exploitation to efficient and effective resource management. Thus, the articles calls for a strategy that would

focus on developing coping strategies to create sustainable water management policies and practices. Using the concept of "adaptive social capacity", the article advocates for a water strategy that would balance the growing water demand with the declining capacity, quality and quantity of available water resources. The **Greater Hermanus Municipality** has been identified as an example of a successful implementation of the "adaptive social capacity" strategy. The article contains maps showing mean annual rainfall runoffs and tables showing water use by sector.

A. Turton and R. Henwood (editors), Hydropolitics in the developing world: A Southern African perspective. African Water Issues Research Unit, Pretoria, 187- 204

- **Moon, B.P., van Niekerk, A.W., Heritage, G.L., Rogers, K.H. and James, C.S (1997) "A Geomorphological Approach to the Ecological Management of Rivers in the Kruger Nation Park: The Case of Sabie River."**

Key Words: *River flow; ecological scales and modelling*

In the context of the new development policy on water resource conservation management, questions of ecological management have begun to feature prominently. Using **Sarbie River** as a case study this article explores ecological implications of the development policies. The article contributes to the clarification of issues surrounding the conservation approach to natural resource management.

Transactions of the Institute of British Geographers, New Series, Vol.22, No.1. 31-48.
www.jstor.org

Grey Literatures

a) Privatization/Public-Private Partnerships

- **Lesoane, Jackie (MIIU), Mullagie, Khalil (NBI) and Dolley, Fatgieja (2002) "Mogalakwena, A Unique Water Partnership"**

Key Words: *Municipal government partnership with private sector*

This article describes the partnership venture between the **Mogalakwane Municipality** of Limpopo Province and the Potgiestersrust Platinums Limited (PPL). Due to insufficient water for use in the platinum mines, PPL approached the Mogalakwane Municipality with an offer to finance the construction of a new pipeline. The author notes that at first, this "seemed like an easy solution but there were many factors and stakeholders to consider, like the standing operator of the existing dam and pipeline (Lepelle Northern Water Board), **Waterberg** District Municipality, the statutory water service authorities, DWAF and DEAT." Thus, the partnership involved a number of concessions, agreements, contracts and negotiations between the different actors. And one of the more challenging aspects of the partnership was uncertainty over municipal powers and functions. It was not known whether Waterberg District Municipality or Mogalakwane would be given the water service authority. The author describes this partnership as a "unique" partnership.

www.pppcentre.com

- **Public Citizen (2003) Water Privatization Fiascos: Broken Promises and Social Turmoil. A Special Report by Public Citizen's Water for all Program**

Keywords: *Privatization; water services; Nelspruit (South Africa)*

The privatization of water services is a new trend worldwide. International corporations see that a profit can be made in this sector, since water has been declared a scarcity. These corporations, their government allies, the IMF and World Bank claim that the privatization of water services will ensure water and sanitation for those that lack access worldwide. Various case studies are included in this report to show that instead of providing access to water and sanitation to those that do not have it, water privatization: increases in consumer water rates, public health crises, weak regulation, lack of investment in water infrastructure, jobs and trade unions threatened, pollution and other environmental catastrophes, secret deals and social turmoil. One of the case studies presented is **Nelspruit**, South Africa where a 30 year concession was granted to the Greater Nelspruit Utility Company, which is comprised by Biwater and Sivukile. Since privatisation, the community has complained about rising prices and poor services.

http://www.citizen.org/california/water

- **Robbins, G. (2004) A Water Sector Public-private Partnership Case Study: Ilembe District Municipality (formerly Dolphin Coast) – Siza Water Company.**

Keywords: *Ilembe District Municipality; Siza Water Company; Case study private-public partnership.*

This case study was commissioned by the National Business Initiative (NBI) in order to explore "achievements, failures and obstacles in the development of Private-Public Partnerships (PPPs) in South Africa". In January 1999, Dolphin Coast and Siza Water Company (with a controlling interest by SAUR Services of France) entered into a contract where SWC would oversee, manage and implement the provision of water and sanitation services within the then "BODC Municipal boundary", on a concession basis, for a period of 30 years. The net present value of the concession was estimated to be in the region of R386m at the contract date. Due to legislation-induced local government restructuring the BODC no longer exists as an entity and therefore the concession contract is now being handled by the Ilembe District Municipality.

In conclusion the author states: "The water and sanitation service concession in the former **Dolphin Coast** area has begun to mature into a more effective partnership. This maturing is taking place after the partnership has been through periods of severe strain and stress from policy and institutional changes, unforeseen exogenous shocks and close scrutiny by a range of stakeholders. Despite the upheaval that came with these circumstances the concession is showing some considerable improvements to the previous service, comparable services and its early period of operations. However, expectations of all stakeholders remain very high and there remains a measure of disquiet about the degree to which all parties feel opportunities have been maximised. The level of leadership shown by contract parties and stakeholders over the next few years will determine whether or not the partnership creates new opportunities, especially in terms of rising levels of service to the poor, or merely delivers the minimum in terms of contract obligations."

February 2004, SDS Research Report No. 63 (2005)

http://sds.ukzn.ac.za/default.php?3,6,148,4,0

- **Pape, J. (2001) Poised to Succeed or set up to Fail? A Case Study of South Africa's First Public-Public Partnership in Water Delivery.**

Keywords: *Public-Public Partnership (PUP); Odi district*

South Africa's first public-public partnership (PUP) was signed in 1999 in the **Odi district** of the North West province. "The PUP brought together parastatal Rand Water Board, the municipalities of **Winterveld**, **Mabopane** and a number of peri-urban areas under the Eastern District Councils". Rand Water was supposed to help build the capacity of the local authorities and after a period of three years, the municipalities were to take full responsibility of the system. The PUP had general support from the beginning, including the support of the South

African Municipal Workers' Union (SAMWU). "For SAMWU the PUP was seen as a model which would improve service delivery to historically disadvantaged communities while guaranteeing jobs for municipal workers".

The partnership was not ideal. Problems included the local authorities not paying their share into the project. The authors conclude: "Apart from the municipalities failing to honour their commitment, DWAF has also pulled back from its earlier enthusiastic support for the venture. High level authorities in the Department have all but declared the PUP an exercise that goes against the future direction of water service delivery: increased participation by the private sector. All in all, the precarious state of the Odi PUP raises the issue of whether the partnership has been 'set up to fail'. For Rand Water and SAMWU, as well as advocates for the welfare of poor communities, a failure of Odi would be a blow to the notion of public sector delivery and free service 'lifelines' for the poor."

Municipal Services Project. Occasional Papers No.1. 22 pages.

- **Smith, L. "The Urban Political Ecology of Water in Cape Town, South Africa**"

Key Words: *Institutional framework in equitable water distribution*

In this article, based on the constitutional provision for water, the author argues that the main task of the new government is to promote equitable water distribution by redressing imbalances created during the apartheid regime. The author observes that although there is a lot of enthusiasm about public-private partnerships, there isn't much research that tries to answer the question of whether PPPs in fact create greater equity in access to water. Using **Cape Town** as a case study, the author argues that the spatial patterns of water distribution play an important role in understanding inequalities in water distribution. In the author's view, the amalgamation of Cape Town city with six other substructures into Cape Town Metro Area is a positive step in overcoming the inequalities linked to spatial patterns of water distribution. However, the author regrets the impact of the shift from the *Reconstruction and Development Programme* (RDP) model to the *Growth, Employment and Redistribution* (GEAR). The author argues that this shift has actually traded distributive justice for efficiency or procedural justice.

www.queensu.ca/msp/pages/water

b) Decentralization and Management

- **Butterworth, J. Mogkope, K. and Pollard, S. (2001) Water Resources and Water Supply for Rural Cummunities in the Sand River Catchment, South Africa**

Key Words: *Inefficiency in water management, and accessibility*

Sand River Catchment is located in the north east of South Africa draining the northern part of Mpumalanga. Domestic water use represents only a small component of the overall water balance. The largest water use is irrigation (32.3 Mm^3 in 1985), Forestry use is (11.3Mm^3 in 1985) and Domestic account for (3.5 Mm^3 1998). The paper talks about the inaccessibility of water to the rural poor in the Sand catchment areas and the inefficiently run irrigation sector with few incentives to improve its water use. The research makes recommendations for a board to manage the bulk supply of water to the rural consumers known as **Bushbuckridge Water Board** in Sand River Catchments. It mentions the need to recognize fragmented or marginalized stakeholders in the rural communities. The need for a good knowledge base so that all stakeholders/actors to participate effectively is also acknowledged.

Natural Resources Institute (NRI), University of Greenwich, Chatham, Kent, ME4 4TB, UK, and Association for Water and Rural Development (AWARD), Acornhoek, South Africa.

- **Brown, Julia (2005) "Water Services Subsidies and the Poor: A Case of Greater Nelspruit Utility Company, Mbombela Municipality, South Africa"**

Key Words: *Water subsidy, cost recovery and affordability*

This article looks at the question of how water services are being delivered to the poor, focusing on the question of affordability. Situating the water debate with global water debates, the author discuses the 'neo-liberal' argument of treating water as an economic good whose efficient delivery and use can be affected through the market. In this view, subsidies are seen as counter-effective since they are said to distort the market and therefore lead to inefficiencies and careless use. Consequently, 'neo-liberal policies' recommend cost recovery as a basic model of allocating water through the market.

The author takes issue with the basic premises of 'neo-liberalism'. Using **Mbombela Municipality** as a case study, the author compares the policies of the two water service providers: Mbombela Municipality (which provides water services to half of the municipality area) and the Great Nelspruit Utility Company (GNUC) which provides water to the remaining half of the area. Based on this comparison the author argues that affordability becomes the main issue in situations were cost recovery is implemented. The article contains a map of the Mbombela Municipality water network.

Centre on Regulation and Competition, Papers from the CRC Annual Conference, 2005

www.competition-regulationorg.uk

- **Doggett, S. (2005) "Presentation for International Regulation Conference in South Africa"**

Key Words: *Municipal capacity building*

The article first makes the observation that many municipalities in South Africa need to build capacity. Following from this the article outlines the conditions that would enhance the building municipal capacities. The article then suggests ways in which these capacities can be built.

A paper presented as the "Poverty Reduction Through Better Regulation Conference" in Johannesburg, 21-23 January 2005).

- **Governder, P. (2005) "Examining the Municipal Regulatory Framework: The Case of Johannesburg"**

Key Words: *Municipal challenges in water service delivery*

This paper looks at the challenges faced by municipalities in the context of decentralization and transformation. Using the **City of Johannesburg** as an example, the paper highlights the problems that municipalities face in delivering services to the people. What is clear from the Johannesburg case is that municipalities face institutional and management capacity problems related to the lack of an inefficient regulatory framework which contributed to crises and poor service delivery in many municipalities.

(*A paper presented as the "Poverty Reduction Through Better Regulation Conference" in Johannesburg, 21-23 January 2005).*

- **Human Science Research Council (2003) Water Delivery to Rural Poor Improving but Still Some Way to go**

Key Words: Water delivery to the poor

The media release describes the results of a study of rural water schemes in **KwaZulu Natal**. The study reveals the constraints of most of water projects in KwaZulu Natal to delivery water to the poor. The study indicates that of the 74% of the projects that were functioning, projects were problematic in the sense that water provision was below the required RDP levels. The media release provides figures on water use pointing out that South Africa's industries use

11.3% of the country water resources and that farmer's use 66.6% of South Africa's water resources for irrigation and that 4.3% of the South Africa's water is used to make electricity.

http://www.hsrc.ac.za/media/2003/7/20030702.html

- **Lens, Abrahams (2000) "The Right to Water Supply?" Water Policy International Ltd (UK)**

Key Words: *Water disconnection and the right to water*

Following the water disconnections of more than 10 000 **Umlazi** residents in 2000, Christina Manquele, a single mother of seven, challenged the **Durban Metro Council's** decision to disconnect water from her house for failure to pay an outstanding amount of R10 000 Manquele won "her first battle against the Durban Metro Council" when the council was "forced to temporally reconnect her water after cutting the supply pending" the court decision. *www.thewaterpage.com/right to water*

- **Kamara A., Koppen B. V., Magingxa L. (2001) Economic Viability of Small – Scale Irrigation System in the Context of State Withdrawal**

Key Words: *Economic Viability, Management, Small – Scale Irrigation and Transfer*.

Area: Olifant Catchment (Arabia Olifant Irrigation Scheme)

The paper highlights the transfer of management (especially of irrigation management responsibilities) from government agencies to farmers or farming communities. The underlying principles are to encourage farmers and local communities to take responsibility for the management of local resources, and thereby limit external interventions to the provision information and institutional support. The case of South Africa was recently received attention, as the few pilots' schemes, especially in the **Northern Province**; do not seem to hold much promise of success, in terms of crop production and factors affecting the socio-economic characteristics of the sampled farmers.

The Arabia Scheme in the Northern Province of South Africa: IWMI 141 Creswell Street, Silverton Pretoria.

- **Magazi, Thulani (2001) "Thousands Face Water Cuts in Cape Town."** ***Cape Argus*****, 23 November 2001**

Key Words: *Disconnection threats for non-payment of water bills*

This short article brings out the tension that exist between the water provider (**City of Cape Town**) and the water users (residents of **Gugulethu**, **Tafelsig** and **Fezeka** in particular. The City of Cape Town threatened to cut water supply to residents in the above townships for failure to settle outstanding water bills, while the residents claim that they have not been given sufficient time to find the money to settle their bills.

www.queensu.ca/msp/pages/In The News/2001/November/cuts.htm

- **Makunga, M. Bos, J. and Macdonell, A. (1999) Making Friends with Local Government"**

Key Words: *Local government-NGO partnerships*

The paper shares Mvula Trust's experience of partnership with local government in the **Eastern Cape** in the provision of water. Mvula's experience working with local government in

the context of the new water legislation brings out the dynamics that surrounds the water delivery system in South Africa. The authors share the challenges, benefits and difficulties experienced in these efforts towards partnerships. Improved participation of the community and improved understanding of the importance of community participation are among some of the benefits. The difficulties encountered include differences in the points of emphasis, interest approaches and training, power struggle and lack of capacity of many local governing bodies.

(A paper presented at the 25th WEDC Conference, Addis Ababa, Ethiopia).

www.mvula.co.za

- **McCartney, M. P, Yawson, D. K., Magagula, T. F. and Sashoka, J. (2004) *Hydrology and water resources development in the Olifants River Catchment.***

Key Words: *Water delivery and water management*

The paper explains the dynamics of water management in the **Olifants River catchment**. The Majority of South Africa's mining, power and agricultural activities are concentrated in this catchment area. There are about 10, 000 boreholes in the catchment area. The largest water consumer is irrigation. The paper explains the inequality in water consumption. Many people in the former homelands do not have access to an adequate reliable water supply, the average being 47 litres per day while the people living in the high income areas, mainly whites, have access to water with an average of 183 litres per day. The average annual reserve in the catchment is 460 Mm²

Working paper 76. Colombo, Sri Lanka; International Management Institute (IWMI).

- **Mqadi, Nomfundo "Experience from the Gauteng Integrated School Sanitation Improvement Programme (GISSIP) in Gauteng Province."**

Key Words: *School sanitation pilot project*

GISSIP is a pilot project involving 70 schools in the **Gauteng Province** aimed at improving sanitation in schools. The Project was initially managed by the Department of Public Works and the Department of Education. Due to the pressure on the two Departments to achieve social services delivery targets, the Department of Health and Mvula Trust were asked to assist in the project. Experience form this joint-venture project indicates that GISSIP, taking a multi-sectoral, integrated approach accounts for the success scored in improving sanitation in many school in Gauteng. The GISSIP project brought together a number of stakeholders to implement various strategies including the lobbying of political leaders, creating a School Sanitation Week, and Curriculum Development to integrate sanitation into the teachers' and learners' syllabi.

www.mvula.co.za

- **Pollard, Sharon & Walker, Phillip (2000) "Catchment Management and Water Supply and Sanitation in the Sand River Catchment, South Africa: Descriptions and Issues."**

Key Words: *Institutional arrangement in the Sand River Catchment Area*

The paper describes the overall water situation in the **Sand River sub catchment Area**. It outlines the institutions involved in the management and supply of water in the area, the boundaries, water users and the key challenges concerning the management and supply of water in the area. Case studies linking WSS and catchment management, community access and participation, income generating ventures through water are discussed. The paper contains various maps.

Association for Water and Rural Development (AWARD). (A working paper prepared for the WHiRL (Water, Household and Rural Livelihood) Inception Workshop12-15 September 2000, South Africa.

- **Public Citizen (2004) Orange Farm, South Africa: The Forced Implementation of Prepaid Water Meters. A Case Study by Public Citizen**

Key Words: *Water cut-offs, logic of cost recovery practices*

The paper surveys the struggles that residents in **Orange Farm** faced after the installation of prepaid water meters. The paper points out that in recent years South Africa has seen a rise in the number of people experiencing water cut-offs as a result of the inability to pay for water services. As more and more people in communities have had to face up to the logic of cost recovery, community organisations and movements have emerged to reclaim people's basic rights to water as inscribed in the South African Constitutions.

www.wateractivist.org

- **Rally, M. (2001) "Partnerships for Sustainability: The Mvula Trust Experience"**

Key Words: *Partnerships in water services delivery*

This article describes Mvula Trust's approach to water provision in rural areas. As an NGO, Mvula trust has been seeking to partner with government at different levels particularly with rural municipal governments. From the experience of the past ten years, it has been noted that the new rural governments, district and local councils have not been keen in partnering with Mvula mainly because of the differences in approach. And to highlight this, the article compares the Mvula Model for water service delivery to the government model. Mvula uses a "demand responsive" approach while government uses the "supply-responsive" approach. Another difference in approach identified is that Mvula adopts a model based on maximum community ownership of projects while government projects are managed by engineers and other special consultants without involving the community. The article finally gives a brief summary of the reasons for successes and the failures associated with Mvula trust projects. And the general conclusion is that sustainability is key to the success of any project.

www.mvula.co.za

- **Seshoka J., de Langa W., & Faysse N. (2004) "The Transformation of Irrigation Boards into Water Users Association in South Africa": Case Studies of Lower Olifants, Great Letaba and Vaalhart Water Users Association**

Key Words: *Land Tenure, Irrigation Water, Water Resource Management, Water allocation, Finance and Water Politics*.

