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Second Order Water Scarcity in Southern Africa

Welcome to the third issue of our newsletter. It offers a detailed summary of Paxina Chileshe's field observations in Zambia and a theoretical piece on privatization by Leanne Wilson. Paxina has now carried out field work in nine of the twelve districts that are targeted by our study and I have just returned from Zambia, completing field work in three of these districts. The hydropolitical map of Zambia is now taking shape and crucial issues are emerging. The fragmentation of domestic water management, which precludes cross-subsidization, and the context of regulatory arrangements concerning irrigation appear as determining variables here.

The very abundant water resources in Zambia is contributing to a case of structurally induced second order water scarcity in the domestic sector and may lead to the same situation in the irrigation sector in the future. Zambian economy is rapidly evolving and the successes of outgrowers schemes' suggest the commercial agricultural production of the country will increase significantly in the future. To this day, no permit is required in order to drill a borehole and extract water. This situation of resource capture has not been considered problematic to this day because of the abundance of the resource. All the elements leading to a tragedy of the commons are gathered and what appears as a promising future could be severely compromised unless steps are now taken to achieve an effective regulation of the use, the access, the transmission of the access and the allocation of the resource. While state legislation is part of this process, it will not be sufficient to achieve such regulation. The crucial aspect of the evolution of Zambian water management will lie in the development of an effective governance over water management.

A variety of situations exist concerning domestic water management, as is carefully detailed in Paxina's article. Schemes involving the community have been developed where self sustainability is required. The peri-urban community of Chipata, on the outskirts of Lusaka, is thus carefully charging households 3000 kwachas (about \$0.65) a month for a maximum of seven buckets of water a day and is offering the residents the option of buying water by the bucket for 100 kwachas. Such rates are necessary for the scheme to be self-sustainable. The community run scheme is considered successful because it has managed to adapt in order to resolve the various problems that arose and is effectively collecting the fees. At the micro level, this is indeed a successful project and our field work there reveals a true evolution of democratic control within a local governance system. At the wider level of analysis, however, the fragmentation of water management that ensues is problematic as it precludes all forms of cross-subsidies. The successful evolution of governance at the micro level has yet to be followed by a similar evolution at the macro level.

Irrigation offers a similar picture of very diverse governance systems. While the irrigation scheme we visited in Sefula, in the Western Province, carried surface water to land belonging to the Losi royal establishment and leased to the farmers within a customary system of land tenure, commercial farms surrounding Lusaka irrigated what effectively amounts to freehold land using privately drilled boreholes. Governance systems to share water within an irrigation scheme are crucial to the success of the scheme. This has yet to be developed within the schemes we visited both in the Western and in the Eastern province. Thus, as far irrigation is concerned, both the micro level analysis and the macro level analysis reveal the lack of a governance system to regulate the use, the access, the transferability of access and the allocation of water within irrigation.

As part of our ongoing research, a seminar will be organised in Lusaka in December 2004. The various stakeholders who already participated in the research are invited as well as anyone interested in the topic. The various existing forms of governance over water will be presented and discussed so that the various stakeholders can have an overview of the situation and of the present successes and challenges of water management in Zambia. More detailed information on the seminar will appear in our next newsletter.

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Progress Summary

Paxina Chileshe

Eight months into the research, I have carried out field work in nine districts out of the twelve intended study sites. The sites have included two cities, five average populated towns and two relatively small towns. The social economic activity in the towns and cities varies as does the main natural water source for each study site, Table 1.

Town	Province	Pop. 2003	Main Economic Activity	Main Water Source
Chipata	Eastern	92.1	Farming and Trading	Lutembwe Dam
Kabwe	Central	219.6	Ex –Mining and Farming	Mulungushi River and Groundwater
Lusaka	Lusaka	1265.0	Industrial and Trading	Kafue River and Groundwater
Mansa	Luapula	51.0	Fishing and Trading	Mansa River
Mongu	Western	37.1	Farming and Trading	Groundwater
Kawambwa	Luapula	10.0	Farming and Trading	Natural Spring
Ndola	Copperbelt	349.3	Ex –Mining and Industrial	Kafue River
Solwezi	North-Western	4.0	Farming and Mining	Solwezi
Lundazi	Eastern	12.0	Farming	Lundazi Dam

Population of Towns and Cities in 1000

Town and City Division

The towns and cities in Zambia are usually divided into high cost residential areas, medium cost residential areas and low cost residential areas. The towns and cities also usually have peri-urban residential areas which are densely populated. The distinction between the different types of residential areas is becoming less clear as more residents design and build their own houses in the different residential areas. The distinction was clearer in the past as the houses were designed and built under the supervision of the

planning department of the local authority. So a particular residential area would have houses of relatively the same size and design.

