

WATER REFORMS AND PSP

in DAR ES SALAAM

WaterAid TANZANIA

New Rules, New Roles: Does PSP benefit the poor?



New Rules, New Roles: Does PSP Benefit the Poor?

Water reforms and PSP in Dar es Salaam

WaterAid-Tanzania

This case study is a product of the efforts of different people in WaterAid – Tanzania. Mwanakombo Mkanga supervised and wrote the sections relating to the participatory research methods involving poor communities in Temeke. Graham Boyd, an independent consultant, did the research and wrote the overview and background on the water and sanitation situation in Dar es Salaam. Tim Ndezi, provided editorial support and commentaries. Dave Mather provided overall supervision and commentaries. Virginia Roaf and Eric Gutierrez of WaterAid's London office provided further editorial support.

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Acronyms

DAWASA	Dar es Salaam Water and Sewer Authority
DSSD	Dar es Salaam Sewerage and Sanitation Division
EUWRA	Energy Utility and Water Regulatory Authority
HIPC	Highly Indebted Poor Country
IDT	International Development Target
IMF	International Monetary Fund
Mld	Million litres per day
MoW	Ministry of Water
NGO	Non governmental organisation
NUWA	National Urban Water Authority
NWP	National Water Policy
O&M	Operation and Maintenance
PEVODE	People's Voice for Development
POC	Private Operating Company
PPSRC	Presidential Parastatal Sector Reform Commission
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy Paper
PSAC	Programmatic Structural Adjustment Credit
PSP	Private sector participation
UWSA	Urban Water and Sewerage Authorities
WSSP	World Bank Community Water Supply and Sanitation Programme
WUP	Water Utilities Partnership

I. Executive Summary of the Synthesis Report

Governments, both northern and southern, have rightly placed themselves under much pressure to achieve better water and sanitation coverage. The Millennium Development Goals aim to halve the proportion of people without access to water and sanitation services by 2015. Millions die every year from lack of access to safe water and adequate sanitation. On one hand there is an undeniable urgency about these issues that makes prolonged discussion frustrating and a questionable use of resources. But on the other, the risk of the blanket promotion of one debatable method of reform is an unnecessary waste of scarce resources.

Most southern governments have consistently failed to deliver affordable and sustainable water and sanitation to the poor. It is difficult to summarise the causes for this failure as each situation is different and complex. However, some broad problems cut across many public utilities and municipal services: bad financial management, low funding priority, lack of staff experience and qualifications, absent or weak customer service orientation, political interference, little or no independent regulation and an absence of civil society consultation. Many of these problems have been described as attributable to weak government capacity – equally acute in urban and rural contexts.

Our research shows that the policy of private sector participation (PSP) does not comprehensively tackle the underlying causes of water utilities' failure to serve the poor. In four key areas capacity building, community participation, finance and institutional reform, major problems persist, making it unlikely that the multinational private sector is going to play any significant role in achieving the Millennium Development Goals.

Currently the pursuit of a policy of PSP generally undermines local and national government capacity. For one, it limits the ability of the public sector to take services back should PSP fail or when contracts end. Private sector contracting must not result in irreversible dependence on

private companies, and there must be clauses in contracts to prevent this dependence.

Without adequate government capacity, no reform processes can be successful. The private sector cannot be contracted without tackling failing government. The government's role to facilitate, monitor and regulate is as much an essential element in PSP as in public and user-managed utilities. Yet, it seems that this requirement is being practically ignored in the rush to establish PSP. It is essential that donors refocus efforts to building government capacity at local and central levels.

The involvement of local communities is often lacking in PSP reform programmes. Where PSP has failed to deliver the promised gains, the case often is that the poor are seen mainly as recipients, rather than contributors to development. Whether projects involve large or small-scale PSP, the focus is on giving contracts or concessions to the private sector. Social mobilisation and community participation, proven time and again as prerequisites for sustainable development, are seen as burdens and non-essential components of the task. Failure to consult communities means that the interests of the poor are often not being represented. It results in a lack of ownership over projects and an absence of accountability between users and service providers. It seems that the lack of community involvement that led to previous failures is continuing, raising serious doubts over the sustainability of PSP projects.

Cost recovery and capital cost contributions are in most cases necessary for water services to be sustainable. However, there are problems in the application of these principles, which often results in denying the poor access to services. Expensive technology choices and a failure to consider the non-cash contribution of the poor are widespread in PSP contracting. Donors are guilty of promoting an approach that is narrow and mechanistic, allowing for little flexibility and absence of perspectives incorporating community action and considering the complexities of poverty.

Changing the role of government, by effectively reducing its capacity through reductions at central level, but not increasing personnel at local government levels, erases benefits that could be gained from decentralisation per se (such as responsiveness to people's needs, greater accountability etc.). Weak decentralised agencies cannot be expected to quickly learn about tenders or forms of contracting and keep track, monitor and supervise the activities of contractors fanning beyond provincial capitals.

In the rural areas that were studied, reduced government roles had a detrimental impact as work was often sub-standard leaving the communities with a costly and unreliable service. The rural case studies also show that there are, so far, no improvements in accountability. In some respects, accountability was compromised in the dilution of responsibilities that accompanied the change in roles. Because projects are between governments and contractors (communities are typically not a party in the contract), the supposed beneficiaries are in no position to seek redress for sub-standard work. Accountability is lost in the commercial/ contractual, quick-fix arrangements of private sector involvement.

Political interference has been seen as contributing to the failure of many public utilities to deliver to the poor. In established democracies there is 'interference' in the running of utilities but this is seen as government exercising its duty to keep institutions to account. There is a fine line between 'interference' and the need for accountability, the difference seems to be the depth and strength of democratic institutions in individual countries.

Civil society working to strengthen the hand of government through, for example, commenting on tender documents prepared by external advisors, increases the likelihood that reforms will further the concerns of the poor. It is in the interests of government to involve a broad constituency, especially one that represents the interests of the poor and poor people themselves in the shaping of privatised basic services. Pro-active openness and transparency by government in reform processes lessens the possibility of civil strife.

With these findings, we are opposed to donors pressuring developing countries to accept PSP in water services as a condition of aid, trade or debt relief. To promote a policy regardless of specific contexts increases the likelihood of failure especially when the likelihood of success of that policy is intensely contested. Furthermore, the enforcement of PSP as the central policy reform limits the options for governments and civil society to improvise and innovate using the best possible arrangements. We believe rather that policies should be used to ensure that in any reform process the poor will be protected, their access to services increased, and the process itself actively seeks the opinion of civil society.

This does not mean that we are rejecting private sector involvement. The private sector has a role that should not be denied. But, where there is corruption and/or political resistance to serve the poor, the private sector can do very little and can, in fact, compound the problem. Where there is lack of information, participation and democratic processes, the situation is thrown wide open to opportunistic behaviour from the private sector. However, given a situation with stable rules, enough political commitment to address the underlying causes, good governance and an informed and active citizenry, the private sector can be a responsible partner in development and an important player in reforming and improving water services.

In order to move forward on this contentious issue, a multi-stakeholder review should be undertaken. We believe that it is only through such a review (similar to the World Commission on Dams) that the final, authoritative word can be made on whether PSP benefits the poor. We also believe in the necessity of building the capacity of civil society actors to influence privatisation processes and to hold governments and the private sector to account. This needs to start with improving their knowledge and understanding of the issues surrounding failing water services, and enabling civil society groups around the world to learn from each other's experiences of intervention in privatisation processes.

II. Case Summary

After over thirty years of underinvestment and the degradation of its utility, the problems in water and sanitation provision in Dar es Salaam have now reached crisis proportions. The policy solution that government has developed is two-pronged: first, introduce private sector management of the operations of the water utility to achieve certain efficiency targets; and second, obtain loans for construction projects that will rehabilitate and expand the network into the unconnected areas. However, it is still not clear how this approach can properly serve the most needy who live in unplanned settlements and gain their water in a variety of informal ways. Most urban poor do not know about the PSP process. There is also concern that development of the water system will threaten the livelihoods of local water vendors. The PSP process in Dar es Salaam has been confusing and difficult to assess. It needs closer community participation, and clearer structuring in order to properly and appropriately meet the needs of the urban poor.

For over ten years, Dar es Salaam's water supply and sanitation services have been in a perennial state of crisis. It is a typical city in a developing country, grappling with huge infrastructure and efficiency problems, the product of a complex and tumultuous history. Tanzania gained independence from the British in 1961, and by 1967 had formally adopted state socialism. The country's utilities, including water, farming, exports and banks were nationalised and strictly controlled. For all but the very rich, water supplies were free, but that was coupled with a lack of political interest and financial investment, in the country's water utilities.