This paper describes the relationships between small-scale and commercial farmers. It explains the reasons for the transformation of Irrigation Board into Water Users Associations, with special emphasis on race and gender. Main activities if the WUA include: monitoring of water Abstraction by reading meters, looking for unlawful pumping, opening sluices and weirs and giving the canals their water allocations.

The area involved is **Olifant West** of South Africa, beside the Cold Bengula Sea Current of the Atlantic Ocean. The characteristics are Mediterranean Climate, Winter Rainfall, Precipitation Varies over 1 000 Millimetres per year, Summer Temperature reaching 45˚C. The Storage Dam in the Catchment involves **Clanwilliam** Dam, **Bulshoek** Dam and **Tzaneen** Dam. The water users are distributed as follows: Industry 140ha, Domestic 557ha, Emerging Farmers 335ha and Commercial Farmers 8, 176ha. The crops farmed are mainly Wine Grape, Table Grape, Tomatoes, Citrus, Deciduous Fruits and Vegetables. The types of irrigation are: Canal and Pump irrigation. The major users are: Farmers, Municipalities (domestic, commercials, and offices), Kruger National Park and Industries.

Working Paper 72. Colombo, Sri Lanka: International Water Management Institute.

- **Smith, L. and Fakir, E. (2003) The Struggle to Deliver Water Services to the Indigent: A Case Study on the Public-public Partnership in Harrismith with Rand Water.**

Keywords: *Public-public partnership (PUP); Harrismith local authority; Rand Water; Service delivery challenges.*

The country's first public/public partnership, between **Harrismith** local authority and Rand Water, illustrates the potential of addressing some of the critical difficulties facing local governments in the delivery of water services to the poor. In its first three years, the partnership made significant achievements (i.e. protection of local authority in the contract, limit to cost recovery imperatives, support from SAMWU, etc.), which are covered in the document and that will hopefully help to set precedence in the development of future service delivery alternatives. Obstacles do remain in the partnership (i.e. transfer of skills, the difficulty with balancing cost-recovery with constitutional requirements, etc.). Larger questions are also raised such as the implementation of 6kl as a basic minimum of water, which is insufficient for a household to manage its needs. The authors mention that the "greatest challenge of service delivery alternatives is to ensure that the local authority capacity to govern is built up in the process of partnering. This can then put the local authority in a position of choice regarding whether it runs the sector itself or can at least be in a stronger position to provide oversight should it choose to enter into a partnership".

Centre for Policy Studies Social policy series Research report 103: 1-32.

- **Soussan J., Pollard S., de Mendiguren J. C. P. and Butterworth J. Allocating Water for Home – Based Productive Activities in Bushbuckridge, South Africa.**

Key Words: *Domestic User, Poverty Alleviation, Activities, and Socio-Economic Status*.

The paper explains the competition between the domestic use of water and home-based industries. It provides information on the percentage of households involved in home-based industries. It highlights the impact on women of inadequate water supply, such as walking a long distances to community water points or buying water from vendors. The paper is a result of surveys in 19 villages of **Bushbuckridge** with a population of 26, 700. Household Basic Water Need include: drinking, bathing, and washing clothes and utensils. Other livelihood dependent activities found in the area were: vegetable gardens, fruit trees, local beer making, bricks making, hair dressing, livestock, ice block making, car wash smearing and plastering of walls and floors, baking and duck ponds.

- **Stephen, D.A. (2003) Reducing Water and Sanitation Backlogs in Rural Areas: Umgeni Water's Response as an Implementing Agent within KwaZulu-Natal, South Africa**

Keywords: *Umgeni Water; Water and Sanitation backlogs; Rural KwaZulu-Natal*

Abstract: The reduction of water and sanitation backlogs and the improvement of levels of services in rural areas is one of Umgeni Water's key long-term objectives, in order to support the national, provincial and local governments' imperatives within South Africa and the goals of New Partnership for Africa's Development (NEPAD) in Africa. Major challenges include: (i) infrastructure delivery; (ii) provision of ongoing water and sanitation services in a sustainable manner; (iii) improving people's health and their quality of life; (iv) reducing poverty; and (v) improving food security. This paper describes Umgeni Water's response to the challenge of reducing water and sanitation backlogs in rural areas within **KwaZulu-Natal** within the context of water sector reforms and the changing role of local government. The work of Umgeni Water as an Implementing Agent, in partnership with local government and the private sector, is illustrated by way of a case study on a stand-alone rural water scheme.

GMI 42, pages 47-57

http://www.greenleaf-publishing.com/gmi/abstracts42/ste.html

- **Thompson, H., Stimie, M., Richters, E. and Perret, S. (2001) "Policies, Legislation and Organisations Related to Water in South Africa, With Special Reference to the Olifants River Basin"**

Key Words: *Water Supply Regulations, Policies and Organisations in South Africa*

This study was commissioned by the International Water Management Institute to outline the Hydro Institution Mapping (HIM) in the Olifants River Basin of the **Mpumalanga** and **Northern Provinces** in South Africa. The study looks at the policies, legislation and institutions involved in the Olifant River Basin. A historical, political and legal background to the water management in the area is given. The study then presents the current legal and institutional framework in which the current Olifant River Basin hydro management activities (water resource management and water service provision) are carried out. The paper contains a number of maps.

South African Working Paper No. 7. Colombo Sri Lanka: International Water Management Institute.

www. iwmi.cigar.org/pubs/working/works.pdf

c) Traditional/Community Water Governance

Malzbender, D., Goldin, J., Turton, A. and Earle, A. (2005) "Traditional Water Governance and South Africa's "National Water Act"—Tension or Cooperation?"

Key Words: *Traditional and National Water Governance*

This paper discusses the role of traditional leaders in water management in South Africa. The paper focuses on the relationship between the traditional water governance and the new National Water Act, situating the interplay between the two in the new democratic service delivery system. The paper discuses the role for the traditional leadership in water management in the cross-over zone between traditional rural customs, the new democratic governance and service delivery structures in South Africa. It brings out tensions between the weak state versus a strong traditional water delivery and the weak traditional delivery versus strong government water management.

Using two case studies (of **Tshikombani Village** and **Rural Village in Tzaneen Municipality** in **Limpopo Province**), the paper argues that customary water management arrangements should be part of and can aid the new water resource management system. Particularly, the paper points out that customary arrangement can be a vehicle for achieving the goals of sustainable and equitable distribution of water as well as increased community participation. However, it is observed that too much emphasis on formal structures hinders the participation of many actors including traditional leaders.

www. nri.org/water

- **Malzbender, Daniel. Goldin, Jaqui. Turton, Anthon. Earle, Anton (2005) "Customary Water Management and South Africa's "National Water Act": Some Legal Deliberations".**

Key Words: *Customary and formalised water management systems*

The paper explores the relationship between different legal systems in water management. While situating the customary water management system within the new national water framework, the article points out contradictions in the national government's commitment to participation. The article argues that emphasizing formal structures excludes the participation of customary systems in the national system since the former is often informal.

The article further makes the observation that government's centralized control of the water sector poses a threat to the notion of participation. Based on two case studies (**Tshikombani** Village and Rural Village in **Tzaneen** in **Limpopo** province) the article argues that customary management system may often be a practical way of filling up the gap left by the weak state. From the two cases studies mentioned, it emerges that customary system can be an attractive and practical way of managing water especially in the rural areas.

Centre for International Political Studies (African Water Issues Research Unit (AWIRU)). Briefing Paper No. 12/2005

www.up.ac.za)

- **Ninela, P. G. (2000) Toward Sustainable Rural Water Supply: The Analysis of Kkivane Water Scheme in Maphumulo Disctric, Kwazulu Natal, South Africa.**

Key Words: *Traditional management, and supply and participation*

Maphumalo District is an area that exists without any municipal water delivery. The district water supply is from scatted local springs that dot the district. With the help of the department of agriculture, spring protection and pollution prevention initiatives were begun. This included the construction of a wall around the springs with a pipe to supply water for the local consumers. Although the project is undergoing some difficulties, such as drying of the spring during the dry season and lack of management from the local consumers hoping for municipal water delivery system. The project also faces challenges collecting funds from residents of the community for the maintenance of the facilities and construction.

Unpublished Masters Dissertation at University of Natal Durban

d) Conservation

- **Brown, S.A.P. (1997) Case Study V – The Witbank Dam Catchment**

Key Word: *Dam Catchment*

This case study describes the water quality management approach of the Department of Water Affairs and Forestry (DWAF) to ensure that the surface water quality in the **Witbank** Dam remains fit for use and that the resource is secured adequately for the future. Many aspects of this approach are currently still being implemented. Indications are that the implementation of this approach will result in water fit for use in the Witbank Dam Catchment for at least the next 10 years. Other strategies will have to be employed to address water quality in the longer term.

http://www.who.int/docstore/water_sanitation_health/wpcontrol/ch17.htm

- **Hope, R., Jewitt, G. J., Gowing & Garratt, J. (2003) *Linking the hydrological cycle and rural livelihoods: A case study in the Luvuvhu catchment, South Africa.***

Key Words: *Traditional linkage, land use change, Impacts, and rural livelihood*

The paper shows a link between rural livelihoods, land use and the goods and services provided by both green and blue water components of the hydrological cycle in the **Luvuvhu catchment** area in **Limpopo Province**. Specifically, a methodology to link the impacts scenarios of land use such as, conversion of natural vegetation to commercial afforestation and irrigated agriculture on catchment hydrological functioning and rural livelihoods is illustrated in terms of green and blue water use.

School of Bioresources Engineering and Environmental Hydrology, University of Natal, South Africa and Centre for Land Use and Water Resources Research, University of Newcastle, Newcastle upon Tyne NE1 7RU

- **International Rivers Network (2000) The people of Cape Town speak out in Water Week and on the International Day of Action against Dams for Rivers, Water and Life**

Key Words: *Co-operative governance and participatory decision-making*

This is a memorandum from the people of Cape Town and civil society representative bodies addressed to the **Cape Metropolitan Council**. The memorandum addresses concern around several water issues namely: need for and integrated approach to water resource and catchment management, public participation in water resource management, water demand management and water conservation, building of large dams, privatisation of water, lifeline water tariffs to the poor and access to basic services and infrastructure, conservation of our disappearing Wetlands, and pollution of our water bodies such as rivers and wetlands.

http://www.irn.org/programs/safrica/index.php?id=000310.cape.html

- **Rand Water (2005) "Cape Town Winning Water Conservation"**

Key Words: *Water Conservation Campaign*.

This short article describes efforts being made by the **Cape Town Metropolitan** authorities at conserving water. Since October 2004, when the project of water conservation was introduced, it has been reported that 41.8 million kl or 67% of the target has been saved by September 2005. This success has been attributed to availability of resource to carryout this campaign, partnerships, active participation, support and co-operation of residents and business sectors of the Cape Town Municipality.

www.randwater.co.za/news

- **The South African State of Rivers Report: Umgeni River and Neighbouring Rivers. Why is it important to know about river health?**

Key Words: *River health*

The premise of the report is that the sustained use of a range of goods and services is directly dependent on the ecological health of the river. This is because human and economic well-being is directly or indirectly dependent on the goods and services provided by river systems. Some goods and services provided by rivers are important for human survival, such as water for drinking and subsistence fishing. Other uses of goods and services support social needs (e.g. agricultural and industrial production).

http://www.csir.co.za/rhp/state_of_rivers/state_of_umngeni_02/intro.html

- **World Coal Institute – Water Management Initiatives in the Upper Olifants River Catchment**

Key Words: *Water management and quality*

The paper describes water management initiatives within the upper region of the **Olifants River** Catchment system, which flows into the **Witbank** Dam, the region's major water resource. The paper observes the impact of concentrated industrial activity in the region that has implications for managing the water quality of the Olifants River. The paper notes that discharge of polluted water from mining, industrial and agricultural activity as been a problem, causing elevated calcium sulphate levels in the river Catchment.

http://www.worldcool.org/assets_cm/files/PDF/Water_management_in_south_africa.pdf

Appendix E: National Water Resource Strategy Diagram

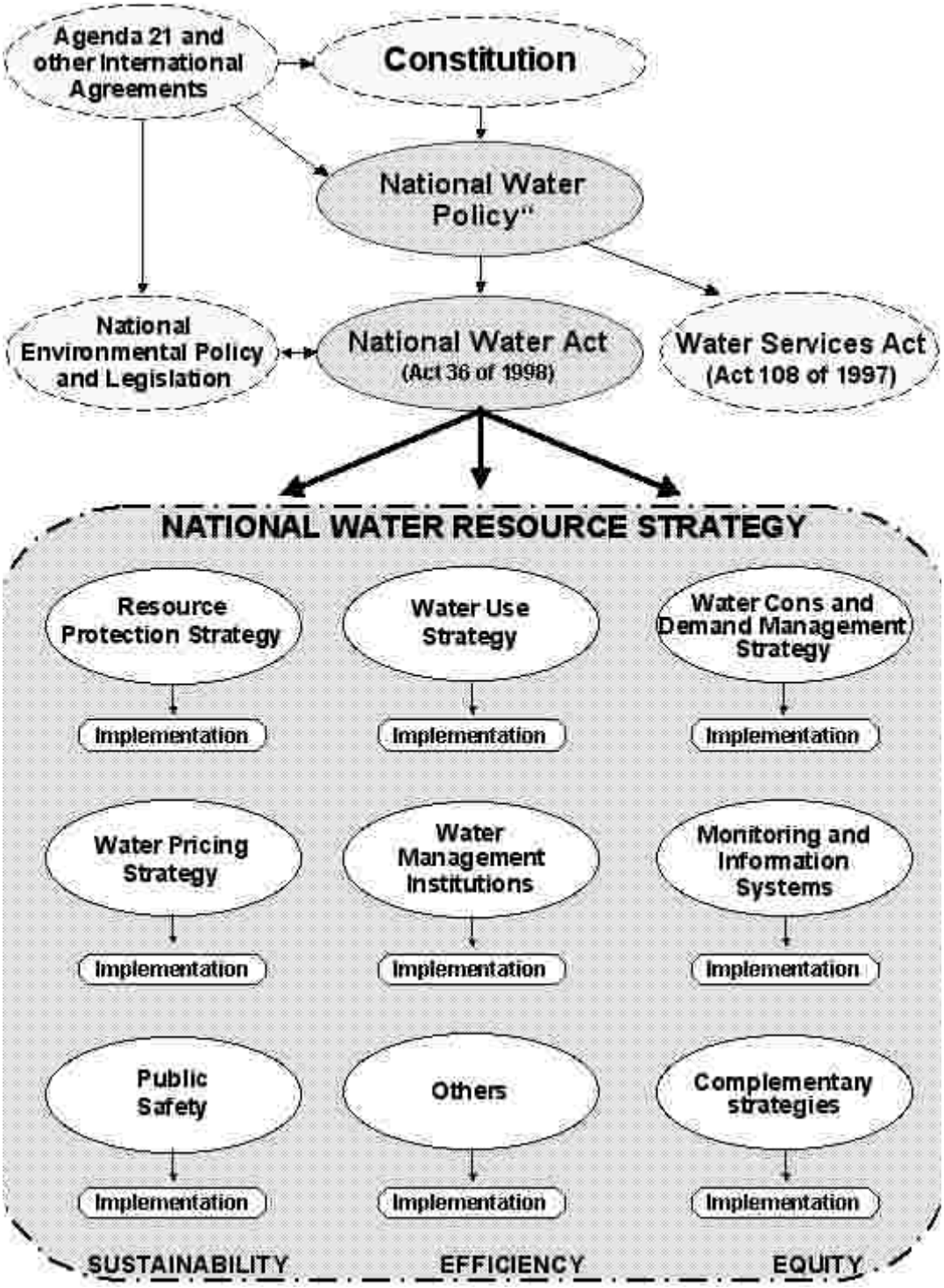
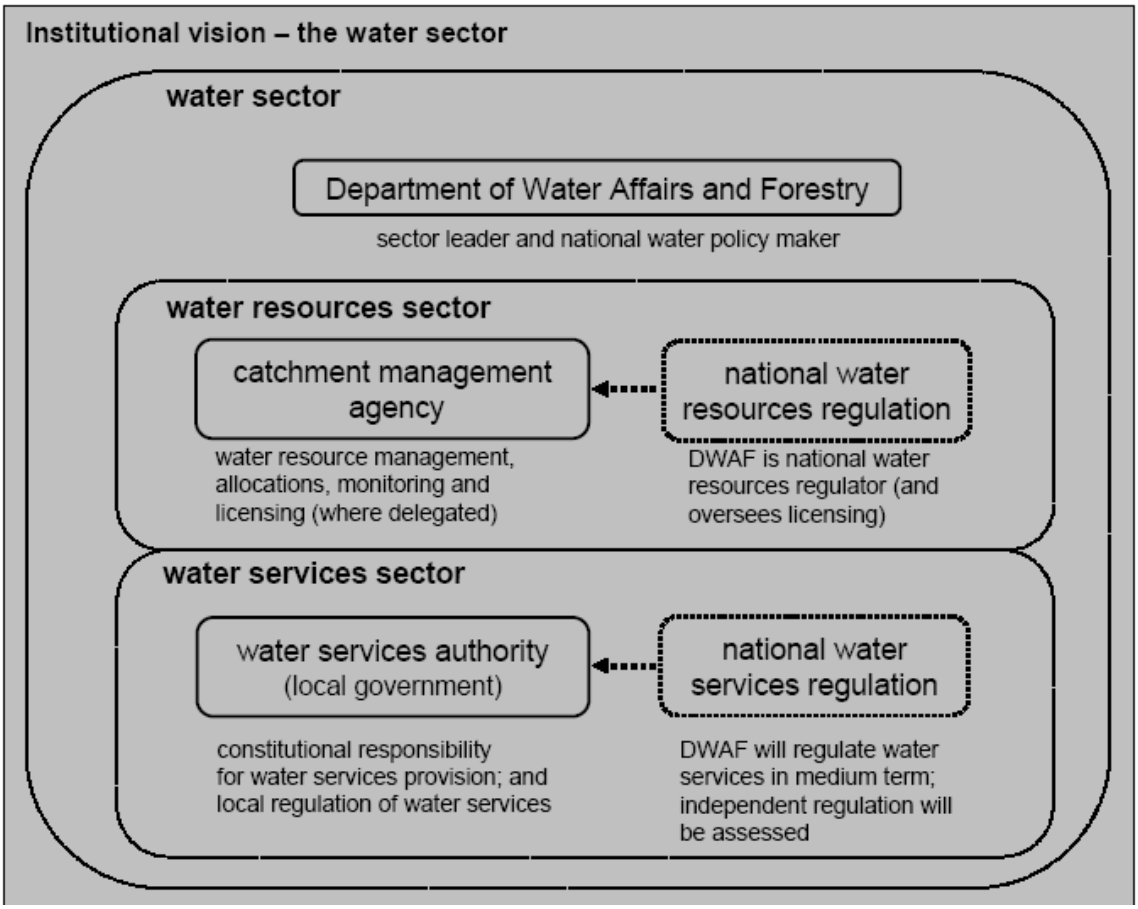
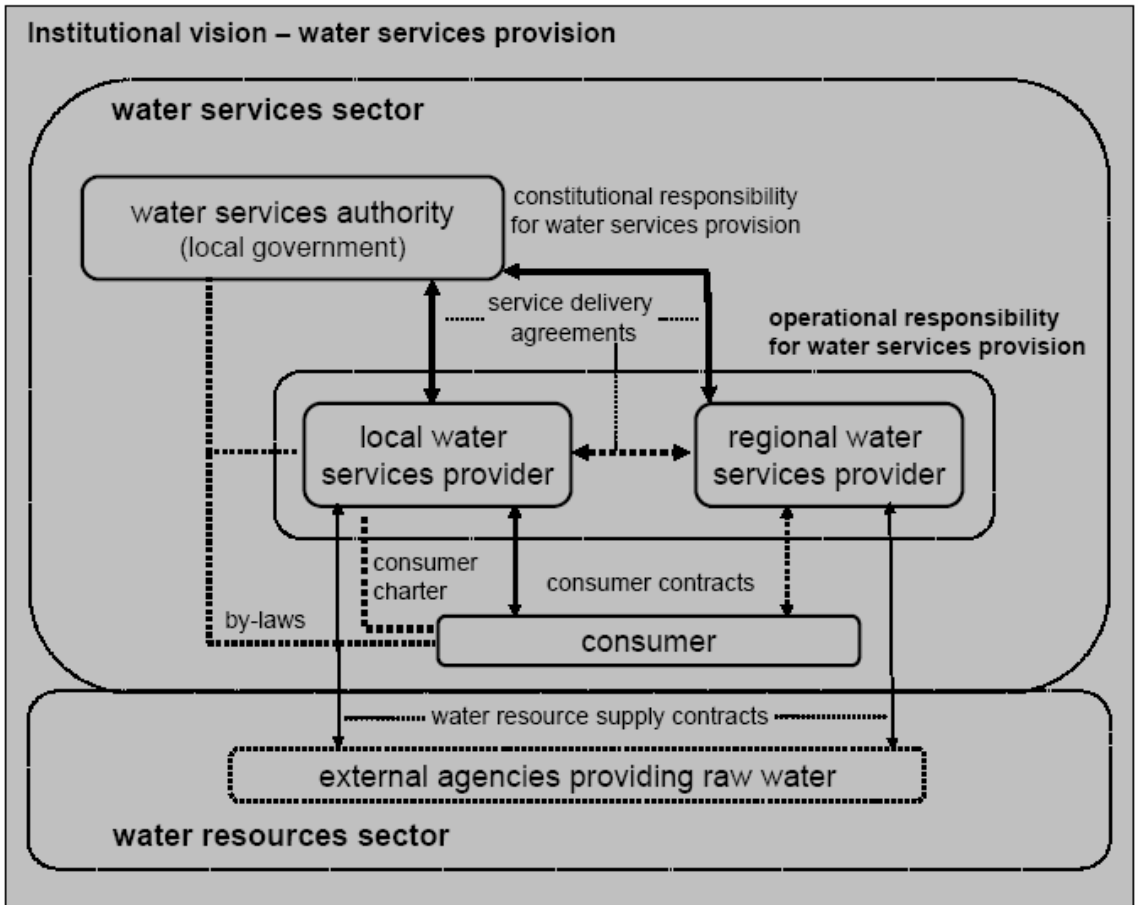