The high cost areas had more water points than the medium cost housing and the medium cost housing had more water points than the low cost housing. The rates for land, water and other services are highest in the high cost area and lowest in the low cost areas. The peri-urban areas unusually start off as unplanned settlements then have to be legalised and upgraded to formal settlements. Service provision of any kind is usually communal in such residential areas.

Water Sources

The water sources for the communities living in the different towns and cities of Zambia vary. The description of the town used in the research covers an area outside the urban centre and would be termed as the district. So in this case the town includes the surrounding rural areas.

The urban centres have a water supply system provided by the local authority or a commercial water and sewerage utility. The urban residents are charged for the service that is provided to them. The urban centre includes high, medium and low cost residential areas. The peri-urban areas can also be included in the urban centre water supply system as communal taps are provided in these areas. The medium and high cost residential areas have individual or private water points within each household. The low cost areas usually have communal taps.

In some towns the peri-urban areas have no water supply system, so the residents dig unprotected wells for their water supply. If Non Governmental Organisations (NGOs) have been active in the town the peri-urban areas have boreholes or protected wells to supply their water. In towns where the water supply service provision is below standard like Mansa and Kawambwa, the residents even in the urban centres dig unprotected wells to supplement the local authority water supply. Unprotected wells are shallow wells with no inner lining and may or may not have a cover. The main danger with unprotected wells is the possible contamination of the water by faecal coliform from near by pit latrines.

The NGOs also provide water supply infrastructure in the rural areas that surround the urban centres. The rural communities are also able to apply for water supply infrastructure in the form of projects that are funded by a local funding body known as Zambia Small Investment Fund, ZAMSIF. Other rural area residents living near streams and rivers use these natural water bodies as a source of domestic water.

Service Provision

The water supply service provision is better in the cities and larger towns where commercial water and sewerage utilities exist. Such commercial utilities started being introduced in 1999. In the smaller towns where local authorities still provide the water supply service the local authorities are usually not able to provide a satisfactory standard of service. The towns where the local authorities supply water are usually places where domestic water for the residents in the urban centres is supplemented using unprotected wells.

In the larger towns and the cities, the residents are wealthier and usually pay their water bills. The larger population means economies of scale allow some form of service to their residents. A historic perspective also shows a greater investment in the water and sanitation infrastructure in the cities and larger towns. This tends to be especially clear in the cities with higher populations and industrial activity.

In the rural areas where communities get water supply infrastructure from ZAMSIF and NGOs, water management committees are formed and communities select their own committees to manage their water points and water schemes. The community run schemes seem to be doing quite well when the committee is effective and the community takes ownership of the water supply infrastructure. The effectiveness of the committees is also related to the funding provided to the areas where committees are formed. Other communities do not take ownership of the infrastructure and are not willing to pay a symbolic water fee or maintain the infrastructure. These latter communities believe the infrastructure is owned by the government and they should maintain it on behalf of the people.

Water Schemes

Community run water schemes exist in some peri-urban areas and villages or rural areas. This means the community is expected to manage its own water supply systems or water points. The community managed schemes are supported by the WASHE concept. This is a holistic approach which covers health and hygiene education plus water and sanitation.

The community is trained in repairing the infrastructure and assisted in forming a water point committee to ensure the community manages its own affairs. The communities feel empowered and the organisations assisting the communities also build capacity in these areas. The communities are encouraged to have gender balanced committees to ensure the women who usually collect water are involved in managing the water points.

The fees paid for the use of the water point are decided by the community and are usually symbolic amounts in the rural areas i.e. K1000. In the peri-urban areas the water fees are higher and in the range of K3000. In most settlements the Resident Development Committees (RDCs) were involved in water affairs in one way or another. This was in line with community participation in projects in their areas and ownership of the projects. The RDCs are elected by the community to serve the community especially the representation in community development. In the smaller towns there are Area Development Committees rather than RDCs. The ADCs are based on the ward, the administrative unit for political purposes.