In 1986, Tanzania abandoned socialism, and signed a Structural Adjustment Programme (SAP) with the International Monetary Fund, which led to the end of free water and the prescription that Tanzania's water utilities should be self-sustaining. A series of semi-autonomous water authorities were eventually established, of which the largest was the Dar es Salaam Water and Sewer Authority (DAWASA). Various reforms of the water utilities were considered to repair and improve the utility, and following the drought of 1997, DAWASA had to

be seen to be doing something to finally tackling its problems. Dar es Salaam accounts for 25% of the country's urban population.

A privatisation process was begun, but a major stumbling block was that few private firms were interested in the project. Finally only one firm, the British company BiWater, remained at the final bidding stage. BiWater teamed up with Gauff Engineering, a German company, and was awarded the contract in December 2002 without any real competition. The result is that DAWASA may have less bargaining power with the private companies.

This paper asks how private sector involvement in supplying and improving Dar es Salaam's water and sanitation systems might, and should, be structured; and how the rolling out could affect the urban poor, most of whom are not connected to the water delivery system, and who obtain their water by various different means.

The private operators have over thirty years of underdevelopment to deal with. It remains to be seen what will happen, but some of the most pressing issues are:

- There is enormous loss and wastage of water as it is transferred from sources to the city. An estimated 114 million litres per day (mld) are lost via unauthorised supply and illegal tapping on over 70 km of main pipes. In Dar es Salaam, a further 6 mld are lost through unauthorised use, and 48 mld through leaks.
- Only 23% of water users in the city are billed, and only 16% of the total receiving water actually pay. The World Bank puts that figure at 8%.
- Dar es Salaam's urban poor, which make up 80% of the population, are not served by the water system. They live in 55 unplanned settlements which have grown up alongside road networks and in between housing and business estates.
- There is widespread illegal tapping of the water system, among middle-income earners and the urban poor.

- The sewer network serves less than 8% of the city's population, the oldest of which was developed in the 1950s. Over 90% of city households rely on pit latrines and septic tanks, which are emptied in a variety of ways, or have no formal latrine and solid waste system at all.
- An informal array of entrepreneurs make a living by distributing water in urban poor areas to those without water access, gaining water from their own taps, neighbours taps or the few public sources. In sanitation, informal 'frogmen' empty household pit latrines and dispose of solid waste. They face a possible drop in income if water delivery and sanitation access is improved in urban poor areas.
- Most of the urban poor do not know, or understand, the DAWASA privatisation process, or feel it will not affect them. Their primary concerns are receiving water in the first place, and secondly its price.

It is estimated that in Temeke Municipality, Dar es Salaam's major unplanned and un-serviced area, which contains roughly half the city's population, at least 120,000 out of a projected 200,000 households remain completely unconnected to the failing water system.

Unmanaged pit latrines are the main form of sanitation, followed by open defecation. Most residents live in poverty, earning less than \$1 per day. Access to safe water as well as adequate sanitation facilities are the greatest of Temeke's many problems.

Nine out of ten households buy water for drinking from vendors or neighbours, and then use a variety of other sources for washing and other water needs. It is estimated 4,000 water vendors operate in Temeke, graphically illustrating the problem of serving the unconnected population. Water vending is market regulated operation: when there is drought prices rise because obtaining water to sell is more difficult. Those who already have the poorest access to water services end up having to pay more for water at times of scarcity.

The emptying of pit latrines and septic tanks, as well as the collection and disposal of solid wastes, has also become a small trade in Temeke. The

privatisation of sanitation is better received generally in the community, because solid waste collection significantly improved when the city privatised operations in 1994.

The study revealed the community awareness of the privatisation process taking place was extremely poor, with a lack of knowledge or understanding that it was taking place especially pronounced in areas not on the pipe network. More than half of those interviewed did not know it was going on.

Four out of five respondents indicated that the extension of the water network into their area was of utmost priority, and proximity to the water source was generally considered more important than its price. There was concern, especially among women, about the price of water and services once established.

There was cynicism in Temeke that low-income communities would not be considered in the scheme, with one in three thinking it will only benefit the rich and those with connections to powerful people.

A number were of the opinion the scheme would only benefit foreigners; that it is not the mission of profit seeking companies to serve the poor. Water vendors were hostile to the PSP because they fear their livelihoods will be threatened by changes in the current system. However, some vendors said the PSP could not possibly cover the whole city, and saw themselves continuing for some time yet.

The proposal is for DAWASA to set up a social fund that will finance the extension of the piped system to the un-served communities, and about 40 supply projects and ten sub projects were being considered at the end of 1999. The difference in the amount of money being made available for these deprived areas (\$3-4 million) compared to the money available in the Development Contract (\$165 million) is marked, raising the question of how much commitment there is to ensuring the poor are adequately served.

A number of international NGOs, including WaterAid, have started to organise water based projects in Temeke and elsewhere. They involve establishing a social infrastructure to manage community's water needs, such as local water and sanitation committees, which then build community

water kiosks where residents can get cheap water. In some communities, such kiosks have become the main source of household drinking and washing water. However, in some un-served communities reaction to such proposals has been mixed, with residents preferring the flexibility of the present system, and vendors wary of losing trade.

The following challenges and recommendations emerged from WaterAid's analysis of the proposed PSP and the study among communities in Temeke:

- Discussions about the price of water are, initially, of little relevance to the poor since they are not connected and have no dealings with DAWASA.
- Most of the population have access to DAWASA's water supply from vendors or neighbours, so an increase in tariff would have an impact on the poor, though if reliability of supply was improved, then water sold by vendors might decrease.
- The vital task of getting unconnected communities connected to piped water will involve huge investment and construction projects, but these are not covered under the Lease Contract being proposed. The Development Contract which does cover this issue has only set aside a small amount for the work, and has no clear parameters for carrying it out.

There needs to be increased openness and transparency from managing authorities about the PSP to improve public knowledge and understanding.

The most immediate need is to bring the water infrastructure closer to the poor communities in Temeke. That means building tap-stands within 10-50 meters of households should be priorities over individual household connections. This would be a more measured way of introducing the infrastructure, without dislocating the livelihoods of vendors.

Community mobilisation and "social infrastructure" building must precede building of the tap stands, including the funding of community water committees, to enable consultation on tariffs, revenue collection, and education on hygiene. There is potential to use community organisations as "sub-contractors" to manage tap-stands as kiosks.

The PSP should allow for community managed schemes to co-exist with household connections. Investing water utilities in poor areas can be financially viable. The poor are willing to pay for water, but communities must be consulted.

Sanitation must not be the forgotten issue, and it must be addressed through the PSP. It must be included in the planning of the Lease and Development contracts.

The contracts

The lease - Under the PSP scheme, the investor has been asked to set up a Private Operating Company (POC) in Tanzania, with a controlling stake, but also involving Tanzanian investors. The POC will then be given a 10-year lease to run the city's water and sewerage systems. That least does not cover investments to rehabilitate, upgrade and extend the utility to unconnected communities.

The construction - Construction projects are provided for in a separate 'Development Contract', drawn up between the Ministry of Finance and DAWSA, and not the POC,. It is to be financed by loans from the World Bank and the African Development Bank. However, the private operating company may be commissioned to carry out some or all of the construction work.

Running and maintaining the system will be the responsibility of the private operator. Expanding the network to poor, un-served areas is the responsibility of government.. In theory, the private operator will have little or no say on decisions about the roll-out of the network to un-served communities. They will however handle difficult problems like illegal connections, an overstuffed utility, and poor revenue collection. Within the 'Development Contract' there is a provision of \$3-4 million specifically available as grants to help communities be connected to the system, a small proportion of the \$165 million the contract is worth in total. The obligations on the Development Contract to deliver to poor areas are unclear, and certainly weak.

III. Introduction

For over ten years, Dar es Salaam's water supply and sanitation services have been in a perennial state of crisis. As a result, passions run high in this city of about three million people (daytime population: five million) whenever the topic is discussed. In the second half of 2001, WaterAid conducted research on how residents of low-income neighbourhoods felt about the problems and the impending changes being proposed to resolve them. Reactions were varied, but were marked with some extreme replies. Asked what she thought about the Dar es Salaam Water and Sewer Authority (DAWASA), one housewife retorted, "They should all be fired!". Another squinted her eyes, gave a muffled curse, and then said, "I hate them". These are extreme reactions and, whether fair or not, are reflective of the sentiments sections of the public have over the city's failure to deal decisively with the problems in the delivery of water and sanitation services.

Dar es Salaam is a typical city in a poor developing country that is grappling with huge infrastructure and efficiency problems. The Tanzanian government has been trying to solve the crisis in its capital city by trying different reforms, but the problems are proving too stubborn to be solved. Now, private sector participation (PSP) is being tried, following a lengthy and often unsatisfactory process of choosing the right form of contract. A further problem had been to find an operator willing to take on the responsibility of delivering water and sanitation supplies to the residents of Dar es Salaam.