Figure 1. South Africa's Constitution and Agenda 21 guided the 1997 National Water Policy. The Policy gave us the vision for a better water future in South Africa. The 1998 National Water Act gave us the legal tools for achieving the vision. The National Water Resource Strategy is a national framework for working towards that vision. Source: http://www.dwaf.gov.za/Docs/NWRS/Information/ENGLISH%20INFO%20DOC.pdf

Appendix F: Institutional Vision for the Water Sector

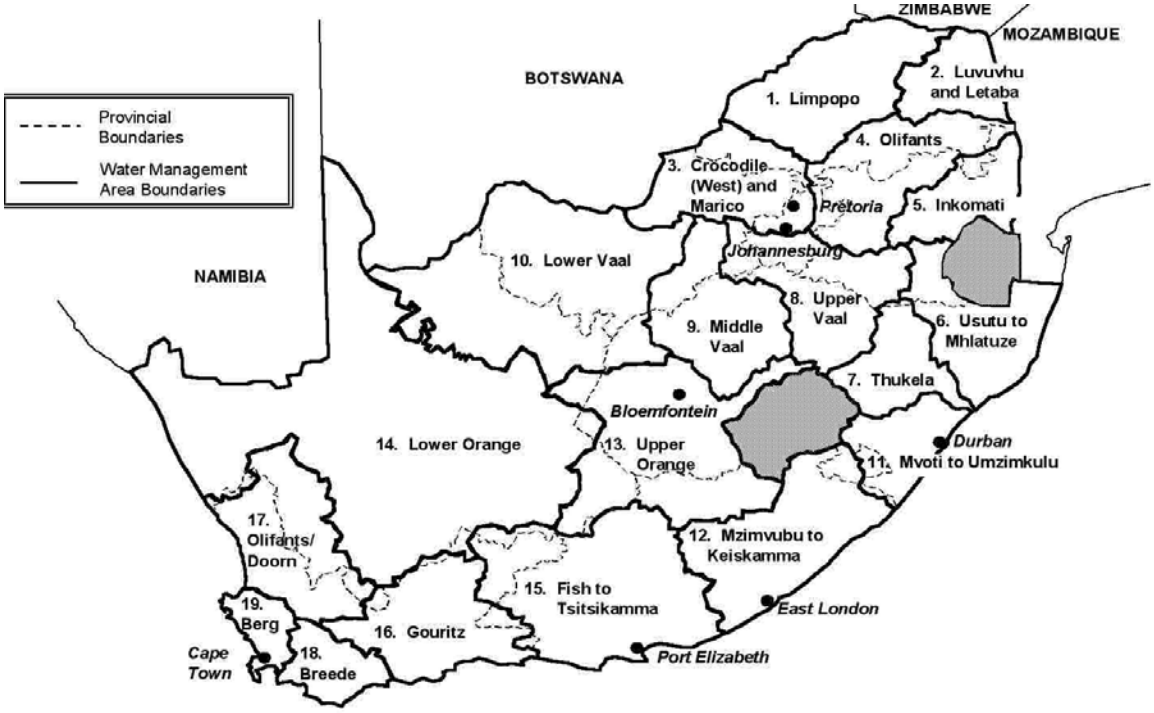


Appendix G: Institutional Vision for Water Services



Source: DWAF (2003) Strategic Framework for Water Services. http://www.polity.org.za/pdf/waterstrat.pdf

Appendix H: 19 Water Management Areas



South Africa has been divided into 19 Water Management Areas (Government Notice No. 1160, October 1999). Note that every Water Management Area has a number. Eleven of these areas have less water available than is needed. Source: ibid.

Appendix I - Case Study Briefs

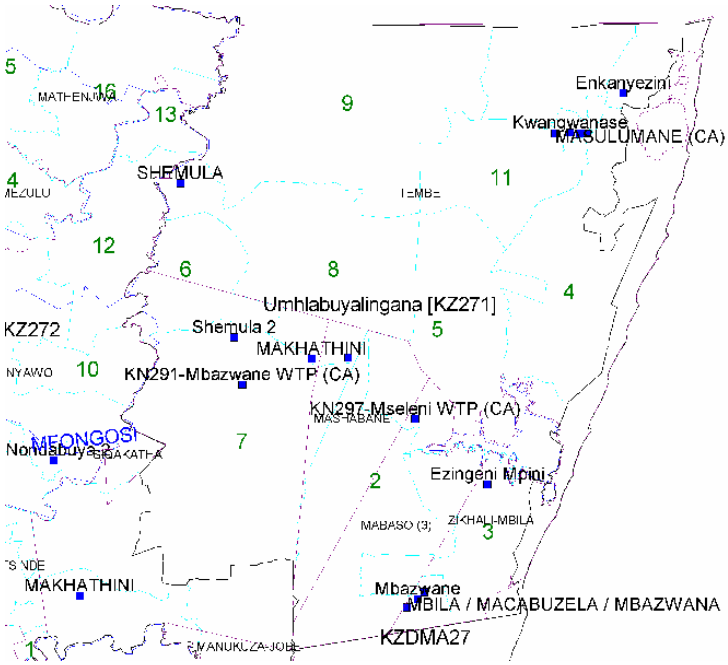
Case Study Brief:

Mseleni Water Project, Umkhanyakude District, KwaZulu Natal - by Eleanor Hazell

1. Location, demographic and socio-economic background

The study area is located in Umhlabuyalinga (KZ271), the Northernmost local municipality in KZN. Umkhanyakude District Municipality is the WSA in the local area, the Catchment-level Water Management Area is Usuthu-Mhlathuze. 14,230 people[7] live in the area served by the Mseleni Water Project. The Water Project covers 9 'isigodi': Bangizwe, Mafa, Manaba, Mboma, Mlamula, Myanduya, Nhlamvu, Sonto & Vimbkhalo. The area is deeply rural; the nearest town is Mbazwane (25km, R7.50 by Kombi). Sodwana Bay National Park is 38km. Water for the scheme is extracted from nearby Lake Sibaya.

Except for a small professional community at Mseleni hospital, the population is exclusively Zulu. The project area falls under Mabaso tribal authority. The tribal court is at Mabaso (see map right) and the traditional system of governance features strongly in day-to-day life. The most commonly referred to division of space are 'isigodi', which follow similar lines but do not map exactly onto municipal demarcated 'wards'.



Umhlabuyalingana Municipality

Map shows wards, traditional authorities and DWAF water projects: Source SA explorer

The study area is very poor. A household income survey recently carried out by Sakhisizwe revealed that just 40% of the population have incomes of R500+ per month and 12% are formally employed (PID, 2005:17). Similarly the 2001 census (www.demarcation.org.za/) revealed that 45% of households reported no income; just 10% of the working age population are employed (the remainder being unemployed[8] or not economically active) and 54% of

[7] Figure taken from Mbazwane sanitation project household registration (PID, 2005:15)

[8] To qualify as unemployed (the 'narrow' definition) someone would have to: have not worked during the last week, however wanted to, be available to start work within a week and taken action to look for work within the last four weeks. This does not take cognizance of significant barriers to seeking work faced by rural residents face (e.g. distance, lack of funds) nor the lack of economic opportunities which discourage people; thus people may be classified 'not

people over 20 have had no schooling. Umkhanyakude Water Service Development Plan (2002) estimated the poverty level within the district at 97%. The very high incidence of HIV/AIDS[9] in KZN compounds poverty and poverty contributes to the spread of the epidemic.

High unemployment and levels of poverty have implications for the delivery of water services and the upkeep of infrastructure. With such low incomes, households find it difficult to pay even a small amount for water and thus recovering the cost of infrastructure investment, operation and maintenance costs is problematic. Local and District Municipalities receive grants such as the equitable share which subsidise the cost of providing basic services to indigent households (those surviving on less than R1100 per month) but these are not sufficient to cover the entire cost of providing basic services. The Free Basic Water Policy intends to provide poor households with 6kl free water per month, but roll-out has yet to reach many rural areas, including Mseleni.

2. Institutional Context for Water Supply

In terms of the Water Services Act (1997), Umkhanyakude District Municipality is the WSA responsible for overseeing the provision of water services to households within the district. A WSA may 'contract out' the provision of services to a WSP. In reality there are many rural communities, such as those within the case study area that do not formally receive water services from a WSP. Some communities do not have access to improved water sources, others have access to improved sources provided by other actors. In the case study area households have access to a piped water supply managed by Mseleni Water Project committee, additionally there is a community managed borehole at Manaba and some households have 'family wells', boreholes within the family compound installed several years ago by PID. The Mseleni Water Project committee was selected several years ago at an esigcawini (weekly isigodi meeting), there does not appear to have been a re-election since, despite the constitution stating that the period of office is 2 years (Eleanor Hazell, preliminary fieldwork). A number of people are employed full and part-time by the committee to run the water project.

WSA's are required to produce WSDP's, which should be linked to IDP's, outlining how many people have access to safe water supplies and how this will be expanded in future. Umkhanyakude's 2002 WSDP states that 100% of households in Mseleni have access to safe water provided by the Mseleni Water Project, however preliminary fieldwork uncovered that many households in fact do not, casting doubts over the accuracy of data in WSDP's.

A plan is in the pipeline to expand and upgrade the Mseleni piped water scheme, which functions erratically at present. Construction will commence in 2006 and finish in 2010, a new committee has been elected to steer the upgrade project; one woman is on both the water project and the upgrade committees, all other members are different. Conflict was evident between the two committees, members of the Mseleni water project committee believed the upgrade committee was not selected transparently or elected democratically and vice versa.

There has been a considerable amount of restructuring of the water sector in South Africa. Prior to 1994 water services were provided by many actors, the framework for the provision of Water Services and management of Water Resources is set out in two Acts (RSA, 1997; RSA, 1998) and DWAF has been making arrangements for some years now for handing over the responsibility for the provision of water services to WSAs. In some cases this involves handing over responsibility for large water schemes previously managed by DWAF, in other cases this involves handing over responsibility for small community managed schemes; the hand-over process should be proceeded by inventory and assessment; many different actors are the gatekeepers of knowledge about what is out there in terms of water supply services and how it works. It is not yet clear how water services within Umkhanyakude will ultimately be managed when all schemes have been handed over. At the time of preliminary fieldwork

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economically active' who would nevertheless be able and willing to work, given different circumstances.

[9] HIV prevalence was 40.7% among antenatal clinic attendees in 2004, figure taken from Z Wilson's Case Selection & Methodology Report, www.avert.org/safricastats.htm .

the Municipality was carrying out a Section 78 assessment and it was thought likely that a Water Services Support Agent(s) would be appointed to assist with the operation and maintenance of rural water supply schemes.

In terms of the National Water Act (1998) the study area falls within Usuthu-Mhlathuze Catchment Management Area; a proposal to establish a Catchment Management Agency in Usuthu-Mhlathuze was gazetted in parliament May 2005, but the CMA has yet to be established or become operational.

3. Water Services Infrastructure and Provision

Mseleni Hospital is a focal point for communities in the area, the tar road leads to the hospital, which is a source of employment, economic activity and the place that water comes from.

The hospital was the first place to get clean water (in 1950s) when it pipes were laid to pump water from Lake Sibaya (6km). 3 standpipes outside the hospital grounds were the first water sources for local communities, people living nearby could take as much as they could carry and people still use them now when the water supply is off). In 1987 Dr Victor Fredlund invited a group of men, women, youth and community leaders together, to see what they could change about the area. The group visited a development project in Manguzi and decided to work on sanitation (the first priority) and water. According to a key informant, water was not identified initially as a priority because: *"People were sceptical about water, that anything could be achieved. They were used to being underserved, sadly"* (Interview with Dr Fredlund, 10/07/05 Eleanor Hazell 2005).

A water project proposal was put together and the group met representatives from the Department of Agriculture (then responsible for water). The Sugar Association provided R20,000 for a pipeline to Zenzeleni School and the community provided (free) labour. In 1989 the group formed a co-operative: Vuka Mabaso[10] which began making toilets and cement. Funding was received from IDT for more pipelines. Households could be connected to the pipeline if they bought the materials and paid labour costs for installation and connection; they were encouraged to have water meters and pay for the water they used (then 50c/kl). Households without private connections contributed between R2-4 per month to collect water from communal standpipes. Water committees were set up in each isigodi, responsible for setting and collecting water levies, levies were used to pay employee salaries and cover the cost of maintaining the system.

In later years the water project/upgrades were supported by Joint Services Board and Mvula Trust. Mseleni was in the former homeland of Zululand, governed in Ulundi, which instigated some water schemes in surrounding areas (Ndumo, Shemula). Because of the way it was funded, additions/upgrades to the water scheme took place in an ad-hoc way over time, causing problems for the way the water project functions now.

The water project was designed, at inception, to supply people with 25 litres/capita/day. At the time piped (1998) tap water was considered to be a 'luxury' and 25 l/c/d sufficient for African people. Since then policies and guidelines have been revised and 25 l/c/d from a piped supply within 200m is considered the minimum requirement (RSA, 1994:80), many people in the case study area however, do not have this 'minimum' standard of service. It is unclear exactly what the proposed service level for the 'upgraded' water scheme will be, the business plan mentions 25 l/c/d from a standpipe within 250m walking distance *"where possible",* but elsewhere a figure of 60 l/c/d is mentioned (PID, 2005:2).