In the urban centres the water charges are usually fixed. Most local authorities and commercial utilities prefer to meter their clients as this would improve the domestic water management at a household level. In most towns the water supply infrastructure is dilapidated and would need a complete overhaul to prevent leakages, unblock pipes and provide a good standard of service. At the moment very few urban centres get 24 hours supply of water, on average most residents get 16 hours water supply daily. Metering of clients has started in the towns where commercial utilities exist. In Chipata the exercise has been completed.

The biggest client for any local authority or commercial utility is the government. Unfortunately the government is also the largest defaulter on water bills and owes almost every water provider huge amounts of money. Service is always provided to government buildings and institutions even with the non payment of bills. Political interference was less rampant outside Lusaka but the allocation of plots of land by politicians exists in some towns.

Water Control and Allocation

The surface water abstraction is controlled by the Water Board but there was no control over the ground water. Any individual or organisation with the resources to dig a well or drill a bore-hole appears free to do so. Groundwater is obtained free of charge apart from the capital investment. The national Water Resource Action Programme (WRAP) aims to place ground water abstraction under the Water Board and also revising the Zambian Water Act.

Any organisation or firm wanting to abstract surface water or to divert a natural water body applies to the Water Board for water rights. Zambia is a country with abundant water resources and so in most cases there is very little competition for surface water. The abundance of the resource has resulted in very little water management activities and also means the water rights are granted to all applicants.

Once the commercial utilities or local authorities obtain water rights, they determine which residential areas can be supplied with water or receive service. According to the Zambian water policy, the local authorities and commercial utilities are mandated to supply domestic water to all residents under their jurisdiction.

Access

Access to clean and safe domestic water is relatively high in urban centres especially in the larger towns as each settlement had at least one water source in the form of a communal tap or bore hole except for the newly allocated plots. The coverage levels for water providers range from as low as 10% of the residents in one town to as high as over 90% in larger towns and cities. Most residents of the settlements in villages and peri-urban areas would like to see an increase in the number of taps or boreholes in their areas. Access levels are much lower in the rural areas especially since streams and rivers are not considered safe water sources. The limited financial and other resources also mean not all applications for rural water supply infrastructure can be addressed or responded to positively.

There are several points for discussion that can be drawn out after the different sites that have been visited so far. Some of the questions raised are:

1. Why are there such large disparities in the levels of coverage for water providers?
2. Do we need national or localised water management in the towns especially when the water resources seem abundant for domestic water supply?
3. What steps can be taken to ensure an equal platform for the community managed schemes and enable all water point management committees to be effective?
4. What steps can be taken to raise the standard of service provision especially in densely populated areas where cost recovery may not be out rightly possible?

Water Privatisation

Leanne Wilson

Issues surrounding water commercialisation and privatisation are deeply controversial. Configurations of market based water provision are diverse, ranging from small scale vendors to national and local government to multinational corporations and institutions¹. Water as an economic good is one pillar of the Dublin Principles that has been used to justify the increasing commercialisation and privatisation of water services, in terms of multilateral, as well as national policies. Seemingly founded on neo-realist 'failed state' assumptions, the World Summit on Sustainable Development (2002) concluded that private sector involvement in the form of public/private linkages are to be vigorously promoted as a means with which to achieve sustainable development and the millennium development goals.

The evolution of national water services provision is being progressively subsumed into the General Agreement on Trade and Services (GATS), constructing further layers of complexity to geopolitical analysis². Generally speaking, while many contemporary analyses of water commercialisation tend not to explicitly engage with genealogies of control, uncritical promotion of corporate models is widely considered to be inherently ideological³.

South Africa, in contrast to most of its neighbours, was not impacted by involuntary submission to IMF endorsed 'economic pricing' policies. International political influence did nurture a more market oriented policy environment conducive to multi- and bi-lateral funding at certain junctures, although indeed the

¹ Bakker and Hemson, 2000; Bakker, 2001: 2003a:2003b; Brocklehurst, *et. al.*, 2002; McDonald, 2002; McDonald and Pape, 2002; Stein and Niklaas, 2002; Bayliss, 2003; Budds and McGranahan, 2003; Hall, 2003; Mehta and Madsen, 2003; Smith and Hanson, 2003.