The existing system of provision of water and sanitation services was organised under the years of Tanzanian socialism and colonial rule. The services were originally provided for free, with minimal charging only to the high-income neighbourhoods for operation and maintenance. This system was one of the mechanisms for the fair redistribution of wealth – a central platform of the government. But over the years, it became evident that free water not only crippled the water system, it also pushed the country deeper into debt. Tanzania today is a Highly Indebted Poor



Country (HIPC) – one of the poorest countries in the world.

Tanzania abandoned socialism in 1986 with the signing of a structural adjustment programme with the International Monetary Fund (IMF). In 1991, the government took a radical step in water provision. It abandoned the idea of free water and adopted a new National Water Policy (NWP). It removed central government subsidies for its water utilities and prescribed that they should be self-sustaining. It moved a step further six years later by creating Urban Water and Sewer Authorities (UWSAs), autonomous public bodies responsible to their own board and not to a city or national government body. UWSAs were independent of government, were expected to be self-financing and would control whatever revenue they collected. In the short to medium term these UWSAs would receive government financing through the Ministry of Water. In Dar es Salaam, DAWASA was created.

Through these "reform" years, another option was considered – PSP. The cash-strapped, severely indebted government realised that its biggest need was investment. They looked to PSP as a way of attracting foreign companies to

invest in and rehabilitate the utilities, particularly DAWASA.

To make the problems even worse, a prolonged drought in 1997 exacerbated the crisis soon after DAWASA was created. Emergency measures were implemented: to keep public trust that something was being done, the government fast-tracked the process of engaging the private sector. But PSP is not a simple arrangement. It involves long-winded negotiations, complex relationship building and a minimum of guarantees before risk-averse investors will even start to consider coming in. When word got around that "privatisation" was being considered, eyebrows were raised. If this were to happen, Tanzania would have gone from one extreme (free water in a public system) to another (full cost recovery through private sector involvement). But there were also those who had given up on the idea that DAWASA could ever manage to deliver universal services who asked, "Why not, maybe a private operator can do the job?".

Naturally, there were snags. Initially, it was the disagreement over the form of PSP that should be used. Later, a more serious problem emerged: there were too few bidders. Five companies pre-qualified, four went forward to the re-bid process in late 1998 and only three opted to put forward technical and financial bids. Two of these subsequently dropped out, leaving a lone company vying for the contract. This company, Biwater, was finally awarded the contract in December 2002, despite a lack of any formal competitive process. There are a number of possible reasons why interest from private companies to run DAWASA was low and one of these is the utility has such complex and difficult problems that it simply does not appear to be an attractive business opportunity. It remains to be seen how Biwater will manage the contract.

This case study is an attempt to look closely at the changes being considered to resolve Dar es Salaam's water and sanitation problems. The approach adopted is somewhat ambitious – it investigates these issues from the perspective of the low-income residents, using participatory techniques. The study examines, among other things, how poor communities, unconnected to

water and sanitation services for so long, are coping with the continuing crisis. It asks what mechanisms they use in place of the city's failed public services. It examines whether these mechanisms, which have evolved slowly through the years, are being given due consideration in the policy changes, particularly in the implementation of PSP. It asks how involved the poor are in developing the PSP options and whether these poor communities stand a chance of gaining access to the services should a private operator take over. It evaluates whether PSP is the policy tool that can finally unlock the solutions and improve Dar es Salaam's water and sanitation services for the poor.

But this case study is more than just research using participatory techniques. From the beginning, it was clear that the poor, unconnected settlements of Dar es Salaam were marginal to whatever process was being considered and implemented. The participatory research activities conducted were designed to get their views as much as to encourage the residents to be more aware of the privatisation process.

Five community mapping exercises were undertaken. The exercises involved drawing community maps, identifying the resources and problems within the communities and cross-checking information gathered from other activities. "Enumerations" were undertaken, involving community leaders who were active in water user committees or in community organisations. They went from house to house among neighbours using a questionnaire prepared within the communities asking about general household information as well as their particular water and sanitation problems. They were also asked whether they had heard of the proposed "private operation" of DAWASA, and if so, what they knew and felt about it. Over 200 community leaders were mobilised and trained for this self-run survey. At least 4000 households were reached. Finally, focus group discussions were held with groups of women, water vendors, water committees and local leaders.

The study started with the presumption that getting a connection rather than who will run the utility, and not prices, is the chief and most

immediate concern of the poor in Dar es Salaam. Therefore, the argument goes, private or public operation of DAWASA will be relevant to poor communities only if it will bring them easier access to water and sanitation services. Putting it another way, it appeared to the researchers that the involvement of the private sector in the running of DAWASA was primarily an issue only to those who *had* connections. For the unconnected urban poor, what happens in the debates on who will own the system, make the decisions, or regulate prices is less of a concern than a far more pressing need which is simply to get a connection from DAWASA, whoever is responsible for running the service. "Get us connections now!" they seemed to be saying, "then we can talk about all the other issues that follow". This would then include discussion of management of the utility, connection costs, prices, regulation, billing and technology choices and later, through a secondary contract, the development contract, the extension of services to those areas currently unserved.

So, the primary focus of this study was on listening to views from Temeke, Dar es Salaam's urban poor area. These views are by no means unanimous, nor simplistic in their interpretation of the problems or the proposed solutions. But there was one hurdle that needed to be leapt before the community research activities could be undertaken. There was inadequate information about the reality of the process of privatisation of DAWASA. Access to those involved in the negotiations proved difficult. Media coverage was scattered, and many questions were left unanswered. Unless this was first unravelled, there was the fear that discussions with the communities would also be confused. As such, an investigation was first conducted into what was really going on behind the scenes. As it turned out, understanding the PSP process was crucial in determining where the interests of the poor lay. Understanding the different contexts and unravelling the knot of confusion in the process was crucial for the proper assessment of the information from the residents of Temeke Municipality. It would not however be true to say that this knot has ever truly been unravelled, and the question of how and why the lone bidder could be awarded the

contract without a truly competitive process has not been satisfactorily answered.

This study therefore lays down the context first before going into a presentation of views from Temeke. The first part presents a general overview and background of Tanzania, looking at its post-independence history and development, as well as the reform debates and poverty reduction schemes that have been attempted. The study then proceeds to discuss the water and sanitation situation in Dar es Salaam and the privatisation process that is being considered. As will be seen, there are a number of fundamental points in the process that have never been given adequate attention before – a matter that has caused considerable muddling of the debate. Finally, the main section of the report is presented: a summary of the issues of the poor from Temeke, what they know of the PSP discussion and the household context in Dar es Salaam's urban unplanned settlements. The issues raised by this are: community awareness and participation in the PSP process are extremely poor; mixed feelings among communities about the importance of sustainable water supplies; fear that PSP will increase the water tariff and that the needs of the majority will be overlooked; and a fear that the PSP process will serve only people who have sufficient money and live within the DAWASA network, and that the whole scheme will principally benefit foreigners.

The conclusion demonstrates how the research has validated but also refined the argument that the poor will not be affected by the privatisation process. Even if the poor are presently marginal to the PSP process, they cannot afford to remain so. There is a need to intervene on two levels: firstly, where conditions for the lease contract are being negotiated; and secondly, but more importantly, where decisions on funding for the subsequent development contracts, which will determine where the existing system is extended and improved, are being made.

The issues that need still to be addressed are then presented. In brief these are:

- Location and management of public waterpoints to be provided

- Priorities for investment in expanding the network in terms of both location and management procedures
- The role of the community-managed distribution networks, and their relationship with the Private Operating Company (POC)
- The long term future of stand-alone community schemes, both existing and those to be funded through the World Bank Community Water Supply and Sanitation Programme (CWSSP)
- The mechanism for public consultation on all of the above
- Sanitation has become the forgotten issue – it is necessary to involve non governmental organisations (NGOs) and groups working on sanitation in the process
- The further work that needs to be done in order to address the main concern: getting Dar es Salaam's unplanned neighbourhoods connected to a safe water system and providing adequate sanitation services

IV. An overview of Tanzania

The United Republic of Tanzania is the largest country in East Africa in terms of land area, covering 940,000 square kilometres, 60,000 of which are inland water. Lake Tanganyika runs along the western border and is Africa's deepest and longest lake and the world's second deepest lake. In the north west lies Lake Victoria, shared with Uganda and Kenya. The Rufiji River is Tanzania's largest river, which drains into the Indian Ocean south of Dar es Salaam. Except for a narrow belt of 900 square kilometres along the coast, most of Tanzania lies 200 metres or more above sea level. Much of the country lies higher than 1,000 metres. In the north, Mount Kilimanjaro rises to 5,895 metres, the highest point in Africa ([National Bureau of Statistics, 2002](#)).

Mainland Tanzania, known previously as Tanganyika, gained its independence from the United Kingdom in 1961. In 1964, a bloody revolution followed in neighbouring Zanzibar Island. Tanganyika united with Zanzibar in April 1964 to form the United Republic of Tanzania. Mainland Tanzania is divided into 20 regions and Zanzibar into five regions. Each region, in turn, is subdivided into districts.