In theory, water is pumped from Lake Sibaya, treated, pumped to a bulk storage reservoir behind the hospital, then distributed via pipelines to connections in 9 isigodi. Pipelines and connections are maintained by plumbers, households pay repairs and parts for private connections, the water project pay for repairs to the pipeline. Plumbers read meters and deliver bills. 1x month the isigodi 'bookkeeper' sets up shop in a local tearoom/shop and households come to pay their bills,

[10] Zulu for 'wake up' tribe of Mabaso. Vuka Mabso now employs 6 people, in its heyday it employed 25 in the business wing and up to 200 people on public works programmes e.g. roads, water pipes etc

alternatively they can pay their bills at the water project office. Accurate records are kept of water connections, meter readings, bills and payments. Households that do not pay are threatened with disconnection.

In reality, the project often runs out of water because storage facilities are inadequate for a scheme this size. When this happens connections close to the hospital are usually ok, but those further away get nothing. Due to maintenance/technical problems, sections of the pipeline sometimes do not have water for 1 month or longer. Some households connect illegally to the pipeline (the plumbers will do this for a fee), some households do not receive bills, some households do not pay their bills, many people resent paying for water because the service is so poor and the scheme does not make enough money to cover the cost of rent, salaries and parts/maintenance. This creates a vicious circle: because the scheme does not make enough money staff receive low wages (R600 per month), therefore morale is low, plumbers do not read meters/deliver bills regularly and will connect households illegally to make extra cash; because there is not enough money for adequate upkeep the scheme does not function well, therefore people are reluctant to pay for the service they receive, some people do not pay their bills, making the people who do pay their bills resentful.

4. Preliminary List of Local Actors

- Mabaso Tribal Authority and their representatives including: Inkosi, Induna (wardens for each isigodi) and staff at Mabaso Tribal Court.
- Umkhanyakude District Municipality; Umhlabuyalingana Local Municipality
- Partners in Development: Engineering consultancy with Head Office in Pietermaritzburg and office in Mbazwane. PID are consultant engineers on the upgrade. Stephen Nash: Mbazwane Operations Manager and only engineer in the study area. David Still: PID director.
- AquaAmanzi: Implementing agent for the upgrade project
- Sakhisizwe: Institutional & Social Development consultancy based in Mtubatuba. Sakisizwe are ISD consultants on the upgrade project and have conducted various baseline surveys in the study area. Mrs Dolly Thembe is Sakisizwe founder and MD.
- Mseleni Hospital: Ex-mission hospital, bulk water user of note (see also background/ history). Dr Victor Fredlund: Devout Christian, Chief Superintendent at the hospital and motivating force behind Vuka Mabaso and the Mseleni Water Project.
- Vuka Mabaso: Community co-operative, founder of the Mseleni Water Project, the office of the water project operates out of their premises.
- Local businesses: a number of small shops and businesses e.g. Post Office; bakery; informal restaurants; 'Rank' equipment store; photocopy shop.
- Africa Foundation: NGO working throughout Africa to improve health care facilities, working in KZN and involved with Mseleni Hospital in the Mduka Clinic and Zululand Flying Doctors programme. Africa Foundation has projects within their 'healthcare' program, which help people gain access to water,.they promote technologies such as rainwater tanks, guttering, taps, pumps, windmills and 'Hippo Water Rollers'[11]
- Water project committee members and sub-committee (each isigodi) members
- Water project plumbers, water project bookkeepers
- Upgrade steering committee members
- Councillors
- Past Actors: Mvula Trust, IDT, Sugar Association, Joint Services Board

[11] "Hippo Water Rollers bring immediate relief to the water scarcity and transportation problems faced by so many rural communities. The innovative design of the Hippo Water Roller (like an old-fashioned drum lawn roller) makes the task of collecting water much easier, and far less time-consuming. The Rollers have a 90-litre capacity – a great improvement on the usual 5-litre containers carried on the head. To date, over 3,300 Hippo Water Rollers have been distributed in ten communities"
http://www.africafoundation.org/what_we_do/healthcare.php

5. Preliminary Observations about Water and Conflict

Gender

Gender 'roles' and 'norms' were very much in evidence. Conversations with members of the community revealed traditional notions of what women and men could/should do (e.g. look after children vs work). Upon entering households the fieldworker was instructed to greet the male head of household and explain the purpose of the visit, thereafter she was referred to the female head as the enquiry - how much water households were using, where it came from, what they were using it for – could be better dealt with by the female head; collecting water is a 'women's task'. However, most of the people in positions of power/influence over access to water were male: Inkosi (male), Induna (all male), Staff at tribal court (all male except the secretary), Municipality (mostly male, female head of ISD for Water Services reporting to male) PID (male director, operations manager and field staff), Mseleni water project committee (6 male out of 7, however the female is the only person elected to both committees), councillors (2 out of 3 male). Exceptions were: Sakisizwe (female director, mostly female field staff) and the upgrade steering committee (women 50% of elected community representatives e.g. 10 out of 29, following a 50% quota stipulated by Sakisize, ISD consultants for the project. Thus although water is considered a 'women's issue' women have less representation and voice, of particular concern was lack of female representation in traditional authority structures, as in practise all local development is channelled through these.

Traditional Governance

Traditional governance systems have a great deal of influence over day-to-day life. Although not formally acknowledged in the framework for water resource management and water service delivery, the influence is recognised by local actors in the sector. The fieldworker was advised to seek permission from the inkosi and induna to carry out research in the community and attended the tribal court to present her research proposal; the water project and upgrade steering committee were selected at 'esicgawini' (weekly isigodi meetings, chaired by the induna); the induna select replacement committee members and inkosi and induna are non-elected members of the water project and upgrade committees. In the case-study area, Mabaso tribal authority holds land in trust for the local people, permission must be sought for development which involves access to or passage over tribal land (e.g. all infrastructure projects). In practise the approval of traditional authorities is sought for all local development and one key informant commented that traditional governance structures *"are the only ones which work"* (Key informant interview, Eleanor Hazell, 2005). The influence is not always entirely benevolent; one key informant reported that the inkosi had requested a gift in return for granting 'permission' for the water supply upgrade project to cross tribal land, (the request was refused and permission granted anyway). Traditional governance structures play a key role in the resolution of intra-community conflict. The fieldworker experienced this when conflict arose between a female student nurse and a number of young men she was dating concurrently, the conflict came to a head one night and was later resolved through discussion between the boys', the girl, the boys' parents, the girl's guardian and the induna.

Race

Except for a small (majority white) community of medical professionals living within the hospital grounds, the community is exclusively Zulu. Access to accommodation (and indirectly to water) at the hospital is determined not by race but by employment status, but in reality the majority of professional staff living within the hospital grounds are white; this community almost never runs out and they are the only people to enjoy heated water. During apartheid, Mseleni and many other communities were discriminated against on the basis of race; standards of service provision and the capacity of institutions which delivered them were

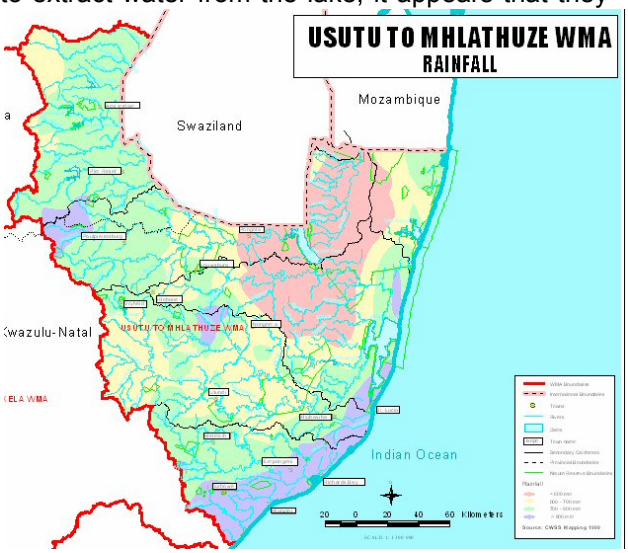
much lower in 'homeland' areas. It was considered 'a luxury' for African's to have piped tap water and steps were not taken to provide water for them, as they were to provide water for the hospital and for staff living/working there.

Environment

Water for the Mseleni water project is extracted from Lake Sibaya, the largest natural freshwater lake in South Africa and a National Park. Lake Sibaya is supplied by underground springs, no rivers run into/from it. It has a surface area of 77km sq and average depth is 13m. There is little plant growth and a low diversity of fish species; it is home to around 280 bird species including some rare, Hippo and Crocodile. The lake is important to the livelihoods of local people who fish and/or collect reeds there, following the recent closure of Baya Camp, there are no tourist accommodation facilities and just one lodge catering for diners. The lake forms part of a delicate ecosystem and so water abstracted from there needs to be controlled and closely monitored. There does not appear to be conflict over the use of water/resources from the lake, but it is not clear

that Mseleni Water Project has a license to extract water from the lake, it appears that they may not (PID, 2005).

Rainfall averages between 800-1400mm in Usuthu-Mhlathuze Catchment along the coast; which is considered high by South African standards (Wilson, 2001:1).



Map Source: Draft Usutu to Mhlathuze Situational Assessment, DWAF

Religion

The fieldworker did not come across evidence of religion as the basis for conflict, but it is worth noting that both the professional community at the hospital and the Zulu community are deeply religious and conservative. The hospital was formerly a mission hospital, Dr Fredlund, the Chief Superinterdent felt 'a calling' and settled in the area in 1960s, when the fieldworker began asking him about water he said that it comes from God in heaven and falls as rain on earth. Dr Fredlund and his wife have been key development actors[12] and the Christian network SIM regularly organise for volunteers to stay at Mseleni. The professional white community organise their own church service on Sundays and bible study on Wednesdays, faith is an important factor in many people's decision to stay at Mseleni. The Zulu community are equally religious; Zulu people expressed concern about the fieldworker's spritual wellbeing, the Zulu family she stayed with prayed every night and attended church on Sundays and weekly prayer group. Religion is important for social cohesion, people who had broken social rules (e.g. cheating on spouse), then made amends were described as 'returning to God' and people who were not religious were sometimes described as 'bad people'. Church, bible study and prayer group were important fora for social interaction. The fieldworker did not find evidence that religion directly affected access to water in this community, but in other communities in which PID were working, installing 'family wells' local pastors were asked to recommend potential beneficiary households.

[12] Dr Fredlund established Vuka Mabaso, is also on various development committees, his wife Rachel established an orphange on hospital grounds.

Disability

Disability is a key diversity category in Mseleni. A condition known as Mseleni joint disease is indigenous to this area of South Africa. Affecting mostly females, individuals experience joint discomfort in childhood, experience pain and may be seriously handicapped as adults, often requiring hip joint replacement. There is no known cure; it is thought to be caused by nutrient deficiency linked food grown in sandy soils in the local area. A key informant believed the Mseleni joint disorder provided some leverage for negotiating for funding for the water project. Physical disability makes accessing water more difficult and disabled and-or elderly people are more likely to pay someone to fetch water for them. However disability can improve access through other channels as disabled people in receipt of a state pension are among the richer strata of the community. One Mseleni water project committee member is physically disabled; no upgrade steering committee members are disabled.

Wealth

Wealth influences access to water by influencing how much people can afford to pay for water. Households connected to the scheme pay R1 kl for water consumed (compared to R6kl in nearby Mopohomeni); households that draw water from community tapstands pay (in theory) between R5-10 per month. The price is currently set by the water committee, when FBW is rolled out, the municipality intends to provide 3 kl/ household free per month and charge R6kl thereafter. However, the current reality is that billing/payment is weakly enforced and a key informant told the fieldworker that wealthy households are not more (possibly less) likely than poor households to pay for their piped water. Some households do not pay anything for their piped water; some households without connections pay to draw water from neighbours taps; some households with connections earn money by ´selling´ water to their neighbours; some households without connections draw water for free from their neighbours taps; some households use cars (R50 per trip if hired) to fetch water from community tapstands; some households (particularly elderly) pay other people to fetch water for them. Due to the initial cost, wealthy households are more likely to have private water connections, they are also more likely to live closer to the hospital, where the water supply is more consistent and/or closer to roads, which the pipeline follows, making the cost of a private connection cheaper and meaning less subsidiary pipeline which might need repairing. Thus wealth operates to accentuate other factors affecting access to water. The fieldworker observed wealth/success to be a source of jealousy and it was reported sometimes conflict in the community, people who were doing well had had property damaged and/or stolen.

Proximity

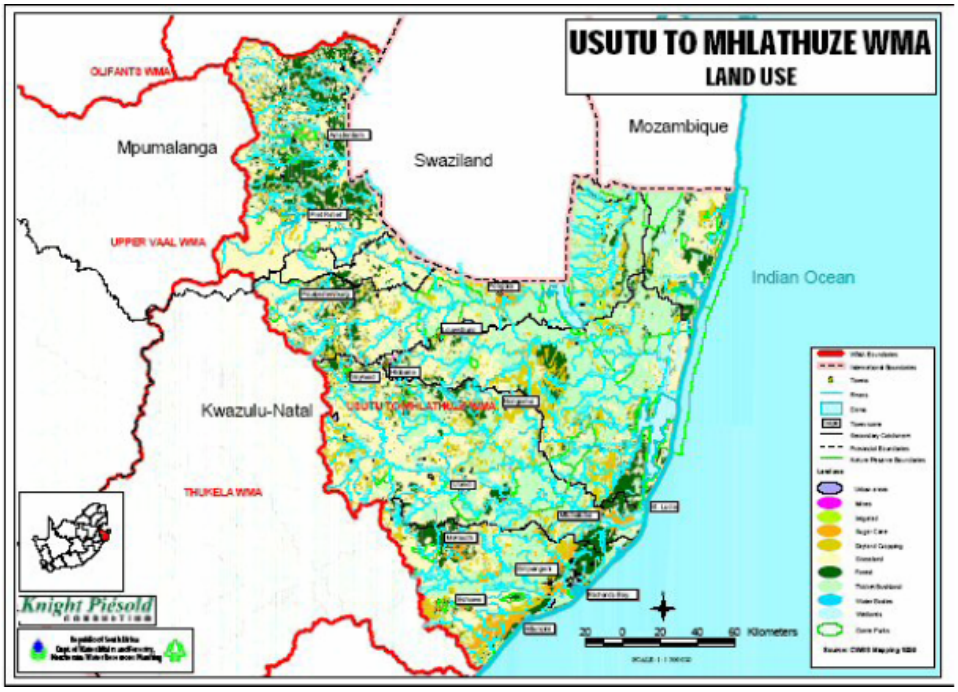
Some isigodi and some households are better served than others by the Mseleni water scheme; those closest to the hospital are best served. Some households are better served than others and/or closer to the main pipeline which influences the cost of a private connection and the length of subsidiary pipeline which could need repairing. Some households are closer to other water sources e.g. borewell at Manaba, streams/rivers/community tapstands.

Access to land/agriculture

Mseleni hospital is a major institutional landowner/user in the case study area; bulk storage for the water scheme is located adjacent to the hospital. Elsewhere land in the case study area is held in trust by the inkosi, for the people of his tribe. People are allocated land on which to build homes but do not own the title to the land and are not able to ´sell´ it, as it is communally owned, likewise land for agriculture. The fieldworker believes that land is allocated primarily to men. No doubt this allocation system has considerable influence over how people gain access to water and means that all development, which takes place on tribal land, has to be channelled through the traditional governance structures. Land in the case study area is used mainly for subsistence agriculture and residential use, additionally there are communal meeting places. Further afield in the surrounding area land is used for

commercial forestry, commercial agriculture (sugar cane, citrus, cotton, nuts, vegetables) and there are two National Parks nearby: Lake Sibaya, Sodwana Bay.

Map Source: Draft Usutu to Mhlathuze Situational Assessment, DWAF



Technology

The Mseleni water scheme 'owns' and maintains a piped reticulation network (140km), water treatment plant, bulk and secondary storage reservoirs. Households are encouraged to install water meters to enable accurate billing, as these are purchased by households, they are the private property of them; taps are also the property of households. The water scheme has are over 1,000 private connections, communal taps are owned/maintained by isigodi water committees. Unaccounted for water loss, through pipe leakages etc are high. Additionally water is obtain from/through: A high yielding borewell at Manaba; family tube wells; rainwater collection tanks (often used to supplement water from other sources); handpumps (owned/maintained by municipality, most are not functioning now); spac spac's (25 litre plastic containers) used to store water and transport it from streams/rivers and taps; cars/vehicles used (sometimes hired) to transport water from distant sources.

Photo: Mrs Gumede and her rainwater tank, Sonto

Photo: Collecting and storing water in 'spak-spak's', Gumede family, Mlamula

Municipal Governance

The fieldworker visited the local, but not the district municipality (which is WSA for the case study area); it was the fieldworker's impression that the local municipality is not well capacitated to provide basic services to communities within their jurisdiction. The district municipality is in the process of accepting responsibility for water service delivery for all water schemes including community managed ones, within their authority area. At the time of preliminary fieldwork they were completing a Section 78 assessment and it was thought likely that a water services support agent(s) would be appointed to assist with the operation and maintenance of rural water supply schemes. Many communities within Umkhanyakude are not provided with basic services and despite the WSDP (UmKhanyakude, 2002) stating 100% of households within Mseleni have access to safe water, the actual figure is lower. Evidence suggests that the WSA are not providing adequate support for water services to community managed schemes such as Mseleni:

"no one is supporting, we still have some problems. Firstly we spoke with the hospital manager, then they refer us to the municipality, uMhlabuyalingana at eManguzi, then

we contact the councillor. We contact the ward councillor, then she came there, but the department of community service, the person in charge, he didn't come, but the councillor was there. We talk about these problems we face, about water. Then they organised people from Jozini who are busy with the water scheme there. So the people we meet from Jozini, they push us to uMkhanyakude District, so last month, we had the meeting with the person who is in charge with water at the district."

And what did the municipality say, were they very helpful?

"No"

No?

"No, they *promise us lies, they said we are going to help you, we are dealing with it somehow haha."* (Interview with Jerome Gumede, 7/7/05)

Free Basic Water has been rolled out in some areas[13], but not in the case study area and Umkhanyakude recently announced that they intend to provide households with 3kl free water per household/month, charging R6 per kl thereafter, rather than the recommended 6k, following a study which showed it would not be financially viable to provide 6kl free (Ms Mantombi Ngubane, Manager ISD, Water Services, Umkhanyakude, personal communication).