² Mehta and Madsen, 2003.

³ However, all of the authors cited in footnote 1 do engage with contemporary historical discrimination.

South African government actually sponsored private sector involvement in Build Own Operate Transfer Schemes⁴. South African water law is one of the few that formally recognise a human (and ecologic) right to water. Numerous authors have explored the varying translations of this right with reference to the progressive water laws⁵. Given that human rights more generally around the world are not always given primacy, it does not necessarily follow that Constitutional entitlement (to water) is uniformly available. Progressive rising block tariffs can perversely benefit citizens who are wealthy, as can the free basic water policy⁶. A well quoted example being the young professional household of 2 who receive their free basic entitlement based on a household of 8 people, and therefore pay little to nothing for their (high standard) water services. It has also been concluded that the costs to government of improving access to water services is substantially less than the transaction costs of dealing with pandemics such as cholera⁷.

In South Africa, catchment management (National Water Act, 1998) must occur simultaneously to water services provision (Water Services Act, 1997) though there are separate governance mechanisms and administrative boundaries for the separate functions⁸. Eventually Water Catchment Authorities will hold a strong regulatory role, but this exists currently at a fairly embryonic stage. Private sector involvement is therefore guided primarily through the Water Services Act (1997) and Municipal Services Act (2000)⁹. Criticisms of private sector involvement also identify a frequent need for public sponsorship to spread risks or facilitate penetration into 'poor' areas¹⁰. Even from a business point of view, reliance on donor funding weakens corporate business planning (it makes each expansion a stand alone venture rather than a replicable process on which further concessions may be awarded).

Cross subsidisation from either wealthier customers or industry to the less wealthy is problematic in South Africa, especially in municipalities which have a negligible industrial base. However, in the context of poverty, it is more effective to subsidise initial access to water services than use 'equity' tariff structures for those who are already connected, though this was not concluded from the specific, and progressive South African context¹¹. It remains unclear how easily such subsidised access could occur within the context of a widespread fuller cost recovery ethic, which is deemed financially unsustainable¹². Despite the problems of implementation of the free basic water policy in urban contexts, it is rural South Africans who are most desperately marginalised by a wider spread lack of infrastructure and water services institutions (irrespective of whether they are commercialised or not)¹³.

It is relatively interesting to conclude with some observations from the UK where water services have been fully privatised since 1989¹⁴. Keynesian policies prioritised access, security of supply, and public health prior to full divestiture. Following divestiture, the Office for Water Services (OFWAT) remained to ensure that rural discrimination was mitigated. Following the Water Industry Act (1999), OFWAT require water companies to equalise the charges paid by metered and non-metered customers, consumers have the right to voluntary metering (with no cost recovery) including the right to revert back to non-measured consumption, with only luxury consumption such as swimming pools subject to compulsory metering (in some regions) and finally, it is illegal to cut off or restrict water supply to domestic and public services (schools, hospitals etc). Clearly there is little value in direct comparison of countries, although most of the OECD (Organisation for Economic Co-operation and Development) member countries have had (or still have) heavily subsidised water provision. Despite wide acknowledgement that 'development' doesn't follow the same progression in any two cases, is it really possible to leapfrog Keynesianism?

⁴ Bakker and Hemson, 2000

⁵ Bakker and Hemson, 2000; McDonald, 2002; McDonald and Pape, 2002; Stein and Niklaas, 2002; Smith and Hanson, 2003

⁶ Brocklehurst, *et. al.*, 2002; McDonald and Pape, 2002; Stein and Niklaas, 2002; Smith and Hanson, 2003

⁷ McDonald and Pape, 2002 p114

⁸ Pollard, 2002

⁹ McDonald and Pape, 2002; Stein and Niklaas, 2002; Smith and Hanson, 2003

¹⁰ Hall, 2003. Bakker and Hemson (2000) highlight South African government funding to the private sector in order to disburse capital for water development projects quickly rather than as subsidising 'penetration'.

¹¹ Brocklehurst, *et. al.*, 2003

¹² McDonald and Pape, 2002

¹³ Stein and Niklaas, 2003

¹⁴ Bakker, 2001: 2003

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