In 1996, the country had an estimated population of 30 million, of which 26 per cent lived in the urban areas. The urban poor is estimated as constituting 80 per cent of the urban population. They are characterised by low-income levels

(less than US\$1 a day) as well as high rates of water-borne diseases ([WUP No. 2, 2000](#)).

The three phases of development

Tanzania's post-independence economic history is typically divided into three distinct phases. The first phase (1961 to 1986) is characterised by state socialism, the second phase (1986 to 1995) by structural adjustments, and the third phase (1995 to the present) by renewed macroeconomic reforms ([ESRF, April 2000: 4-10](#)).

Post-independence, Tanzania adopted a form of state socialism known as *Ujamaa*. It was formally launched in 1967 with the Arusha Declaration,¹ which declared that all the major means of production and exchange were to be owned by the peasants and workers through their government. Land, forests, minerals, banks, import and export trade, wholesale trade, cement, fertiliser, textile industries, insurance, news media, electricity and the iron and steel industries were all effectively nationalised. During this period, the country operated a centrally planned command economy in which the ruling party, the state and government institutions operated as a single intertwined vertical entity. The ruling party and state, with its administrative machinery, mass organisations, state-owned enterprises, state-directed cooperatives, government-owned banks and a web of public

¹ Arusha is a city in central Tanzania which is the country's second most important urban centre.

holdings, ran the economy and controlled both prices and the distribution of all essential goods and services (*ibid*).

Tanzania's adoption of *Ujamaa* was in many ways a response to the economic and market imbalances created during the colonial era in East Africa where Kenya was favoured as the location for industrial and business enterprises. The government took over the small and relatively fragile private sector, which had flourished during the colonial period. Many basic services such as health, education, agricultural extension and water were delivered free of charge or at subsidised prices. However, during this period, the economy suffered from external shocks such as sudden rises in oil prices, the collapse of commodity prices, droughts, the break-up of the East African Community and the Uganda war. Along with poor macroeconomic policies, weak economic management and a mounting foreign debt, a severe economic crisis peaked in the early 1980s. Weakened tremendously by the crisis, *Ujamaa* ended in 1986 with the signing of an IMF/World Bank Structural Adjustment Programme (*ibid*).

The second phase of development was marked by an economy supervised externally by the IMF, World Bank and other donors. Economic and public sector reforms were implemented to dismantle the state-controlled economy and develop a market economy. Trade, price control, exchange rates and interest rates were all liberalised. Agriculture was also liberalised and subsidies on fertilisers and other inputs were removed. Around 200 of 420 state-owned enterprises were sold to the private sector or shut down. The public sector workforce was cut from 355,000 employees in 1992 to 270,000 in 1997.

It was during this phase that user fees, cost sharing and co-financing of health care, education and water were introduced. But rather than improvement, these changes brought profound deterioration in the delivery of health and education services. New policies were developed for mixed service delivery systems in which the private, non-government and community sectors were given greater freedom to undertake and deliver services. Spending by

the Tanzanian government on social services was dramatically cut. Basic needs poverty levels in mainland Tanzania rose significantly to just under 53 per cent of the population (National Bureau of Statistics, April 2001).

Serious policy differences between donors and the Tanzanian government emerged. This, along with unresolved problems in management, poor tax collection and resistance to some changes being proposed, led to an impasse in 1993-1995. In 1995, the IMF and World Bank decided to withdraw support to the country.

The break with donors was however immediately resolved when a new "third phase" government came into office. Massive public expenditure cuts were implemented along with the withdrawal of overdraft facilities of three public sector banks². Macroeconomic stability set in, with inflation dropping from 30 per cent in 1995 to 6.6 per cent in early 2000. To further improve fiscal stability, the government moved to a cash budgeting system. This brought public sector finances under the strict control of the Treasury and Bank of Tanzania. The stringent fiscal regime however left public services with virtually no funds for development while access to loan capital for major infrastructure investment was tightly regulated and rationed.

New commercial legislation favouring foreign investment coupled with tax exemptions – primarily in the mining and tourism sectors – was implemented. Parastatal divestiture shifted from the marketing boards and state manufacturing enterprises towards the public utilities and transportation sector. In addition, Public and Local Government Reform was implemented, which meant rationalisation, streamlining and decentralisation of functions, structures and staff. New budgeting and financial management systems were introduced to both central and local government to enable better tracking of public expenditure.

The third phase continues today, but the results generally appear to be mixed. This is clearly

² All three banks have subsequently become insolvent due to parastatal and co-operative enterprises defaulting on their loans.

seen in the case of water and sanitation, where problems remain too stubborn to be resolved.

The bitter pill and results of reforms

Tanzania's reform processes were "bitter pills", which, while effective in achieving a certain level of macroeconomic stability, caused some social discord. Health-care, education and water services, previously delivered for free, now charged user fees. The imposition of school fees was eventually eliminated, but other costs (uniforms, books, etc) remained high and unaffordable by the poor. Exemptions for the poorest exist in theory, but not in practice. For water and sanitation, new "demand-driven" policies were developed – services were to be delivered based on demand, which often meant that the poorest, who are often unable to articulate demand in terms of cash contributions or political clout, did not receive the services.

One of the key reform measures taken was the parastatal reform programme. The government from the mid-1960s to the late 1970s established over 420 state-owned enterprises. These ranged from crop marketing boards; food processing enterprises; manufacturing businesses; water, power, and telecommunication utilities; harbour and railway authorities to petroleum refineries. The government invested huge amounts of capital in the parastatal sector. However, returns on investment were very poor and by the early 1980s these state-owned enterprises accounted for fiscal losses in excess of 7 per cent of GDP. This led to a situation in the early 1990s where six out of every ten parastatals were so heavily indebted that they could not repay their loans and were thus not credit worthy. The insolvent parastatals were key causes of Tanzania's debt crisis ([Katunzi 1998](#) and [World Bank 2000](#)).

One of the first moves made after the 1986 signing of Structural Adjustment Programmes was the establishment of the Parastatal Reform Programme. It aimed at reducing parastatal dominance in the economy, at promoting private sector activity, and at mobilising local investments. A special body called the Presidential Parastatal Sector Reform Commission (PPSRC) was created to handle the divestiture process and to oversee a massive

programme to privatise, lease or wind up the state-owned enterprises. To date, well over 50 per cent of these parastatals have been divested from government control.

In the mid-1990s the PPSRC began a new phase of PSP work focusing on the country's public utilities, railways and ports. The public utilities that are currently undergoing preparatory work for private sector involvement are: electricity, telecommunications and DAWASA. To assist the government in undertaking this work the World Bank is funding the process through the Programmatic Structural Adjustment Credit (PSAC) Programme (2000-4). The purpose of this programme is *"to assist in the completion of the privatisation of the main strategic public enterprises, particularly in infrastructure services, which have significant bearing on the cost of doing business"* ([World Bank, 2000](#)).

Among the institutional changes implemented in line with the new thrust of the PPSRC was the creation of autonomous public bodies called Urban Water Supply and Sewer Authorities (UWSAs). UWSAs ran on a self-financing basis and were set up in each of Tanzania's 18 urban centres (DAWASA for Dar es Salaam). The transformation of water utilities into authorities was meant to strengthen financial management, billing and collection capacities. All the UWSAs at the end of 1997 recorded substantial losses and were unable to meet their recurrent expenditure costs. By 2000, significant improvements, particularly in revenue collection which saw a 74 per cent increase across all UWSAs, were recorded. In 1997 a World Bank-funded government-executed Urban Sector Rehabilitation Programme started capacity-building in nine of the UWSAs – Arusha, Moshi, Mwanza, Tanga, Shinyanga, Dodoma, Mbeya, Iringa and Morogoro. Four UWSA's are now able to meet all their operation and maintenance (O&M) and staffing costs – Arusha, Moshi, Tanga and Mwanza ([MoF PER Water Sector Review 2001](#)).

However, these positive changes were still not enough to deal with the major problem – to expand water and sewerage networks to the unconnected poor communities, and to sustain this expansion to at least match population

growth. The growth rate of the urban centres is around 5.5 per cent per annum. Already, the 2000 Household Budget survey reveals that poverty has grown in the urban areas outside Dar es Salaam from 23 per cent in 1991-2 to 34 per cent in 2000. Massive investment to expand water and sanitation services to the poor is therefore urgently needed. Furthermore, investment is also needed for the rehabilitation of the existing, old and dilapidated water systems that are sustaining very high water losses through leakage, unauthorised use and illegal connections. But there are problems with the current fiscal regime, where investment is rationed by a cash-strapped government. It has been difficult to address the rehabilitation and expansion of water systems because of this lack of investment.