Community Participation

A community elected committee are currently managing the Mseleni water project. It was the fieldworker's impression that they are not well capacitated to do so and are not receiving adequate support from the WSA. There are also concerns over how representative/democratic the committee actually is: 6 out of 7 members are male; members

[13] According to published statistics, 68.7% of people and 75.8% of poor people in Umkhanyakude benefit from FBW (www.dwaf.gov.za/FreeBasicWater)

were elected in 1999 and no election has taken place since, despite the constitution stipulating re-elections should be held every 2 years. When committee members leave, move or die, the induna appoints a new one: *"I was chosen by the Induna, because the first person was elected, the person just withdraw, he didn't go on with the meetings. So the induna of this ward said that I must join the committee"* (Interview with Jerome Gumede, 7/7/05). Some members attend meetings but are otherwise inactive, others do not attend at all, one recently elected member is very active and recently mobilised the others to contact the municipality about their problems. Conflict was evident between the Mseleni water project committee and the upgrade steering committee. The water project committee were not been formally informed about the upgrade and communication channels bypass them.

Case Study Brief:

Theewaterskloof Local Municipality, Grabouw, Western Cape - by Karen Peters

Map of the Overberg

(Source: http://www.sa-venues.com/maps/default.htm)

1. Location, Demographic and Socio-economic Background

The research area, Grabouw, is a small agricultural town in the Western Cape 80km from Cape Town. In 2000 the Grabouw municipality was amalgamated with seven other municipalities in the Overberg District, in accordance with the decision of the Municipal Demarcations Board, to form the Theewaterskloof Municipality[14] (IDP, 2003:4). The demographics of Theewaterskloof Municipality represented by Table 1 indicate that aside from the rural category which includes nine smaller rural areas, Grabouw has the largest population - 21 587 people.

Table 1: Demographics of Theewaterskloof Municipality[15]

Town	Black	Coloured	Indian/ Asian	White	Total
Botrivier	564	3202	9	277	4052
Caledon	648	7204	33	2762	10647
Genadendal	96	4302	9	252	4658
Grabouw	**8119**	**12270**	**30**	**1168**	**21587**
Greyton	-	773	15	311	1099

[14] Grabouw Local Authority is the Grabouw based administrative arm of Theewaterskloof Municipality - both titles are therefore referred to when discussing the municipality.

[15] The Census 2001 demographic profile of Theewaterskloof does not incorporate Tesselaarsdal, one of the 8 disestablished municipalities, as an area category. The rural areas include Bosmanskloof, Dennehof, Elgin Forest Reserve, Hottentotsholland Nature Reserve, Labanon State Forest, Middleton, Nuweberg State Forest, Riviersonderend State Forest and Theewaterskloof.

Villiersdorp	2729	3318	9	1513	7568
Riviersonderend	398	2609	21	575	3603
Rural	8813	27524	60	3663	40060
TOTAL	**21368**	**61201**	**186**	**10519**	**93274**

(Statistics South Africa, Census 2001)

The Theewaterskloof Intregrated development Plan (IDP) (2002:78) suggests that, given the legacy of apartheid, the demographics are representative of socio-economic profiles of South Africa more generally. Table 1 indicates that the majority of Grabouw households are from population groups disadvantaged by apartheid. Thus, in Grabouw there is a large proportion of households living on or below the poverty line. An accurate representation of the number of poor households is difficult to gauge because of the constant migration to Grabouw of people in search of seasonal employment in the farm and fruit sector (IDP, 2003:29). This results in job seekers relocating to informal settlements (IDP, 2003:29).

One recent estimate supplied by municipal officials is that 26 000 people live on or below the poverty line in Grabouw. This is well above the total number of people recorded as living in Grabouw by the 2001 Census (Peters, 2005:37) [16]. In addition, the Water Services Development Plan (WSDP, 2000) [17] confirms that because of the influx of squatters it is difficult to provide an accurate consumer profile, income distribution or growth rate for Grabouw.

2. Institutional Context for Water supply

The area is comparatively water rich, yet water contamination is a problem. Grabouw gets its water supplied from the Groenveld Irrigation Scheme (Peters, 2005: Municipal Interview Data). The latter means that Grabouw does not have to negotiate its water supply with a water board. It reports directly to the Department of Water Affairs and Forestry (DWAF). Farmers in the area have their own arrangements with the scheme so do not impinge on the domestic supply of water or vice versa. There are three major private sector users of water in the area – the abattoir, Two-a-day Fruit Juices and Appletizer. They and several smaller industries are supplied with water by Grabouw.

According to the Overberg District IDP (2002:70), the district municipality under which Theewaterskloof Municipality falls, Grabouw uses twice the amount of water it has been allocated. The anticipated building of another 3 500 houses will further increase water demand. The Groenveld Irrigation scheme can supply 2 650 megalitres per year, but Grabouw will need 5 000 megalitres per year. Surprisingly, the WSDP (2000) does not acknowledge the necessity of a water saving scheme, suggesting only that one will be introduced “when necessary”. The Overberg District IDP (2002:72) acknowledges that demand management is under-emphasised, however in Grabouw it appears to be absent.

[16] A DWAF (2003a) report on FBW indicates a less severe poverty problem, with only 37 090 people in the entire Theewaterskloof Municipality being classified as poor.

[17] The WSDP, as part of the IDP, guides water operations including targets for subsidy allocations, tariff structures, cost recovery goals, and cost saving mechanisms (Muller, 2003a:5).

3. Water services infrastructure and provision

Water supply is listed as one of the key infrastructural issues that needs to be addressed in Grabouw. This includes a host of water provision related issues: the identification of water resources, creation of purification works, consumption analysis, water demand management, meter management, water loss management, implementation of new infrastructure to name a few (IDP, 2002:79).

On an infrastructural level, Grabouw is experiencing difficulties. Pipes such like infrastructure are more than 30 years old, but cannot be upgraded due to resource constraints (Peters, 2005: Municipal Interview Data). Pipe bursts are often left unreported which also results in huge water wastage. The Overberg District IDP (2002:69) explains that one of the problems is that users are being subsidised but the development of infrastructure and sources of water is not. There is a pressing need for infrastructure in Theewaterskloof Municipality, a substantial poor population and severe resource constraints (Peters, 2005:37).

The IDP (2002:79) recognises that there is serious service backlog particularly because of the growing number of poor people within the municipality. Although it upholds the constitutional and municipal mandate to deliver basic services, the 'demand for basic services seriously outstrip the supply capacity…' (IDP, 2003:34). Furthermore, differing levels of services exist in the disestablished (former) municipalities leading to significant variations in the level of infrastructure and services provided (IDP, 2003:34).

One such backlog exists in Grabouw where the provision of services lay dormant for five years, as no resources were available to address the infrastructure needs of the community (Personal communication, Engelbrecht, 9 June 2003). The amalgamation of municipalities into the Theewaterskloof Municipality in 2000 has been highly beneficial for Grabouw, as the other former municipalities (now local authorities) have contributed to a larger pool of resources from which to draw (Peters, 2005:37). With access to funds, Grabouw has begun to address the backlog of housing and infrastructure in informal settlements, but resources remain limited.

Table 2 demonstrates the backlog in water infrastructure in Grabouw in 1996 – of the 3749 households recorded 3704 households have water services, a limited number compared with the high number of people residing in Grabouw in Table 1 - 21 587 people.

Table 2: Water Supply and Enumeration area type for Household (1996)

	Piped Water in Dwelling	Piped Water on Site	Public Tap	Water-Carrier / Tanker	Borehole/ Rainwater/ Tank/well	Dam/ River/ Stream / Spring	Other	Unspecified	Total
Grabouw	1914	511	1279	5	-	4	21	15	3749

(Statistics South Africa, Census 1996)

Census 2001, Table 3, indicates an improvement in the number of households with access to water services.

Table 3: Grabouw- Water Supply and Enumeration area type for Household (2001)

Piped water in dwelling	Piped water in yard	Piped water on community stand: distance less than 200m from dwelling	Piped water on community stand: distance greater than 200m from dwelling	Bore hole	Spring	Rain-water tank	Dam/ pool/ stagnant water	River/ stream	Water vendor	Other	Total
2082	1476	971	1246	3	-	3	9	-	12	33	5835

(Statistics South Africa, Census 2001)

According to municipal officials, everybody has access to water, whether it is water supplied directly inside houses, water stands on people's plots or access to a pipe that is within 50m to 80m walking distance from their houses (Engelbrecht, Personal communication, 9 June 2003). However, Table 3 indicates that 1246 households have to walk further than 200 metres to access potable water, and at least 9 households rely on unhygienic sources such as dams or stagnant pools, which does not meet the Free Basic Water (FBW) mandate of potable water within 200 metres (Peters, 2005:38). Furthermore, it was suggested that there are small areas that are not fully serviced, where it is unclear how many people live and/or need services (Personal communication, Kaiser, 9 June 2003, Personal communication, Makaza, 2003:3)[18].

Although Grabouw implemented FBW as early as 2001, the FBW mandate of 6000 litres of free water per household is limited to those that have accounts (Peters, 2005:39). These households have individual water meters on their erfs and receive individual household bills allowing the FBW supply to be measured and administered[19].

[18] The Water Services Development Plan record of household access to water differs from the Census of 2001. Of the 6 593 municipal records of residential consumer units in Grabouw, 3559 have house connections, 2534 have a communal water supply and 500 are listed as having an inadequate or no water supply (Water Services Development Plan, 2000).

[19] In areas where metres are shared, or there is one tap to a number of households, FBW is difficult to measure and implement. As such, cost recovery mechanisms are not pursued in

4. Preliminary List of local actors

- Department of Water Affairs and Forestry
- Provincial Government
- Groenveld Irrigation Scheme
- Political parties
- Theewaterskloof Municipality

    Executive Council/ Municipal Management

    Operational Services Director (Theewaterskloof Municipality)

    Operational Services (Grabouw)

    Financial Services Director

    Debtors Clerks

- Ward Councillors

    Ward Committees

- Community Development Workers
- Elgin/Grabouw Community College

        Health Workers

- Grabouw businesses/ Agricultural Forums
- Farm workers
- Households
- Development Bank Southern Africa – has initiated a process to help with new development initiatives such as the housing project, but whose role must still be clarified.

5. Preliminary observations about water and conflict

Grabouw is an interesting case study because it allows for the interrogation of discourses and conflict around water in a peri-urban environment. Water at the peri-urban level has yet to be fully explored in South Africa, although there are numerous towns with a similar context to Grabouw. This is especially the case in the Western Cape.

Cost recovery and drips

In line with the policy of cost recovery, long term financial sustainability is a priority for Theewaterskloof Municipality (IDP, 2003:65). Limited cost recovery of rates and service charges threaten the financial viability of Theewaterskloof Municipality with debt amounting to R51 million (IDP, 2003:65). Consequently, from 2003 cost recovery was implemented through a strict credit control policy enforced monthly (IDP, 2003:65, Personal communication, Granfield, 2003:9). Water accounts that have arrears of R60 or more, and accounts that have not met pre-arranged payment agreements, are placed on a water restriction devices or drip, otherwise known as a trickler (Personal communication, Granfield, 2003:8).

In theory, drips, placed inside taps, limit the amount of water that a tap provides to 25 litres per person day based on a household of eight, which as the namesake implies drips slowly out the tap. While ensuring the constitutional guarantee of access to free basic water, drips also ensure that municipalities can remain self-sufficient (Peters, 2005:13). In Grabouw, the implementation of the drip has resulted in a number of demonstrations to the municipality, conflict with the municipality and within the community and among household members

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cases of non-payment because those responsible for water usage are difficult to identify (Peters, 2005:34).

(Personal communication, Granfield, 2003:8). nevertheless, the municipality continues to struggle with non-payment (Peters, 2005:81).

Empirical data of water arrears in December 2003 indicate a severe cost recovery problem, with 2503 accounts in Grabouw owing the municipality R4 618 191.70.

Table 4: Overview of amounts outstanding and averages by area

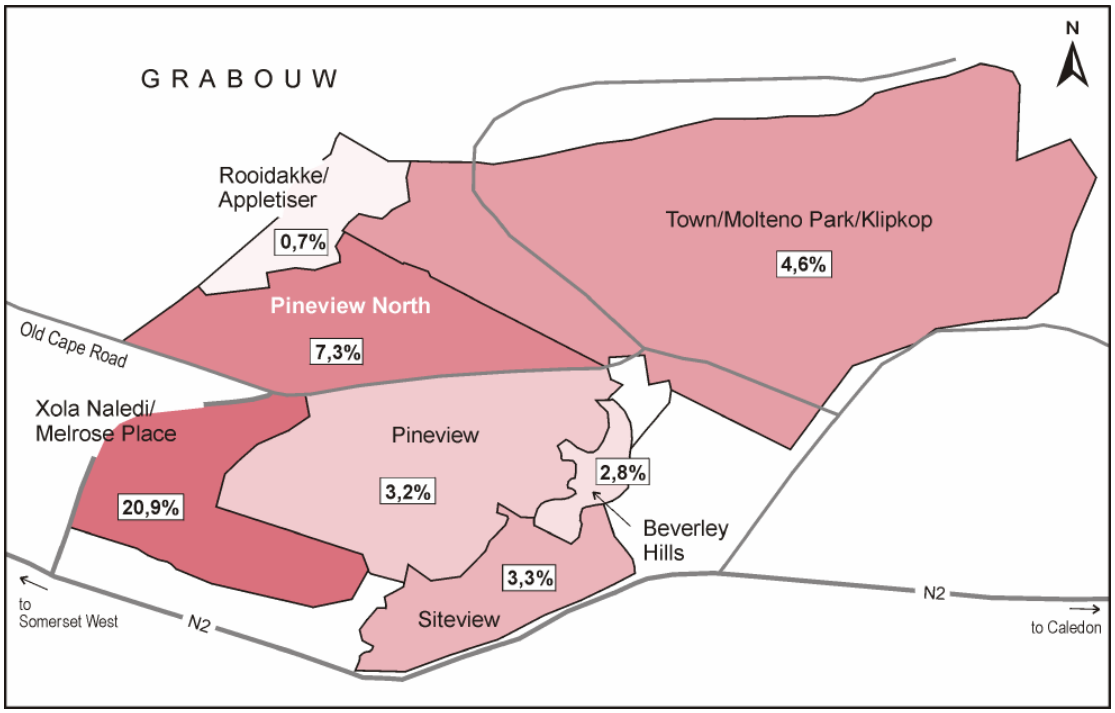
Area name	Number of cut offs (drips)	Arrears average/area	Amount outstanding/area
Town, Molteno Park, Klipkop	269	R1 251.58	R336 675.61
Pineview North	428	R2 581.73	R1 104 981.83
Rooidakke, Appletiser	39	R2 402.90	R93 712.97
Pineview	188	R2 300.96	R432 580.09
Beverly Hills	165	R4 403.67	R726 609.70
Melrose Place, Xola Naledi	1222	R1 286.53	R1 572 133.06
Siteview	192	R1 830.72	R351 498.44
TOTAL	2503	(R1 845.06)	R4 618 191.70

(Data: Grabouw Local Authority, Analysis and Table: Karen Peters[20])

Table 4 demonstrates that 2503 accounts of an estimated 5835 households in Grabouw had drips placed in their water supply either prior to or during December 2003, resulting in restricted access to water for at least December and, if accounts were not settled, for longer. Map 1 indicates that this is roughly 42 percent of Grabouw households (based on Census 2001 total of 5835 households in Grabouw).

Map 1: Percentage of households on drips per area during December 2003

[20] Data was supplied by the accounts department of the Grabouw Local Authority, which I then analysed and tabulated



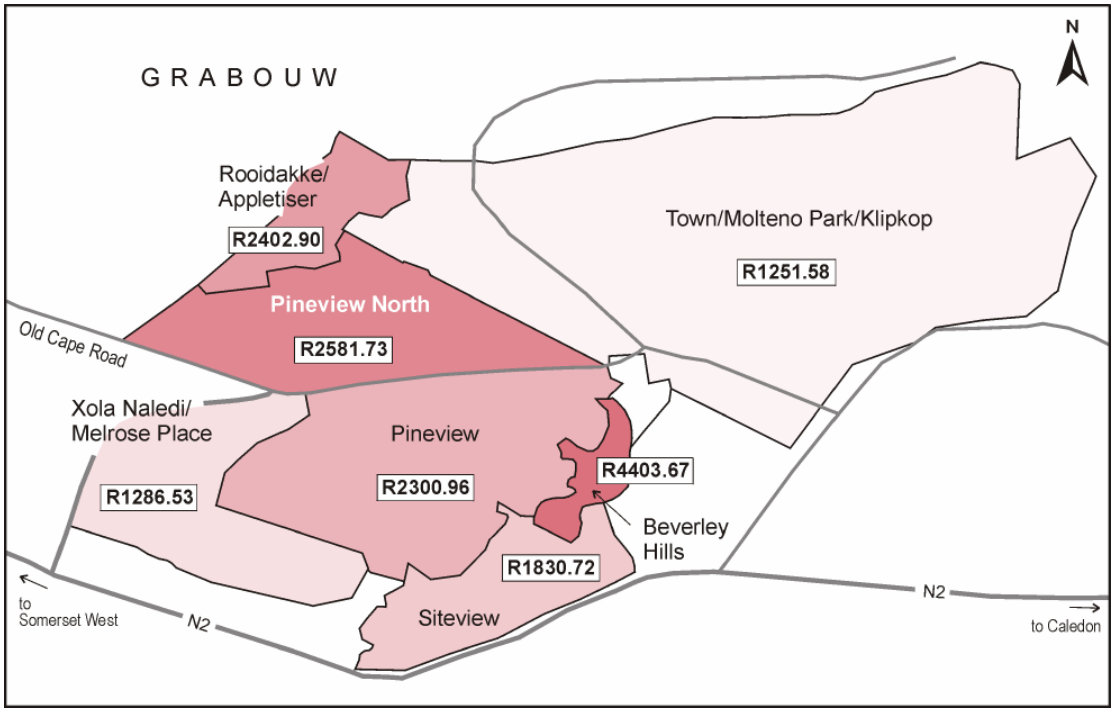
(Data: Grabouw Local Authority, Analysis and Map: Karen Peters[21])

The highest amounts outstanding were from Melrose Place/ Xola Naledi and Pineview North. Map 2 demonstrates that areas that are more established and have been serviced longer, such as Pineview North and Pineview, have a higher average of arrears compared to Melrose Place/ Xola Naledi (R1286.53) and Siteview (R1830.72) suggesting accumulated debt.

Some municipalities wrote off the apartheid debt, but the former Grabouw municipality did not and, as a result, there is a large amount of accumulated debt in these areas (Personal communication, Phillips, 2003:11, Personal communication, Makaza, 2003:9). These households often spend long periods on the drip with limited access to water (Peters, 2005:54).

Map 2: Average arrears per area (December 2003)

[21] Map 1 and 2, based on data supplied by the accounts department of the Grabouw Local Authority, which I then analysed and tabulated, were constructed for Peters (2005) by Technodraft.



(Data: Grabouw Local Authority, Analysis and Map: Karen Peters)

Income, unemployment and poverty

Most of the employment is based on fruit farming and fruit-juice producing industries (IDP, 2003:45). As such, it is seasonal work and the earning period is limited to five to six months of the year from January to July (IDP, 2003:45). During this time fifty percent of Grabouw's population is estimated to earn between R1001 and R1500 per month, followed by a sharp post-season decline (IDP, 2003:46, WSDP, 2000). Municipal interviews suggested a higher unemployment rate of 70 percent after the fruit season (Personal communication, Mentile, 2003:2, Personal communication, Walker, 2003:1).

Another common form of employment is construction, which is sporadic work, with workers earning mainly during the summer months as there is little work during winter (Peters, 2005:50).

A study of Pineview North, a low-income coloured community in Grabouw, demonstrated that during the season households earn on average R2000 per month (Peters, 2005:51)[22]. Out of season (in winter) people rely on casual work or 'loose jobs', with those fortunate enough to receive pensions or social grants often supporting the household (Peters, 2005:51). The irregularity of income that is a consequence of the seasonal and casual nature of such work does not allow for the regular payment for basic services.

One of the households interviewed was placed on a drip for nine months from September 2003 to the end of May 2004 – one of the longest periods of time (Int.6, Qu.4). In the year that their water was placed on a drip for non-payment, they had earned just R380 each week for six months doing seasonal labour. By comparison, their monthly account for all municipal services has been R350 per month for the last four years (Int. 6, Qu. 11).

Unemployment and poverty exacerbated by demanding service payments is placing strain on relationships within households, amongst the community and with the municipality.

[22] Household interviews, although not statistically representative of Grabouw, provide insight into average income in Pineview North, and is slightly higher than the average income cited in the IDP (2003:46) of R1500 during season.

Racial tension

The preferential treatment of coloured people above black people during apartheid has had a residual affect of coloured people in established low-income households as opposed to their black counterparts in squatter camps in Grabouw (Peters, 2005). Households that have individual water metres on their erf and individual household bills have become the easiest recipients of the municipality's drip system. In Grabouw, coloured people now feel that the privileges they once had has made them the target of the municipalities drive to recover costs for services and harsh measures (Peters, 2005: Household Interview Data). This has led to resentment and racism of coloured residents towards black residents (Peters, 2005:49).

For example, in Pineview North while there are the trappings of an established neighbourhood, its residents are financially disadvantaged in the same way as other areas. Several interviewees argued that "Pineview North is classified as people with money…you've accumulated something and therefore considered having achieved. Meanwhile, you're struggling just as hard as the underprivileged" (Int. 8, Post-Int[23]). The strain placed on coloured households surviving on the drip is growing into a greater resentment of people living in squatter camps – mainly black residents – who are perceived as regularly wasting water whilst not paying for it[24]. Antagonism is also growing towards the municipality which is perceived as targeting coloured households.

Apartheid planning/ geography

Apartheid planning, or lack of, has meant that there are widely differing services offered to different communities and towns within the municipality. The latter is a source of racial tension between all groups – the municipality has to invest heavily in areas that prior to democracy had non-existent infrastructure.

Also, bad apartheid planning and the manner in which informal settlements have evolved have prevented the development of some areas. Consequently, there is a relocation planned of all settlements to one big area, Iraq, in order to provide access to allocated plots and pre-planned water and sanitation. Currently, people living in this area are delivered potable water in tanks.

[23] Interviewees' names remain anonymous but the source of data in the interview process is indicated by the interview number, and by the number of the interview question. Post- Int. refers to post-interview: additional responses that were made after the completion of the questionnaire.

[24] Squatter camp residents receive an Equitable Shares subsidy which enables the municipality to provide access to limited services, including taps.


Water tanks in 'Iraq', Grabouw (January 2006)

Gender

The amount of time taken for washing and chores is a serious area of contention for those households that have been placed on a drip. (Peters, 2005:67). Traditional gender roles, as well as broader gendered assymetries mean that lack of access to water places a higher burden on the women in the household. Interviewee 10, who lives in a low-income house, is "Very angry. It costs…half a day to wash" (Int.10, Qu.4). As a working woman she finds that chores are a huge toll on her time. Like most households only one tap in the house can be opened at a time so if one is using the kitchen tap one cannot use the bathroom tap (Peters, 2005:67).

The time taken to do chores is accompanied by the general difficulties of running the household on a drip. Interview 9 had to wait for water for washing and bathing and often had to fill buckets to do either – she found being on a drip "…very uncomfortable…[and] a distressing undignified situation " (Int. 9, Qu.5). Interview 8 found that she had to ask other people for water – "You feel very bad. It's strange because people often refuse you" (Int.8, Qu.9). The latter indicates a lack of co-operation over gaining access to water as a resource.


Women washing Rooidakke and Waterworks informal settlements, Grabouw (January 2006)

Municipal governance

A breakdown of communication between households and the municipality is evident – and has led to households being denied access to sufficient water.

The communication between municipality and households takes place primarily through monthly bills, however accounts are non-user friendly and households are continuously requesting a clearer analysis of their arrears (Peters, 2005:59). There is also a strong sense

of disillusionment with the municipality, as a result of inconsistent and inflexible payment agreements (Peters, 2005:61). This leads to antagonism towards the municipality, the illegal reconnection of water pipes and also, prevents residents from even attempting to negotiate with the municipality when their water usage is disrupted (Peters, 2005:63). Residents are uninformed about their access to social grants that would ease their economic burden (Peters, 2005:61). Furthermore, the responsibility for communications about grants, debt cancellation and resolutions to household problems often rest with the absent councillors in the area (Peters, 2005:66).

Community participation

Grabouw is part of a Ward Committee System that relies primarily on Ward Councillors to disseminate information to the community. The lack of commitment of certain ward councillors has lead to uninformed communities. This in turn has hampered their capacity to make decisions about their situations and access to water (Peters, 2005:80). The introduction of Community Development Workers could signal an improved communication system that would allow co-operation over issues of accounts and payment/employment problems that impact access to water.

Environment

Grabouw is situated in the Groenland Basin. Its proximity to Cape Town and other tourist ventures such as the Fynbos Route, next to the Kogelberg Biosphere, has placed an emphasis on environmental conservation (IDP 2003/2004:20). Its average rainfall is 670mm per year, although in 2004 a local water source dried up affecting a water-based business in the area. As mentioned earlier (p3), it is potentially problematic that there is no water saving scheme in Grabouw given the increasing demand on water for household use.

Furthermore, during household interviews in 2004, members of the community who did not have access to water, or who found water unaffordable, questioned why this was the case when Grabouw is surrounded by a number of water sources[25] (Peters, 2005: household data).

Other Sources of Conflict

Other potential drivers of conflict and/or co-operation are the elderly; political power struggles; the rural-urban divide; the broader Elgin vs. Grabouw town rivalries; formal vs. informal business; and, slow economic growth that cannot support population growth (IDP 2003, 2004:19).

6. Municipal Interviews

Gert Engelbrecht, head of civil engineering and water reticulation manager (Grabouw), 9 June 2003.

Nigel Kaiser, assistant civil engineer (Grabouw), 9 June 2003.

Jafta Swarts, ward councillor (Grabouw), 11 November 2003

Elizabeth Mentile, ward councillor (Grabouw), 11 November 2003

Reverend Mark Walker, Elgin Grabouw Community College Head, 11 November 2003

Sharon Granfield, Debtors Clerk (Grabouw local authority), 4 December 2003

[25] This was particularly in the context of Theewaterskloof Dam being built to supplement shrinking water sources for Cape Town.

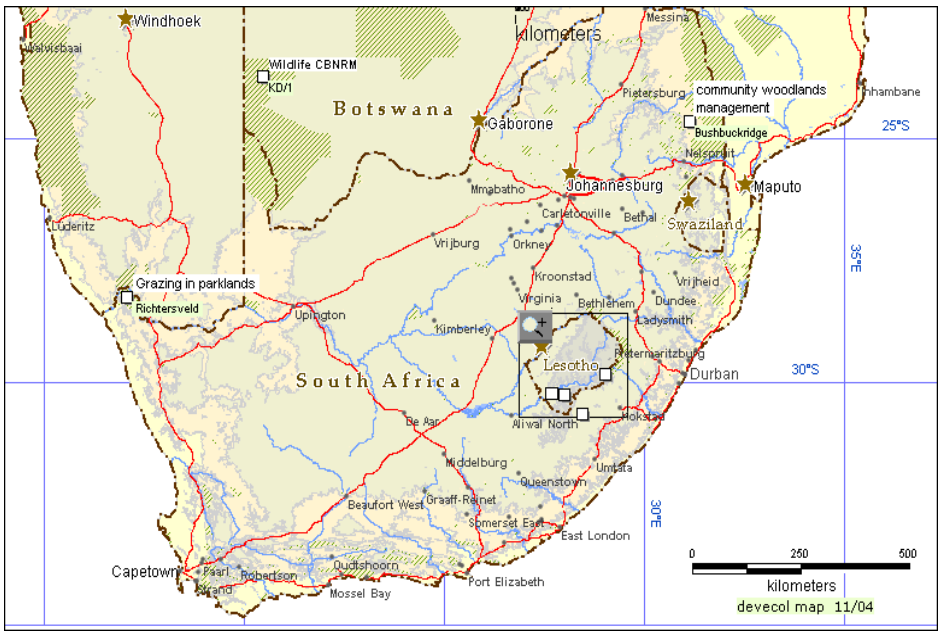
Sharon Granfield, Debtors Clerk (Grabouw local authority), Telephonic Interview, 10 April 2004

Eben Phillips, Integrated Development Plan manager for Theewaterskloof Municipality, 8 December 2003
Pakamile Makaza, ward councillor (Grabouw), 8 December 2003

Household Interviews
Household Interview 1, 27 May 2004
Household Interview 2, 27 May 2004
Household Interview 3, 27 May 2004
Household Interview 4, 27 May 2004
Household Interview 5, 27 May 2004
Household Interview 6, 28 May 2004
Household Interview 7 (unofficial representative), 28 May 2004
Household Interview 8, 28 May 2004
Household Interview 9, 31 May 2004
Household Interview 10, 31 May 2004
Household Interview 11, 31 May 2004

Case Study Brief[26]:

Possible Third Case Study: Bushbuckridge Municipality, Bohlabela District, Limpopo Municipality - by Kea Gordon



Source: http://www.devecol.org/DevecolAfrica/GeoElinks/Africa/SubtropicalSouth/SAfr_base

1. Location, demographic and socio-economic background

Bushbuckridge is both a town and municipality by the same name, spanning the provincial borders of Limpopo and Mpumalanga Provinces. Bushbuckridge is situated within a unique geographic, historical and cultural environment, and is said to be the most culturally diverse area of South Africa. At the time of the 2001 Census, the total population of Bushbuckridge (BBR) was estimated at 500,000, with Africans making up 99% of this number with 408, 452 persons, 800 colored persons, 452 Indians and 355 whites. The major languages spoken are IsiTsonga, Sepedi, siSwati, Sesotho and isiZulu, in corresponding order of prevalence. (Municipal Demarcation Board, www.demarcation.org.za). Thornton (2002: 3) describes the geographic context of the area in the following way:

> Bushbuckridge town, from which the region is named, is a small trading and administrative centre approximately midway on a north-south line between Nelspruit, the capital of Mpumalanga Province, and Tzaneen, a major centre of commerce and agriculture in the lowveld of Northern Province. Bushbuckridge is bounded on the east by Kruger National Park, one of the world's largest game parks, and on the west by the sensitive watershed and forests of the Drakensberg Mountains, the southern most

[26] Unlike in the case of the previous two briefs, the researcher has not yet spend any time in situ, thus the level of detail and the process of hypothesis-building remains at a more preliminary stage.

extension of the great African rift valley and mountain system.

Bushbuckridge falls in between Limpopo and Mpumalanga Provinces, but is now formally recognized as part of the Limpopo Province, as of 2000. Limpopo Province is one of the poorest provinces in the country, with ninety percent of the population living in rural areas. Comprising about 13 percent of the population of South Africa, and fairly dated data suggests that Limpopo Province may have the most rapidly growing population rate at 3.9 percent per year. (Income and Expenditure Survey (CSS) 1995; DBSA (1994). Data from 1995 show that Bushbuckridge was the poorest administrative region in the province (Gyekye and Akinboade, 2003). According to a study by the United States Agency for International Development (USAID):

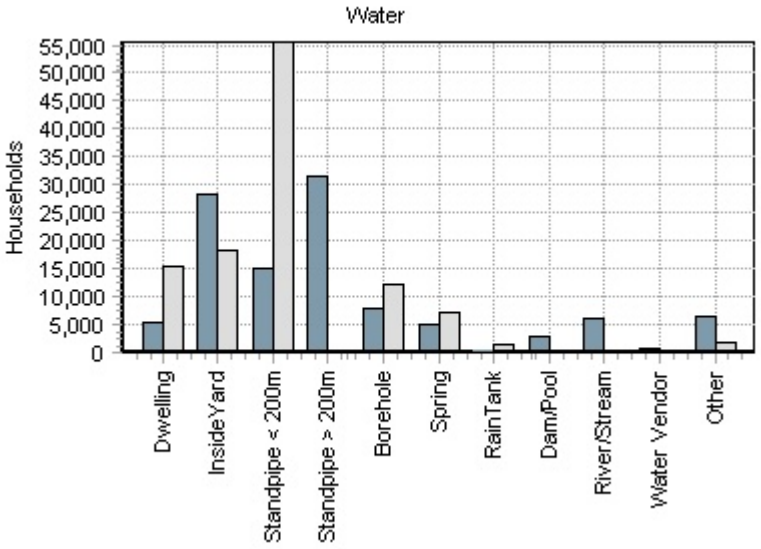
> Unemployment estimates for the area vary between 40% and 80% of the economically active population (people between the ages of 15 and 64 years). Taking informal economic activities into account, unemployment is probably in the 50-60% range, with most of this being residents in the 25-34 age group. The principal sources of income are remittances from migrants working outside of the municipality in mines, forest plantations, or cities. Local sources of income are teaching, agriculture, and for a few villages, employment in Kruger National Park or in private game reserves (Freeman, USAID 2002: 7).

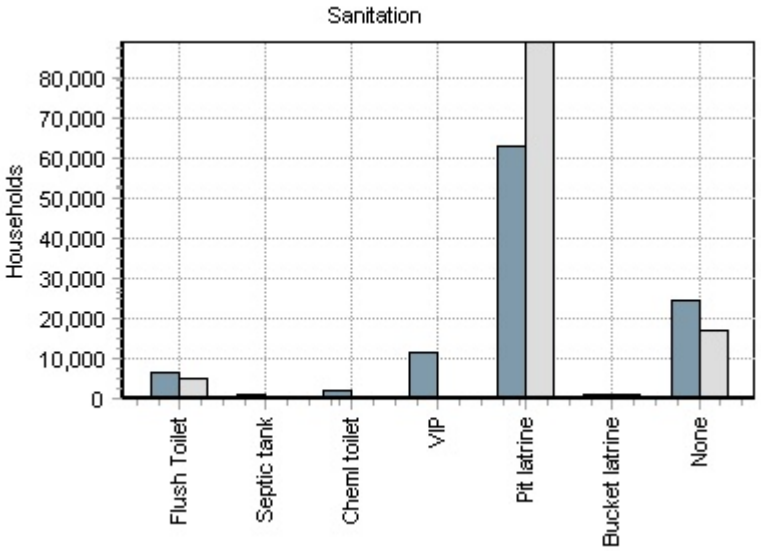
Although the explanations for the high degree of poverty in Bushbuckridge are manifold, the lack of inclusion in either Mpumalanga or the former Northern Province due to unresolved, protracted border discrepancies explains, in great part, the lack of services provided in this area, leaving it in a state of dramatic underdevelopment in terms of infrastructure and social investment. The Bushbuckridge borders have been contested repeatedly since the Land Restitution Act of 1994, when the ANC attempted to address the need for land reforms to address the forced removal and land usurpation that took place during the colonial and apartheid regimes. In 1995, nine provinces were created in an effort to reframe the boundaries of the country. These include the Eastern Cape, the Free State (formerly the Orange Free State), Gauteng (formerly Pretoria, Witwatersrand and Verneeniging) KwaZulu-Natal, Mpumalanga (formerly the Eastern Transvaal), the Northern Cape, Limpopo (formerly the Northern Transvaal and later Northern Province), the Northwest Province (formerly the Western Transvaal) and the Western Cape.

The citizens of Bushbuckridge have formally lodged their protest in being included in the Northern Province (now Limpopo) by forming the Bushbuckridge Border Crisis Committee (BBCC), aiming to have their community included in the Mpumalanga Province. (Narsiah and Maharaji, 1999) Mpumalanga has a much better opportunities for jobs, employment, and service delivery, as the province is considered wealthier than Limpopo. To date, these complaints have not resulted in the transfer of Bushbuckridge to Mpumalanga.