Poverty Reduction Strategy

In December 2000 the Boards of the IMF and World Bank jointly approved the government-led and prepared Poverty Reduction Strategy Paper (PRSP). The creation of this new strategy marks a new approach for dealing with the stubborn problems of under-development. The idea is that new funds can be mobilised if more focused and well-planned poverty reduction projects can be developed. The PRSP also showed World Bank-IMF confidence in the various structural reforms that Tanzania has implemented. They were convinced that by and large Tanzania has taken the "bitter pill". What would be needed from now

on, according to this logic, would be projects for more strategic poverty reduction (IMF/IDA, 2000).

Tanzania now has a focused and budgeted three-year medium-term poverty reduction and growth strategy linked to the International Development Targets (IDTs) which run until June 2003. The strategy's sectors and activities which take priority are:

- Primary education
- Basic health
- Rural roads
- Water
- Agriculture
- HIV/AIDS
- Access to credit and self-employment
- An enhanced business environment for private enterprise
- Improved governance

However, national consultation and participation efforts to engage a broad range of stakeholders in the Poverty Reduction Strategy (PRS) process have to date been limited in scope, content and coverage. This is due to a combination of factors: overly tight deadlines for preparing the PRS paper, communicating in a country the size of Tanzania, weak government/civil society communication channels, and the low capacity of many civil society organisations to network and engage in policy processes.

V. The water and sanitation situation in Dar es Salaam

Dar es Salaam covers an area of around 1,350km² and has a population estimated at between 2.5 to three million (SUDP Report 1999). However some estimates place it as high as 3.5 million with a daytime population of around five million. Poor and out-of-date census and administrative data make it difficult to check the accuracy of these figures. A new National Census took place in late 2002, but

was not available at the time of writing. The city's average annual growth rate over a 40-year period (1948 to 1988) was 7.7 per cent while during the last decade it is estimated to be around nine to ten percent per annum (*ibid.*). Dar es Salaam currently accounts for around 25 per cent of Tanzania's urban population.

Table 1 – Population forecasts for Dar es Salaam

Year	Growth rate	Estimated population	Sources ³
2000	9-10%	2.5 – 3 million	SUDP Report 1999
2010	9-10%	10 million	SUDP Report 1999
2010	7.1%	6.2 million	IRA/MoW 1995
2015	3.75%	3.8 million	Howard Humphreys Report 1995

During the last 40 years the city's growth has been primarily concentrated along the coastline and four arterial roads – Bagamoyo, Morogoro, Nyerere (Pugu) and Kilwa. This has led to a radial land development pattern in which prime areas for development are those with relatively good infrastructure networks and services – the Central Business District, Kariakoo, Upanga, Oysterbay, Masaki and Magomeni. Between the arterial roads, there are large areas that are not serviced and these have developed into unplanned settlements. Many of these areas are located in hazardous areas such as river valleys, flood-prone land and hill slopes. This has led to problems in managing hazardous lands characterised by soil and gully erosion, deforestation, excessive storm water run-off and landslides, sand-mining, and solid waste and environmental pollution. In addition servicing these areas is difficult due to the nature of the terrain and the density and layout of the settlements.

Unplanned and under-serviced areas accommodate about 80 per cent of the population of the city. The growth of informal settlements in the city has risen from 16 in the 1970s, 43 in the 1980s to 55 by the late 1990s. One result of the rapid growth along the main road systems has been the mixing of high, medium and low density developments, both planned and unplanned. These developments have a symbiotic relationship with each other and this has led to low density housing (half to two hectare plots) mixed with high density housing

with 30 to 40 houses per hectare and populations of 250 to 350 residents. This mixture of high and low density developments has resulted in a series of informal micro trade-centres and low income settlements interspersed with planned service centres.

Infrastructure provision is inadequate, poorly coordinated and lags behind the pace of development activities. This has resulted in reduced city productivity, weakened competitive advantage in attracting investment and has created a range of environmental hazards. Lack of financial resources and public sector investment over the last 20 years has greatly reduced the capacity of city institutions and utility providers to cope with service demand. Water and sanitation services have been particularly constrained with no new investments in mains sewerage and its treatment for 30 years coupled with limited investment in the water system. As a result, individual land developers, private sector businesses and communities have based their initiatives on ad hoc decisions to service their plots and neighbourhoods, often at high costs.

Water and sanitation facts and figures in Dar es Salaam

The agency responsible for water and sanitation services provision in Tanzania's capital city is DAWASA. It is a government utility created from the merger of the parastatal National Urban Water Authority (NUWA) and the former Dar es Salaam Sewerage and Sanitation Division

³ SUDP – Strategic Urban Development Planning Framework Report, 1999
 IRA/MoW – Institute of Resource Assessment for Ministry of Water (MoW), 1995
 Howard Humphreys – Feasibility Report on the Rehabilitation of the Dar es Salaam Water Supply System, 1995.

(DSSD) (WUP Project 5, April 2000). NUWA was created in 1981, during the days of the socialist government of Tanzania when most public services (health, education etc.) were provided for free. Its role was to develop and operate water supply systems in the country's 19 main urban centres. The national government provided the subsidies that paid for construction costs and most of the O&M costs. NUWA, which continually operated at a loss and became a drain on government resources, clearly failed to meet its objectives. Water and sanitation soon became one of Tanzania's major problems.

The city's main water source is the Ruvu River from which some 262 million litres are extracted daily. A supplementary six million litres are extracted each day from the Kizinga River. The water is then treated – at the Upper and Lower Ruvu Water Treatment Plants, and the Mtoni Water Treatment Plant just south of the city. Water from the Ruvu is pumped through two main transmission lines that extend some 70 kilometres to the city's holding reservoirs. Transmission losses en route are high and are

estimated to be 114 million litres per day (Mld), of which 61Mld are losses incurred due to infrastructure decay. The Upper Ruvu transmission line has a capacity of 80Mld. However, the steel pipes are badly corroded where they have been laid across swampy areas. In addition, the line is heavily tapped to supply villages and settlements en route, a small proportion of which are legal connections. The Lower Ruvu transmission line has a design capacity of 182Mld and is made from pre-stressed concrete pipes. In recent years the line has suffered two major bursts at river crossings caused by flooding due to the 1998 El Nino rains. This line is heavily tapped to supply the town of Bagamoyo, certain villages and irrigation agriculture. It is estimated that 35Mld of water is lost along the transmission lines due to unauthorised use — primarily irrigation agriculture. A further 18 Mld is drawn off to supply an estimated 150,000 people who reside in villages and settlements along the transmission lines.

Figure 1 – The water loss chain of Dar es Salaam

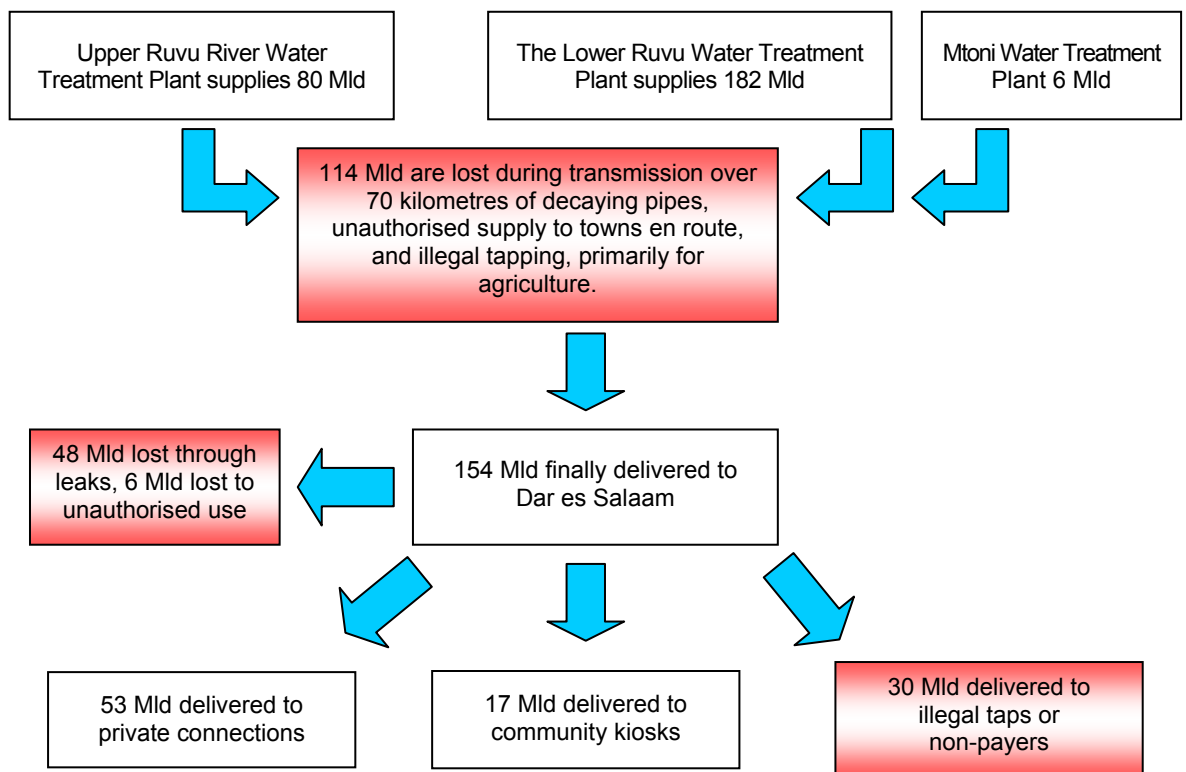
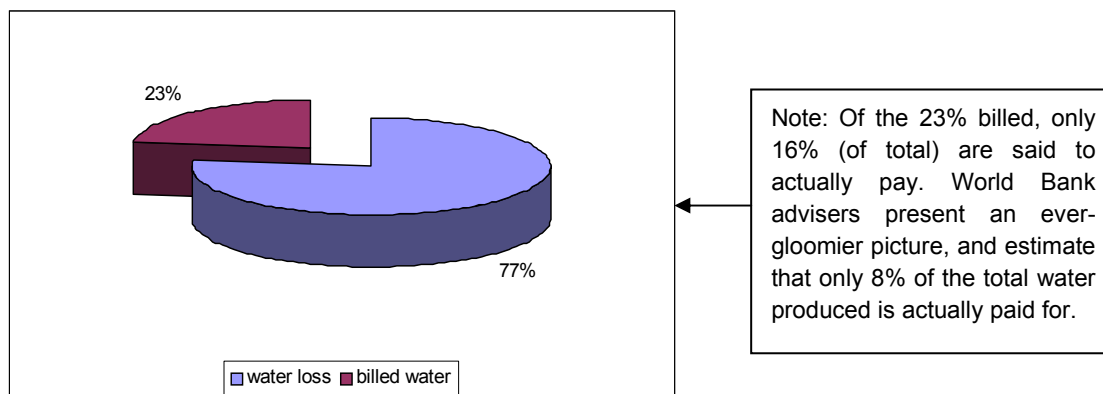


Figure 2 – Dar es Salaam water supply losses



It is estimated that around 154Mld is delivered to Dar es Salaam of which 48Mld is lost in distribution within the city due to the poor state of the infrastructure and wastage. A further 6Mld is lost due to unauthorised use. The actual amount available for DAWASA consumers is estimated to be 100Mld of which 53Mld is supplied through private connections, 17Mld is supplied to kiosks and 30Mld is illegally consumed. Studies reveal that only 23 per cent of DAWASA’s water production is billed and that only 16 per cent is paid for. However World Bank advisers suggest that only around 8 per cent of all water produced is being billed. The key problem therefore is not the lack of supply, but rather, the very high percentage of water lost through the bad state of infrastructure and illegal use along the transmission line. The state of decay (which allows for easier access to the transmission line) and unchecked illegal use have created a system whereby farms or *shambas*, many owned by influential Tanzanians, profit immensely from free water. DAWASA and the authorities appear

unable or reluctant to take action against those involved.

The city’s demand for water is between 350 to 400 Mld, of which 60 per cent is domestic demand, 10 per cent is commercial, 10 per cent is industrial and 20 per cent is institutional. DAWASA estimates that around 50 per cent of the population of the city is supplied through its piped water system. The cost of producing 1000 litres of water is estimated at 400 Tanzanian Shillings, which is roughly TSh0.4 per litre (Davies, Nov 1997). The standard price for water from a house connection is TSh0.29 per litre (see Table 2 for a comparison of drinking water charges paid by poor consumers). As such, it may be that for every litre that comes out of the pipe system, the government is paying as much as TSh0.11. It is probably only the poor who are paying more than the actual cost of water, but any profit goes to the various middlemen, not necessarily to revenues that flow back into government.

Table 2 – Costs of water and related figures (in Tanzanian Shillings)

	<i>Water user connected to DAWASA</i>	<i>Water user with no connection</i>
Cost of producing and distributing a litre of water in Dar es Salaam	0.40	0.40
Less: Standard price paid for a litre of water	0.29	1.00
Results in:	0.11 Costs that government ends up paying for	0.60 Profits that go to the owner of tap selling water

In addition to the large gap between demand and supply, the Dar es Salaam water system also suffers from: inadequate dry season flows in the Ruvu River in some years; vulnerability to supply interruptions caused by breakages and breakdowns; inadequate filtration and treatment; and low water pressures. Since 1997 the supply of water in the city has been supplemented by around 10Mld from groundwater sources. This is abstracted through 193 boreholes drilled during the 1996-97 drought and mainly serving the city's semi-urban and unplanned settlements.

Over 90 percent of city households rely on pit latrines and septic tanks of varying quality. The state of these sanitation facilities varies enormously both between residential areas and between dwellings. A wide range of materials is used in their construction while the licensing, regulation and supervision of sanitation in the city is performed by a variety of differing authorities. In addition, a range of private businesses and local authority departments provide sanitation services. In 1998, 19 different organisations had tankers which discharged waste collected from pit latrines and septic tanks into some of DAWASA's waste stabilisation ponds. The emptying services are unreliable, inadequate and ill-equipped, leading to overflows and risks of disease outbreaks. This is compounded by the relatively high water table in many parts of the city, which particularly affects low-income neighbourhoods where groundwater pollution is an increasing problem. Low-income and under-served areas regularly have outbreaks of cholera and other waterborne diseases.

The sewer system serves less than eight per cent of the city population. There are ten sewerage systems with about 170 km of sewer lines, 15 pumping stations and nine waste stabilisation ponds. The system is really a collection of independent micro-systems rather than one fully-integrated network. The oldest network is that covering the city centre, which was developed in the 1950s. Other areas of the city which have sewers are mostly centred in institutional areas such as Kariakoo, Ubungu and Vingunguti and parts of the outlying residential areas of Mikocheni, Kijitonyama, Mlalakua, University of DSM, Lugalo, Ukonga, Kurasini and Buguruni. Nine systems discharge into waste

stabilisation ponds while the system servicing the central area of the city discharges directly into the Indian Ocean via a 1km out-fall. The infrastructure in most of the older systems is in poor condition and needs replacement. None of the systems are well-maintained and all suffer from a lack of spare parts, poor management and recurring blockages. In the industrial areas some of the industries connected to the sewerage system discharge raw sewage composed of toxic chemicals into the system. This reduces the ability of the system to decompose the waste and results in only partial treatment of the effluent.

The city also has 1100km of open-lined ditches and 600km of piped storm-water drainage. Lack of regular maintenance and the dumping of refuse into the drains leads to seasonal flooding in parts of the city. In addition many industries that are not connected to the sewerage system or do not have waste treatment plants indiscriminately discharge the waste into storm drains and watercourses in areas adjoining their factories. These areas are often close to or within low-income settlements.

In 1991, Tanzania decided to implement sweeping reforms in order to deal with its huge inefficiency problems. A new National Water Policy was adopted, which radically changed the institutional framework by dropping the idea of "free" water and declaring that water supply services must henceforth be self-sustaining. Within six years, it became clear that this was not enough and that water supply services were not raising sufficient revenue to function efficiently. In 1997, new legislation was passed creating separate UWSAs in each of the 18 smaller urban centres and DAWASA in Dar es Salaam. As "Authorities", these utilities were institutionally autonomous – they operated independently of government on a self-financing basis. This meant that, among other things, water revenues collected from the public were retained by the relevant Authority. In the previous set-up, water revenues typically went to the city's coffers, which meant that all expenditure on the water system were dependent on city budgeting processes. Legislators, rather than professionals who can focus full time on the problems, determined expenditure. Furthermore, DAWASA

and the other UWSAs became responsible to a Board, and not to the city or national government, although it was these government bodies that appointed members to this Board. The Board is the main policy-making body, and had responsibility for setting prices. DAWASA levied flat-rate post-consumption water charges through bills issued to customers. Pit-emptying services and solid waste collection are generally pre-paid (PPSRC, 1999).

There are different types of settlements in Dar es Salaam, ranging from the planned and serviced settlements (like the Central Business Area) to the unplanned, illegal settlements (like the spontaneous settlements near the river and around industrial areas). Generally, about 80 per cent of the population of Dar es Salaam live in unplanned settlements (WUP No. 5, April 2000). Middle-income people also reside in these unplanned settlements. Where the settlement is connected to DAWASA, it is generally the middle-income residents who can afford to pay for a water connection, and in turn, sell on water to neighbours or water vendors. Clearly, where there is no DAWASA connection, alternatives have to be found by all residents, regardless of income level. Some of these unplanned settlements have become legal, (ie they are officially recognised, the houses are numbered, and the house owners pay a property tax to the municipal council concerned). No data is available on the actual percentage of legal or illegal unplanned settlements (ibid).