2. Institutional context for water supply and infrastructure for provision

Bushbuckridge is characterized by severe service backlogs and weak capacity. For example for the years 1996 (light grey) and 2001 (dark grey), the profiles of water and sanitation infrastructure looked as follows:





Source: http://www.demarcation.org.za/infoIndex.aspx?type=PROVINCE&Prov=Limpopo&frm=home

In this context, much of drives reform in the sector is activated by non-governmental organizations. Key NGOs and projects related to the water sector are discussed below.

Mvula Trust

In 2001, this non-governmental organization, under the direction of the Nzikasi Bushbuckridge Water Forum, set out to assist local councils to make the appropriate plans for water provision in the seven local areas in Bushbuckridge. Mvula reports that the project was successful in transferring to councilors key information about responsibilities in the provision of water and the range of institutional choices, as well as detailed demographic information. However, the workshops did not address issues of sustainability, and the information gained by the councilors did not seem, ultimately, to translate into greater service delivery for the communities they represent. Mvula appears committed to a strategy of awareness raising and information transfer (2001).

Danish Center for Environment and Development (DANCED)

This five-year, 10.8 million Kroner project was carried out with the Department of Water Affairs and Forestry (DWAF) during 1996-2001, and ended with mixed results. (Yeatman, L, M du Toit, and L. Andreasen, 2001). DANCED trained DWAF officers in Participatory Rural Appraisal methods, who then conducted PRA meetings in six communities. Freeman writes that "These did not go well, and a lack of community cohesion and inability to find a consensus prevented decision-making and progress." (Freeman, 3.3, 2002) Further details have been requisitioned.

Association for Water and Rural Development (AWARD)

AWARD promotes the education of communities regarding water infrastructure and the ways that sustainable use of water can lead to improved livelihoods through income generation. They have set up the Save the Sand program, which works with DWAF's Working for Water project to clear the Sand River's upper headwaters from exotic trees to increase run-off. The project employs local labor, and appears to be accomplishing the goals of improving the ecological environment and improving local livelihood through the protection of resources. This aspect of AWARD's work in the area has been successful, but their other initiatives in Bushbuckridge have been met with resistance from local political leadership. Investigation of this problem will be undertaken during this researcher's fieldwork.

The Institute for Public-Private Partnerships

From 2000-2004, this organization consulted with the Bushbuckridge Water Board, promoting the application of private sector management mechanisms in areas where public service institutions lack capacity. They have endeavored to build local capacity in regards to 'policy-making and planning; management systems and development; customer outreach; service, billing, and collection; operations and maintenance' and institutional and staff development' (IPP, 3).

Retail Water Distribution Project: United State Agency for International Development

USAID conducted a $2.954 million, four-year project that ended in March 2005 to increase the capacity of Bushbuckridge's Water Service Provider. The goal was to implement a cost-recovery system by offering technical assistance to local municipalities and to encourage the concept of local governance. As the report describes, 'Given the history of South Africa, the concept of local governance was not clearly understood by many people. As a result, it was critical for the newly developed institution to quickly familiarize themselves with the concept of local governance and the running of municipalities' (RWDP 6). Through workshops with councilors and municipal officials, USAID claims it was successful in teaching these concepts. USAID has municipalities 'pledge to ensure water supply, revenue collection, and infrastructure repair' (RWDP 8) by having DWAF, the Bushbuckridge Water Board and local municipalities sign a memoranda. They claim that this has improved water supply, but provide no data. The project report notes that traditional leadership structures were not cooperating with USAID's efforts to disconnect illegal water connections and to improve the municipalities' ability to collect revenue from water provisions (RWDP 16). In addition, the report acknowledges that institutional management of the Water Service Authority is problematic and the responsibilities of each level of water provision is unclear due to a shifting policy environment.

Other NGO actors of note

Bushbuckridge Nature Conservation Project

This community-based organization seeks to rejuvenate knowledge systems regarding utilization and protection of natural resources, with the goal of improving livelihoods.

Livelihood improvements include a community outreach program, permaculture gardening and environmental education, the Mnisi Traditional and Cultural Craft Project, and the Tipfuxeni Women's Empowerment Project. The successes and challenges of this project are not detailed in the public description offered on their website, and will be investigated with further field research. (see: www.resourceafrica.org/directory/173/index/php)

African Wildlife Foundation

This organization has been assisting communities with the procedures involved with gaining legal title to their lands as laid out in the Land Restitution Act of 1994. The primary goal of returning land ownership to removed communities is to tap into the monetary rewards of holding stake in game reserves. Establishing ownership is strategically important for communities who wish to negotiate with private sources of development money. Their main success has been with the Makuleke Tribe. An USAID study notes that "The tribe has formed a Communal Property Association and negotiated an arrangement to keep management of the Makuleke Contractual Park under the Kruger National Park Authority and in accordance with the CITES treaty. They are now dealing with a commercial operator, Matswani Safaris, to develop a luxury 24-bed lodge, along with a tent-camp and even a museum. Instead of resettling on the land, they have decided to use it as an economic base for their villages on the park's frontier. In addition to lodging, the Makuleke have also decided to offer some trophy hunting, arranged by a private safari company. In 2000, two elephants and two buffaloes were hunted, which brought about $57,000 for local development projects (and meat which was distributed among Makuleke villages). 'The tribe was reported to have earned the equivalent of $57,000 in fees' (Freeman, 3.2, 2002). How this money was distributed amongst the community is not mentioned in the report. In addition, the Makuleke case stands out amongst other similar tribal restitution claims in that it, uniquely, had detailed documentation of their forced removal which seems to be the primary reason they won their case. Most other cases lack such documentation (Thornton, 2002).

3. Preliminary List of Local Actors

- Communal Property Association
- bushbuckridge Border Crisis Committee
- nzikasi Bushbuckridge Water Forum
- other community-based organizations
- Traditional Authority Structures
- Small and micro-enterprises
- Private Game Reserves
- Kruger National Park
- Safari operators

4. Preliminary Observations about Services and Conflict

Bushbuckridge has been the subject of a number of academic studies and project launched by international aid and non-governmental organizations. This is in part due to its high levels of poverty, inequality, service delivery backlogs, and its proximity to Kruger Park, world renowned safari destination. Thus, it has a highly complex mix of cultural, political, ecological and economic factors that mingle to create a highly uncertain and interpenetrated environment for change and process. The clash of interests, indeed worlds, is evident in a number of ways.

The high levels of poverty in the area are particularly striking due to the abundance of wealth found in pockets of private, white-owned game parks and farms that are present in the region. Bushbuckridge is adjacent to the Kruger National Park, with tourists passing through the town to access the park, yet there has been little transfer of wealth and opportunity to people the formerly disadvantaged under the apartheid regime.

Further, social mobilization and dissent over the border dispute has been met with indifference by the political parties, who have, for the most part, simply ignored simmering discontent and occasional violence (Griggs, 1998).

Finally, despite a great deal of involvement by external agents, poverty maintains is tight grip upon the population of Bushbuckridge. This seems, in part, attributable to the governance factors, yet overall, it is not clear why local, national and international projects and initiatives remain stubbornly ineffective.

Little information is available at this stage relating to intra-community and intra-household conflicts.

Tables of Census Data

Table 1: Census 2001 by municipality, household size and population group of head of household (derived).	Black African	Coloured	Indian or Asian	White
CBLC6: Bushbuckridge				
1	14474	21	5	35
2	12531	21	8	33
3	14990	33	5	13
4	16521	33	3	7
5	14210	20	0	6
6	11548	20	0	0
7	8362	9	0	0
8	5488	8	3	0
9	3684	3	0	0
10+	5819	6	0	0

Footnote:

Excluding all collective living quarters

Figures greater than 0 and less than 4 are randomised to preserve confidentialityReport of the Census Sub-Committee to the South African Statistics Council on Census 2001 reproduced on http://www.statssa.gov.za/extract.htm

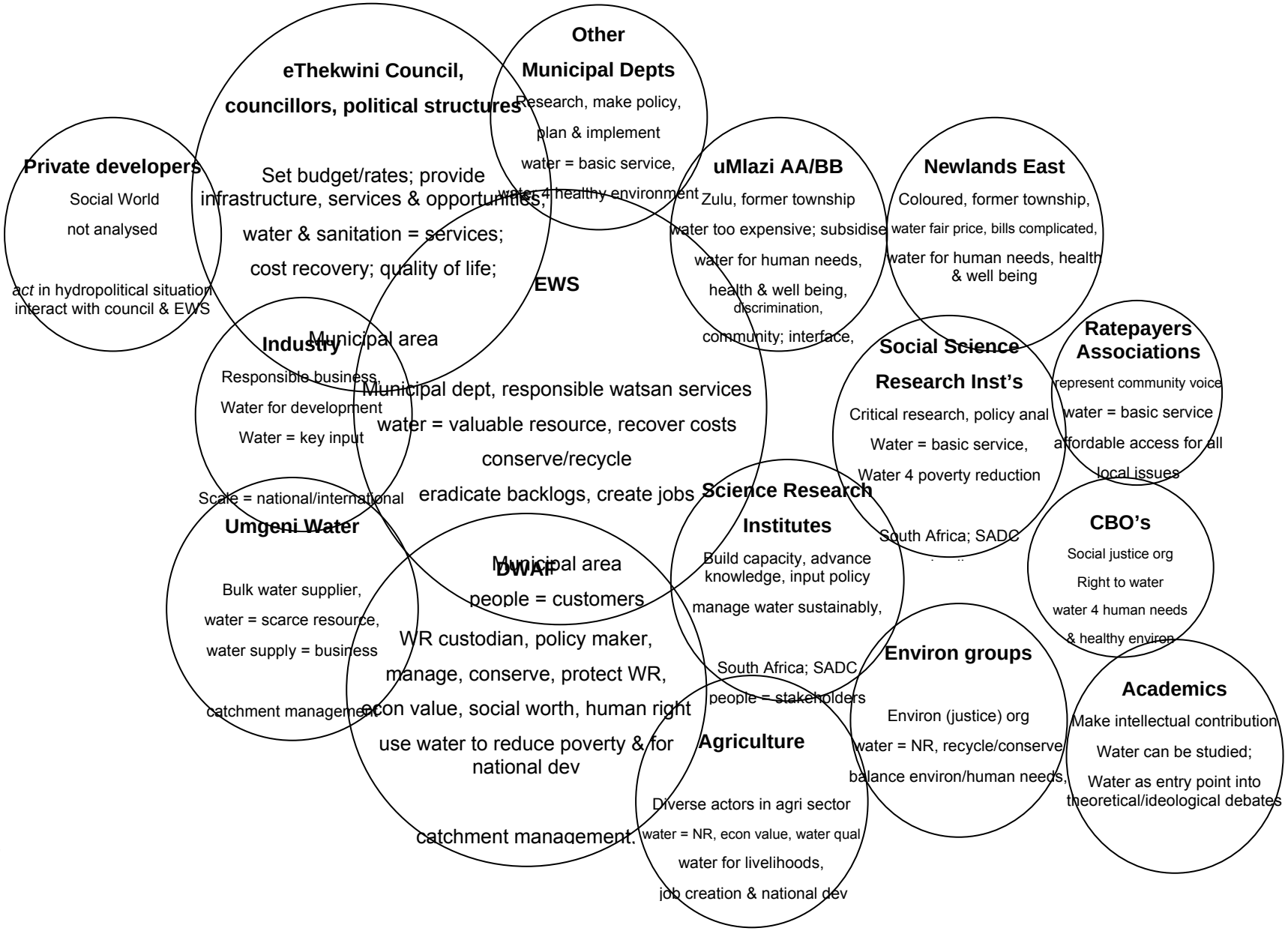
Source: http://www.statssa.gov.za/census01/Census/Dialog/Saveshow.asp

Table 2: Census 2001 by municipality, type of dwelling and population group of head of household (derived).				
	Black African	**Coloured**	**Indian or Asian**	**White**
CBLC6: Bushbuckridge				
House or brick structure on a separate stand or yard	86304	148	21	75
Traditional dwelling/hut/structure made of traditional materials	14823	17	0	4
Flat in block of flats	1164	3	0	3
Town/cluster/semi-detached house (simplex: duplex: triplex)	554	0	0	6
House/flat/room in back yard	1229	0	0	0
Informal dwelling/shack in back yard	1251	0	0	0
Informal dwelling/shack NOT in back yard e.g. in an informal/squatter settlement	1811	4	0	0
Room/flatlet not in back yard but on a shared property	340	0	0	6
Caravan or tent	120	0	0	0
Footnote: Excluding all collective living quarters				

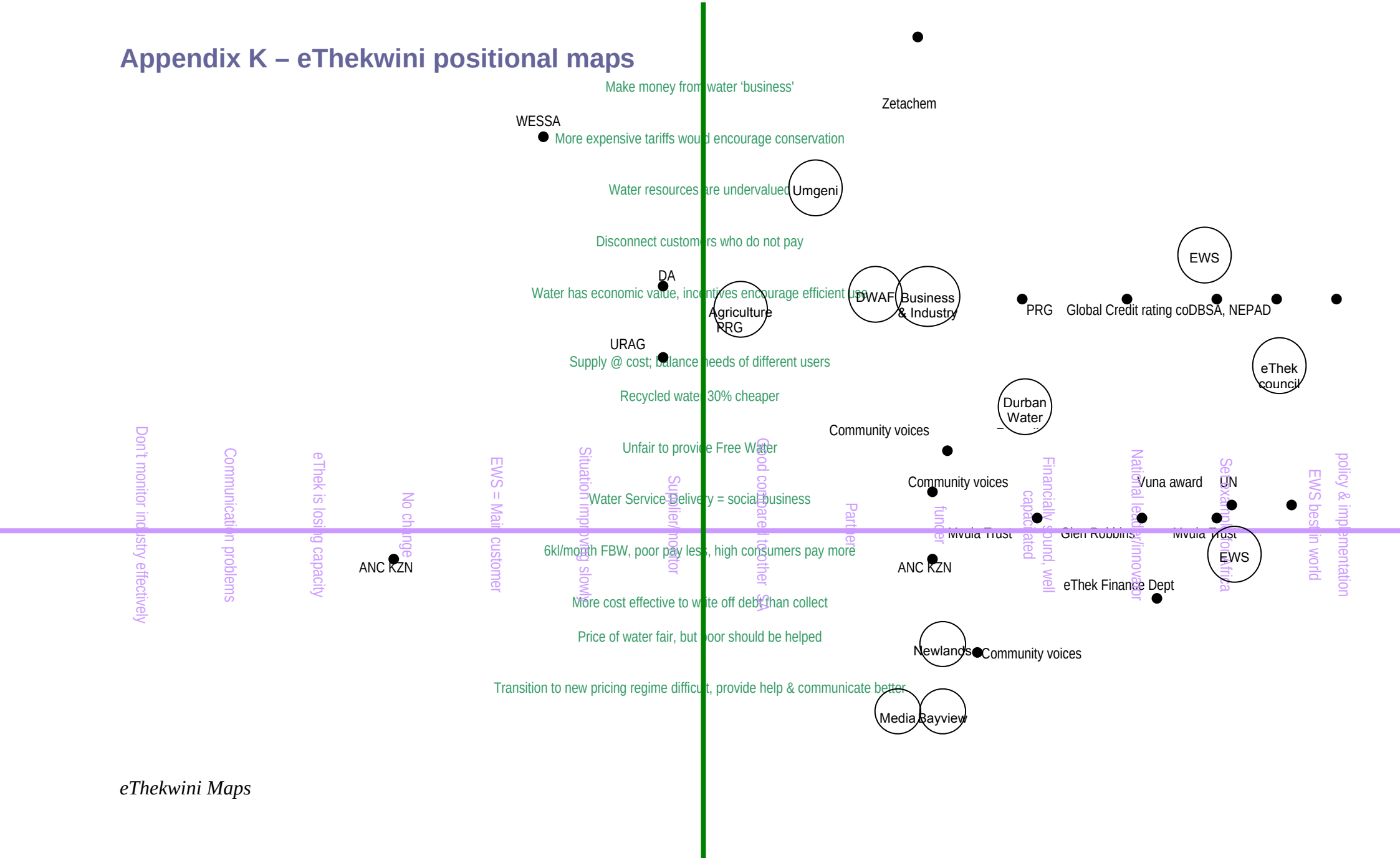
Table 3: Census 2001 by municipality, derived source of water and population group of head of household (derived).				
	Black African	**Coloured**	**Indian or Asian**	**White**
CBLC6: Bushbuckridge				
Piped water inside dwelling	5232	19	8	81
Piped water inside yard	27996	54	10	10
Piped water on community stand: distance less than 200m from dwelling	14976	16	0	0
Piped water on community stand: distance greater than 200m from dwelling	31296	51	3	7
Borehole	7620	4	0	0
Spring	4703	8	0	0
Rain-water tank	343	0	0	0
Dam/pool/stagnant water	2859	3	0	0
River/stream	6005	8	0	0
Water vendor	436	3	0	0
Other	6161	10	0	0
Footnote: Excluding all collective living quarters				

Table 4: Census 2001 by municipality, toilet facilities and population				
	Black African	**Coloured**	**Indian or Asian**	**White**
CBLC6: Bushbuckridge				
Flush toilet (connected to sewerage system)	6350	20	17	74
Flush toilet (with septic tank)	726	6	0	20
Chemical toilet	1706	0	0	0
Pit latrine with ventilation (VIP)	11391	19	0	0
Pit latrine without ventilation	62665	110	4	4
Bucket latrine	556	0	0	0
None	24232	17	0	0
Footnote: Excluding all collective living quarters				