It has been difficult to establish to what extent DAWASA is able to provide water and sanitation services to these different types of settlements and to the city at large. For example, even in high-income areas where expatriates reside, it is not uncommon to find unconnected households getting their water from a neighbour with an illegal connection. Attempts to get coverage and service delivery information from DAWASA itself have so far failed. As such, only estimates can be relied on. For example, it is estimated that in Temeke Municipality, Dar es Salaam's sprawling unplanned and under-serviced area, at least 120,000 households out of a projected 200,000 remain *completely* unconnected to the failing water system. Unmanaged pit latrines are the main form of sanitation.

Water demand in the whole city is estimated by the PPSRC as between 350 to 400 Mld, of which domestic and commercial demand is about 60 per cent and 10 per cent respectively. DAWASA is said to meet 50 per cent of this demand (PPSRC, 1997). One rough way of estimating DAWASA's capacity is to compute delivery based on the number of water customers it has. Tender documents revealed DAWASA has 98,000 directly connected water customers, the majority of which are domestic, and 20,000 sewerage customers (PPSRC, 1997). Even assuming a generous amount of consumption per direct connection of 1000 litres per day to these 98,000 customers, delivery is only 98 Mld, or about a third of estimated domestic demand.⁴

In the interviews and enumerations conducted in this research, nearly nine out of every ten respondents indicated that they buy water for drinking from vendors or neighbours who have connections and then use a variety of other sources for washing and other water needs. So although only a minority of households have connections to the DAWASA water supply, a majority of households access water that originated from DAWASA networks. However, this only holds true for those residents living in areas within the DAWASA network. For those outside the DAWASA network or not living within the range of a community project, drinking water has to be collected from alternative water sources.

Water and sewerage services in Dar es Salaam have thus always been in a state of crisis. Blame is usually placed on huge financial losses resulting from illegal connections, unauthorised usage, and leakage. Other factors contributing to the crisis are weak billing and revenue collection, an outdated tariff structure, inadequate maintenance, and chronic under-investment for the past 20 years. Furthermore, semi-urban informal settlements that are far from DAWASA's distribution lines receive no supplies at all, making them reliant on boreholes, traditional water sources and the water vendors. The

⁴ Revenues can also be roughly estimated, since charges are based on a flat rate. Assuming that all customers pay the minimum TShs 10,000 a month charged to low-income customers and that billing and collection is efficient, DAWASA has the potential for monthly revenues of TSh1 billion.

sewerage system is largely undeveloped. Sewer pipes are estimated to reach only 10 per cent of the population, and the rest use pit latrines (for the low income households) and septic tanks (for the middle to the upper-income households) (PPSRC, 1997).

As if to make the problems even more acute, as soon as DAWASA was created in 1997, the biggest water crisis to date hit Dar es Salaam. A drought from January to March 1997 caused taps to run dry for weeks. The crisis was especially pronounced in the low-income communities that did not have access to deeper boreholes. Emergency measures were considered, and the government decided to fast-track the process of handing over DAWASA to private operators who could bring in the much needed investments. A key factor in this desire to move more quickly in the PSP process was the need to demonstrate to the public that measures were being taken to tackle the city's water supply problems, even prior to the drought. And indeed, the foundations for forms of privatisation of DAWASA have already been laid. For instance, financing for the PSP process had already been secured from the World Bank Public-Private Infrastructure Advisory Facility (Davies, 1997).

The PSP process

Since the early 1990s donors and consultants have suggested PSP as a policy reform solution to Dar es Salaam's water and sanitation problems. Between 1991 and 1995, five major technical feasibility studies were undertaken with donor support that, in many ways, paved the way for PSP to be considered for the city. The most comprehensive study was made in 1995 by Howard Humphreys, a subsidiary of the international engineering company Brown and Root. This study concluded that if current and future demands were to be met, five major tasks need to be implemented, namely:

- Refurbishment of the existing infrastructure
- Extension and upgrading of the network
- Better management

- Rehabilitation and augmentation of the extraction, treatment and transmission facilities from the Ruvu River
- Improvement of other raw water sources

For the refurbishment and extension of the infrastructure alone, DAWASA estimates the cost to run over US\$620 million. The amount approved by donors is US\$165 million (Davies, 1997).

In August 1997, international water and sewage operators were invited for a pre-qualification to tender for a PSP arrangement in DAWASA. Five companies made it to the short list. Four of these companies were asked to give presentations to a PPSRC technical committee comprised of 11 senior civil servants, who received technical advice from the World Bank and consultants. Four bids were eventually received by December 1997. Company A proposed a joint venture; Company B offered a bid for a 30-year concession agreement; Company C offered a package that included a joint venture, a concession agreement, delegated management and technical assistance; while Company D offered no specific form of arrangement⁵. Faced with a case of comparing apples with oranges, the PPSRC technical committee decided in early 1998 *not* to rule on who should be the winning bidder.

It has been difficult to establish who should actually be held accountable for the fiasco of this first bidding attempt. It has emerged that the problem stemmed, to a large degree, from differences in opinion among the institutions involved. The PPSRC technical committee favoured a joint venture followed by a concession. This reflected the government's key concern – which was to bring in the much-needed investment that at the time it seemed only multinational private companies could provide. But the key problem was that the government was not in a position to apply sufficient cash or infrastructure as equity to a joint venture. The African Development Bank, a co-financier, favoured a management contract as

⁵ The companies could not be named, owing to confidentiality agreements with the sources of this information.

the best option given the weaknesses of DAWASA's management and the state of its infrastructure. Investing in DAWASA was deemed a risky venture, so the best arrangement would be a management contract that could put the utility in order before investment was poured into it. The other major player, the World Bank and its advisers, favoured a lease arrangement. A lease would not involve investments, but would give greater leeway for the private operator to implement reforms, including controversial changes like the reduction of staff or the prosecution of illegally connected users. These differences were resolved by the end of the 1998, and the three parties agreed that the best option was an "operating lease contract" (Davies, 1997; PPSRC, 1997; PPSRC, 1999).

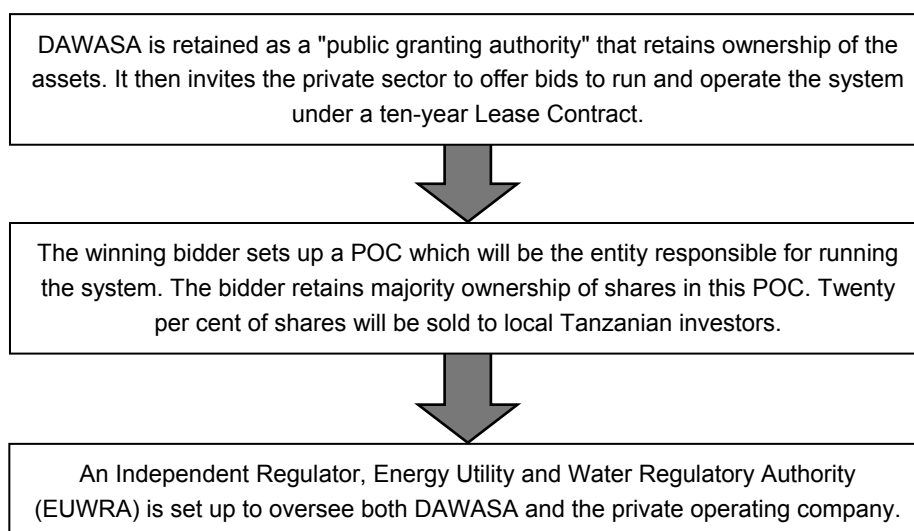
By June 1999, a "Supplementary Information Paper" was issued to bidders for a lease contract. Bidders were to make two types of bids – a technical bid on how they planned to run the utility and address its various problems; and a financial bid on how much they would charge consumers. Only when the technical bids were approved were the financial bids to be opened. However, only two French companies — SAUR International and Groupe Général des Eaux (now Vivendi) — submitted bids at this new round. They passed the technical bidding phase, but when their financial bids were opened in late February 2000, they were found to be non-compliant with the bid document. The government proposed a partial re-bidding for a ten-year lease, but postponed the

process because elections were to be held in October 2000 (The Guardian, 2000).

The relaunching of the bidding process was not made until April 2001. A private company was re-engaged to prepare new bidding documents and invitations, which came out in July 2001. The plan was to select the preferred bidder by late 2001, which did not happen. However, by the beginning of August 2002, two companies had withdrawn, leaving one lone bidder. This bidder, Biwater, was accepted as the future contractor in December 2002, without any further competitive process.

The idea proposed for the new round of bidding in April 2001 was threefold. First was to keep DAWASA as a "public granting authority" (also called "asset holding authority" in other countries) that would retain ownership of the assets. Second was to obtain a private operator to upgrade and run the utility on a ten-year Lease Contract. And third, was to set up an independent regulator that would oversee both DAWASA and the private operator. Under this proposed scheme, the winning bidder would establish and register a Private Operating Company (POC) in Tanzania, with that bidder retaining majority ownership of shares. Twenty per cent of the shares would be made available for purchase by local Tanzanian investors. The POC will then be given a ten-year lease contract by DAWASA to run the city's water and sewerage systems (PPSRC, 2000).