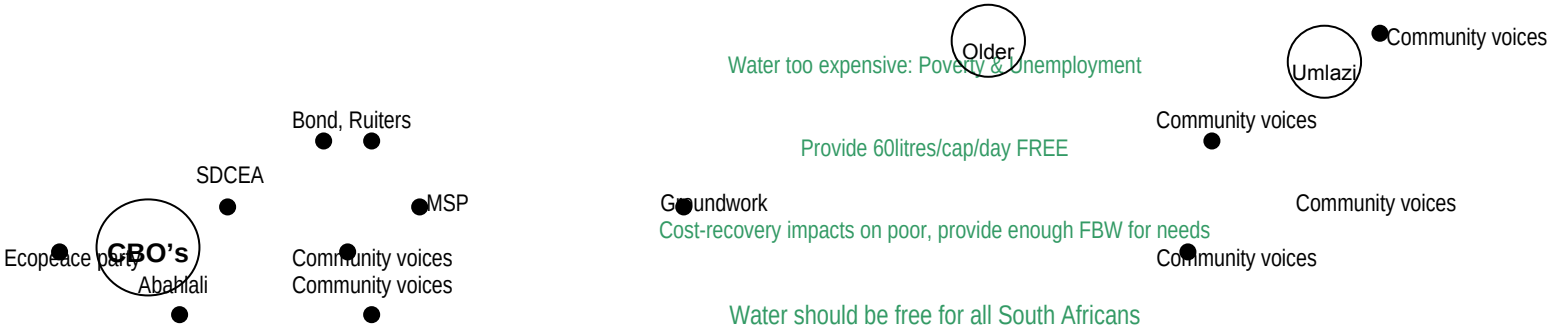
Appendix J – eThekwini social world maps



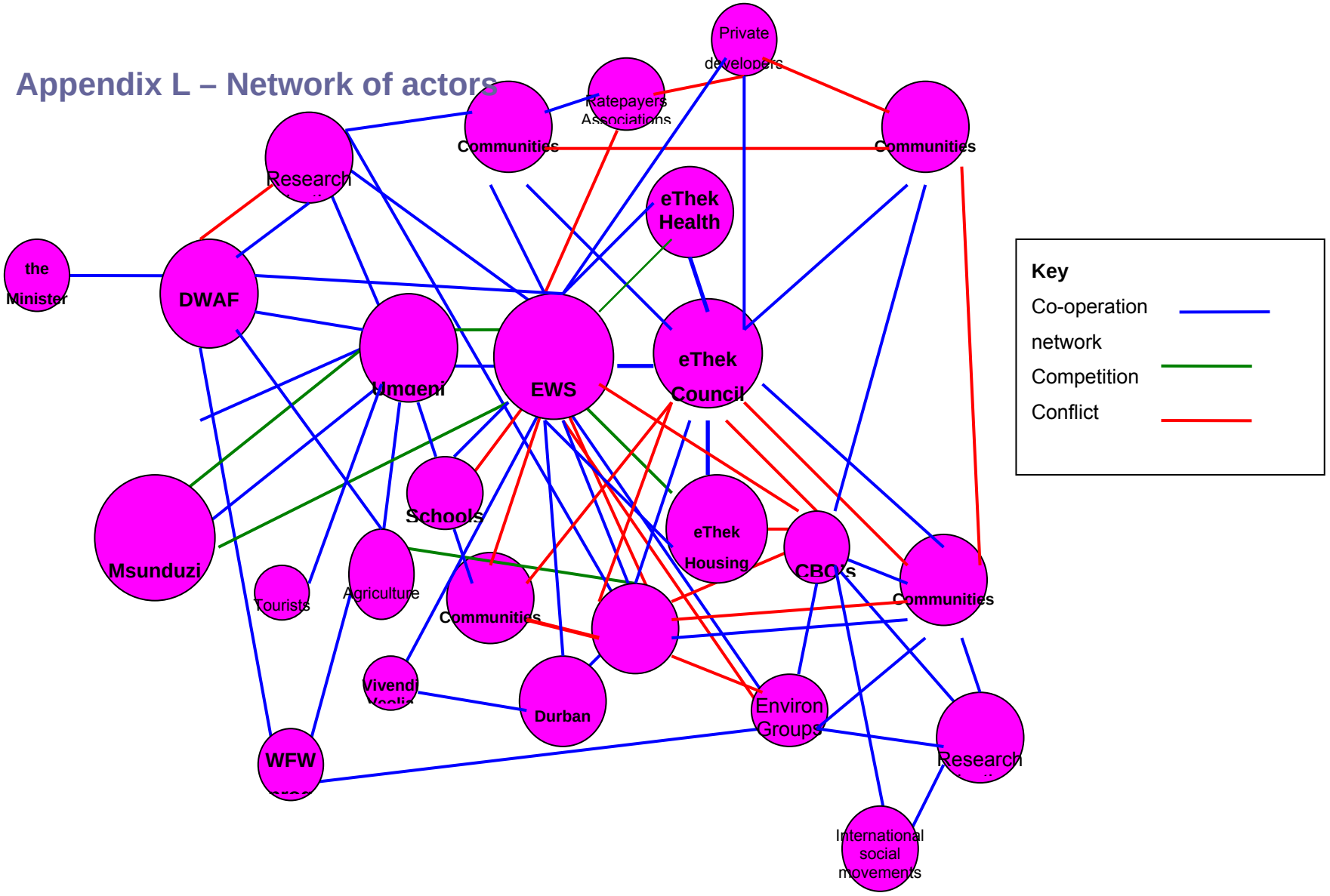
Appendix K – eThekwini positional maps



eThekwini Maps


Older
Water too expensive: Poverty & Unemployment
Community voices
Umlazi
Bond, Ruiters
Community voices
Provide 60litres/cap/day FREE
SDCEA
MSP
Groundwork
Community voices
Cost-recovery impacts on poor, provide enough FBW for needs
Ecopeace party
CBO's
Community voices
Community voices
Abahlali
Community voices
Water should be free for all South Africans

Appendix L – Network of actors



Appendix M – Umlazi consultative group

Umlazi AA/BB water & sanitation consultative standing group

Co-ordinator:

Deborah Khuzwayo,
AA290
Umlazi
4031
Cell 072 6174745

Members:

Mr Linda T Jali
AA1285 Spa Centre
073 1500822

Mrs SP Goqo
AA1285 Spa Centre
(031) 9091016

Mrs Philisiwe Cele
BB1428
(031) 9093304 (home) (031) 9093800 (work)

Miss O B Mavimbela
AA 1004
Ngwenya Grove
082 8447107 (cell) (031) 9090375 (home) (031) 9093800 (work)

Mr I N Nzuza
BB1615
078 2370451

Mrs Gugu Dlamini
BB141

084 3239478 (cell) (031) 9096178 (home)

Miss Thanda Mbokazi
Research Intern
M340
073 2610827

Ms M S Khuzwayo
AA700 Umlazi
072 8237439

Miss Bonakele Gumede
AA313
072 5674384

Miss Nonkanyiso Khumalo
BB415
083 7282294

Miss Thokozani Maphumulo
BB916
082 479(?)7300
if above number doesn't work, try 1 instead of 9

Miss Senzi Sosibo
BB1414
072 6983202

Miss Lindiwe Ngcobo
BB68
084 7622052

Mr Majola **Ward committee chairperson**
078 362722 (cell) (031) 9092475 (councillors office)

Appendix N – Interview Protocol

Interview Protocol

1) Introduce yourself
2) Introduce the project
3) **Objective 1** : improve WS service and community relations
    a. Ukzn/EWS/Newcastle partnership (pilot study to full phase)
    b. Identify community WS service issues
    c. Develop action plan
    d. Feedback and dialogue
    e. Objective: Continuous improvement of service
4) Explain questionnaire
    a. How long will it take?
    b. What will we do with the information?
    c. Consent
    d. Anonymity? (after questionnaire complete)
5) Other important things to mention about the questionnaire
    a. There are no right and wrong answers
    b. While we are taking all the information seriously, we will be looking for overall trends and patterns in the data
6) **Objective 2**: identify member for standing group
    a. Community professionals with professional stake in health and well-being of community
    b. People with interest in water and sanitation service
    c. Meetings: 3 to 4 times per year

Further Notes to Interviewers:

- Give interviewees a copy of the questionnaire to follow along.
- Tell them this is the pilot phase and the questionnaire will be refined.
- Pls enter:
    - 1 – for Agree
    - 2- for Disagree
    - 3- for Don't know

Name of Respondent:_____

Referred by (if applicable): _____

NB if respondents interviewed in group, insert name of main contact

Occupation:_____

Community Service:_____

_____

_____

Contact Details:_____

_____

_____

Age:_____

Gender: _____

Area of Interview:

Place of Interview:_____

Who provides the money for the water bill in your Household:

_____

Who is responsible for the task of paying the water bill?

_____

Questionnaire/Imibuzo

Critical Incidences: Agree/Disagree/Don't Know

1) Water bills come regularly.

Isikweletu samanzi sihlale sitholakala

2) Water charges, including Free Basic Water and water loss insurance, are easy to understand on Municipal Bills.

Kulula ukuqonda isikweletu samanzi sikaMasipala

3) People are generally aware of and understand Free Basic Water

Abantu bayazi futhi banolwazi nge- FBW

4) Water Bills are easy to pay.

Kulula ukukhokhela amanzi

5) As far as I Know, meter readings are accurate and the bills the municipality sends out are correct.

Ngokwazi kwami, amamitha asho iqiniso futhi nemali iba yiyona

6) I am aware of people who cannot afford to pay their water bills or who have been disconnected or restricted in the last year.

Ngiyaqoda ngabantu abangakhoni ukukhokhela amanzi noma esebanqanyulelwa amanzi noma bangabanayo imvume yokuthola amanzi ngonyaka odlule

7) There are other reasons aside from cost that people do not pay their water bills

Kunezinye izizathu ezenza abantu bangakhoni

a. If so, what are they?

Uma zikhona, iziphi?

_____
_____
_____
_____

8) The relationship between water, sanitation, hygiene and good health is well understood in this area (30).

Ukuhambisana kwamanzi, inhlanzeko, nempilo enhle kuqondakala kahle kulendawo

a. If not, please give examples:

Uma kungaqondakali, yenza iziboniso

_____
_____
_____

9) There are standing pools of water in the area.

Kunamaxhaphosi kulendawo

10) Water from the taps is always clean and clear

Amanzi asempopini ahlale encwebile futhi ehlanzekile

11) Water interruptions are generally a problem**.**

Ukuphazamiseka kwamanzi inkinga evamile

a. If so, please describe those problems:

Sicela usitshele ngalezonkinga

_____
_____
_____

12) EWS generally responds to burst pipes in a timely way.

Umasipala uyashesha uma kukhona ipayipi eliqhumile

13) I think there are better ways than meters to measure and charge for water.

a. If so, what are they?

_____
_____
_____ _____

14) People manage to make illegal water connections.

Abantu bayakwazi ukuzixhumela amanzi ngokungenamvume

15) When you think about water and sanitation infrastructure in this area in relation to other areas, would you say it is:

Uma uqhathanisa ukwenziwa nokumbelwa kwamanzi nenhlanzeko kulendawo nakwezinye, ungathi:

- Better

  isingcono
- the same

  isafana
- worse

  isifadalele

a) Please explain:

sicela uchaze

_____
_____
_____

16) Overall, EWS service staff are helpful and well-trained.

Ngakhokonke abasebenzi be EWS bafundiswe kakhulu ngomsebenzi

a) Please explain:

Sicela uchaze

_____
_____
_____

17) Overall, EWS responds quickly and effectively.

Umasipala uphendula ngokushesha futhi ngendlela egculisayo kwimibuzo

a. Please explain:

Sicela uchaze

_____
_____
_____

18) There have been conflicts between EWS staff and people living in this area.

Kukekwaba khona ingxabano yamphakathi) walendawo nomasipala

a. If so, about what?

Ngabe kwakweyani

_____
_____
_____

19) It is necessary that EWS staff work with armed guards for their protection.

Kufanele abasebenzi bakamasipala basebenza begadwe abantu abahlomile

b. Please explain

Sicela uchaza

_____
_____
_____

Behavior and Actions: Agree/Disagree/ Unknown

20) If I had a problem with my water or sanitation service, I would most likely…

Uma ngingaba nenkinga ngamanzi nenhlanzeko, ngicabanga ukuthio nginga…

_____
_____
_____

21) Please name any community forums where water and sanitation issues are discussed

Sicela usho ngezinhlangano ozaziyo ezixoxisana ngamanzi nenhlanzeko

_____
_____
_____

Beliefs and Values: Agree/Disagree/ Unknown

22) Water infrastructure and service in this neighborhood is as good as in other neighborhoods

Ukulethwa nokubhelwa kwamanzi kulendawo kehle njengezinye izindawo esakhelene nazo

a. Please explain

Sicela uchaze

_____
_____
_____

23) The price of water is fair.

Amanzi abiza kahle

b. if not, please explain:

_____
_____
_____

24) If people do not pay their bills, how much water should the government provide them for free?

Abantu abazingazikhokheli izindleko zamanzi, mangakanani amanzi okufanele banikwe uhulumeni mahhala?

a)

_____
_____

25) Water service in this area contributes significantly to community health and well-being.

Ukusenza kwamanzi kunegalelo elikhulu ezimpilweni zabantu nobuntu kulendawo

26) It is the responsibility of EWS to fix leaky pipes in the house.

Kuwumsebenzi kamaspala ukulungisa amapayipi avuzayo ezindlini

27) I trust EWS.

Ngiyamethemba Umasipala

a. Please explain:

_____
_____
_____

28) Water and sanitation services over the last five years have:

Kuleminyaka emihlanu edlule ukulethwa kwamanzi nokuthuthwa kwendle

- Improved
- **Kubengcono**
- Gotten worse
- **Izinga lehlile**
- Stayed the same
- **Akuguqukanga**

b. Explain**/chaza**_____
_____
_____

29) I am generally satisfied with water and sanitation services in this area.

Ngenelisekile ngokulethwa kwamanzi nokuthuthwa kwendle kulendawo

a. Please explain:

_____
_____
_____

Information Context

30) People have a voice in water and sanitation services.

Abantu banezwi ngokulethwa kwamanzi nokuthuthwa kwendle

a. if so, how

ushongani

_____
_____
_____

31) I receive reliable information about water and sanitation services from:

Ngithola ulwazi olethembekile ngamanzi nenhlanzeko ku-

_____
_____
_____

32) The majority of reports from all sources I hear about water and sanitation services (including newspaper, radio, word or mouth) are:

I**mibiko eminingi engiyizwayo ngamanzi nenhlanzeko kuzozonke izindawo(iphephandaba, umsakazo, kukhulunywa) I-**

- Positive
- Negative
- Neutral

a. Please explain/**chaza**

_____
_____
_____

Sustainability: Agree/Disagree/ Unknown

33) I am concerned about the environment.

Ngikhathazekile ngemvelo

34) Water is a scarce resource.

Amanzi awayona insada

35) Water and sanitation services should be subsidized.

Amanzi nokuthuthwa kwendle kumele kube nesaphulelo

36) EWS is a business like any other business.

UEWS uyibhizini njengawowonke amabhizisi

37) Recycled water that EWS has treated with professional high-quality treatment and is scientifically proven safe for drinking is okay for drinking
Amanzi ahlanzwe ngokucophelela, ngezinga eliphezulu avunyiwe ngososayensi angaphuzwa

a. If not, please explain

Uma ngeke, yingani

_____
_____
_____

38) I often see water running from taps
Ngijwayele ukubona amanzi echitheka kompompi

39) I conserve and recycle water when possible.

Amanzi ngiyawonga ngiphinde ngiwasebenziswe uma kungenzeka

Hydropolitical Context: Agree/Disagree/ Unknown

40) Who makes important decisions about water and sanitation services in eThekwini

Ubani owenza izigquma ezibalulekile ngamanzi nehlanzeko yasethekwini

_____
_____

41) Water and Sanitation services in eThekwini are influenced by international organizations and/or companies.

Izinkampani noma izinhlangano zakwamanye amazwe zinemithelela emanzini nenhlanzeko yaseThekwini

42) The water and sanitation situation in neighboring areas negatively affects water service in this area

Isimo samanzi nenhlanzeko sendawo esakhelene nazo sinukubenza amanzi alendawo

a. If so, pls explain:

Shono izizathu

_____
_____
_____

43) Big companies, such as mining companies, get better water service than regular people

izimboni ezinkulu, njengezimayini, zithola amanzi angcono kunomphakathi

44) Men and women have equal access to water.

Abesimame nabesilisa bafinnyelela ngolinganayo emanzini

45) The needs of children and the elderly are clearly a priority for EWS.

Izidingo zezingane nabantu abadala zibekwa phambili kwa EWS

46) I am aware of conflicts between family members or between neighbors over who uses more water.

Ngiyazi ngezindlabano phakathi kwamalunga emindeni ngokuphathelene nokumosheka kwamanzi

a. if so, please explain:

b. sicela uchaze

_____
_____
_____
_____

47) Overall, water and sanitation services in eThekwini are as good as other parts of South Africa.

Kukhokonke, amanzi nenhlanzeko yasethekwini igculisa njengakwezinye izindawo zakuleli

48) Different groups of people get different levels of service based on discrimination.

Ukulethwa kwezidingo emphakathini kuhlukanisa abantu ngezinga lempilo abayiphilayo

49) Water and sanitation services here have contributed to transformation and the alleviation of poverty.

Amanzi nokuthuthwa kwendle kubamba iqhaza kushitsho futhi kwanyusa nobubha emphakathini

a. Please explain:

_____
_____
_____
_____

Consultative Standing Group: Agree/Disagree/ Unknown

50) I would be interested in sitting on a consultative Standing Group that meets with EWS three to four times a year.

Ngingajabula ukuba kwiConsultative Standing Group engahlangana nomasipala kathathu noma kane ngonyaka

51) I would recommend that project researchers talk to the follow people as well:

Ngincoma ukuthi amareseachers akhulume nalabantu abalandelayo

a. Name:_____Co

ntact Number_____

Position:_____

b. Name:_____Co

ntact Number:_____

Position:_____

c. Name:_____Co

ntact Number_____

Position:_____

52) Any further comments on water and sanitation issues or the questionnaire (i.e: further questions/issues that should be included)

_____
_____
_____