Figure 3 – Sequence of relationships in proposed PSP set-up



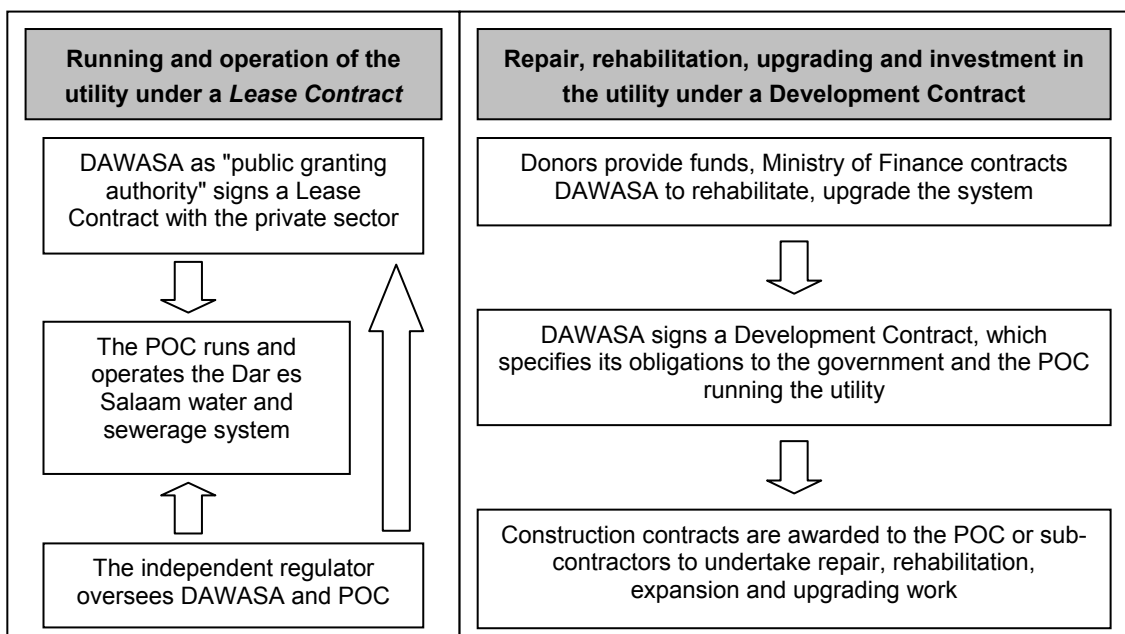
Like other lease arrangements, the Lease Contract does not cover provisions for investments to rehabilitate, upgrade and extend the water system to unconnected communities. Construction projects for the system are provided for in a separate contract, known as the "Development Contract" which is to be made between the Ministry of Finance and DAWASA. The Development Contract will specify the terms, conditions and obligations of DAWASA both to the government and to the POC appointed under the Lease Contract. The POC will not be a signatory to the Development Contract, but will be provided with a copy for reference purposes. Financing for construction and upgrading work will be provided by the World Bank and African Development Bank. So, what may happen is: DAWASA, the public granting authority and owner of the assets, identifies the projects that are needed to improve the system; the POC or sub-contractors are given money by the banks to undertake construction work. Eventually, Tanzania will pay back the financial resources provided through tax revenue and water user charges.

It is crucial to distinguish between the Lease Contract and the Development Contract in order to make sense of this complex arrangement. The Lease Contract will be an arrangement between DAWASA and the POC. Issues like the possible

retrenchment of DAWASA staff, the repair of leaks, the prosecution of water thefts and illegal sale of water, the introduction of meters, and most importantly, pricing, will be covered under the lease contract.

The Development Contract is an entirely different arrangement involving construction projects that will be funded by loans from the World Bank and African Development Bank and implemented by the POC or sub-contractors. The value given for these loans is at present US\$165 million. It is a contract between the Ministry of Finance, as representative of the national government which is the 'recipient' of the funds, and DAWASA, the independent public body that will get to own whatever assets are constructed. The critical issue of extending the water network to the poor, unserved areas, along with technology and design choices (eg whether public standpipes or individual household connections will be built) are matters covered under the Development Contract. But DAWASA itself will not implement the construction projects, although it will be responsible for the award of all construction contracts for the extension and upgrading of the system within the provisions of the Development Contract. Out of this US\$3-4 million is specifically available as grants rather than loans for 40-60 water and sanitation projects to be carried out in informal settlements.

Figure 4 – Distinguishing between Lease Contract and Development Contract



The Energy, Utility and Water Regulatory Authority (EUWRA) to be established will monitor contract performance and compliance against targets and outputs, ensure that service standards are met, and keep a balance between the interests of the consumers and the investors. It will provide tariff guidelines, but technically it will be DAWASA's job to decide on and set the prices.

In an ideal situation, the company offering the lowest price to consumers in the financial bid would be awarded the Lease Contract. There would of course be a possibility that a bidder offering a slightly higher price but with better or more feasible technical bids would win the bidding process. However, in the current circumstances, given the acceptance of the sole bidder, this competitive process has been partially by-passed, and the price will be far more negotiable by the chosen POC.

Box 1 – DAWASA's policies on tariff

DAWASA has instigated policies that will help low-income households to access water supply under private operation:

Social Connection Policy – A household wishing to have a private tap connection within its yard will be asked to deposit six months' payment instead of paying for connection costs.

Lifeline tariff – Consumption below the lifeline monthly amount of water per family (10 cubic metres) will be charged a minimum flat rate. Consumption over this amount will be charged at regular rates, and it is intended that meters will be used to measure this.

Density of connection – In high density areas, DAWASA and the private operator will connect all households within 30 metres of the main pipe so long as they meet the connection costs and monthly payment of services.

Amnesty – An amnesty is given to those who are illegally connected – that is, no prosecution will be brought on condition that they register and legalise their connections.

There is therefore a two-step process in understanding the complexity of the PSP scheme

in Dar es Salaam. First is to distinguish between the Lease Contract and the Development Contract. The Lease Contract is a relationship between DAWASA, an autonomous public body, and the POC. DAWASA wants to hire a more technically competent entity to do work that it has had enormous difficulties dealing with. This relationship is not much different, although rather more complex, from a house owner hiring a plumber.

The Development Contract on the other hand is essentially a relationship between Tanzania and its donors/financiers. Tanzania is given the loans it needs to rehabilitate and upgrade its water system, once it meets certain requirements set by the lenders. This relationship is comparable to the house owner negotiating a fresh set of loans with his mortgage provider. Lenders ensure that the money they lend will be used properly and that it will be paid back. They also want a number of guarantees. In the case of the mortgage provider, title to the property is kept until the full mortgage is repaid. In the case of donors and lending institutions, a set of guarantees is imposed that minimise the risk of non-payment, or protect donors against non-payment. What is not clear is what guarantees the donors/lenders are imposing on Tanzania so the country can qualify for fresh loans needed for the rehabilitation and expansion of the water system.

The next important step is to look at the links between the Lease Contract and the Development Contract, and see the dynamics that may emerge. For instance, the Lease Contract may specify that the POC should improve billing (ie have more registered customers) for the water that DAWASA provides. However, meeting this performance target may be dependent on certain construction or repair work, or on the purchase of meters – expenditure that is covered under the Development Contract. This simply means that the private operator may only be able to meet many of its obligations under the Lease Contract if certain portions of the Development Contract are actually implemented and carried out on time. This is one of the reasons why some commentators have stated that the Lease Contract is the most difficult to manage among all the different forms of PSP. It is much more difficult to pin

responsibility or blame for inefficiencies or investment mistakes, as compared to a concession, where the private sector takes responsibility for investment as well.

One common condition set by lenders in situations like Dar es Salaam is to ask that a Lease Contract is signed before funds are approved for the Development Contract. A Lease Contract with a reputable company running operations, will to a large degree, ensure that whatever money is provided in the Development Contract will be used wisely. Also, typically, the setting-up of a POC is the key mechanism for repaying the loan. The POC sets up a bank account, and collects tariffs from the customers. Once revenues start coming into this bank account, it will automatically remit payment to the lenders. This financial set-up is considerably more difficult if a government body (a sovereign institution) is involved.

A number of important but confused issues emerge at this point. First, it is not clear whether under Tanzanian law a POC may be empowered to collect money from consumers. If not, then DAWASA will have to collect the money, in which case, new financial arrangements have to be structured. Second, the conditions and guarantees that the lenders want from Tanzania – which may finally lead to the speedy granting of

loans that is ultimately the most urgent matter for the unconnected urban poor residents – are not clearly specified.

There may also be a number of latent issues that are influencing the process. For instance, if the transmission lines are rehabilitated and billing is made efficient, the *shambas* and farms currently benefiting from the state of decay of the lines through illegal connections would lose their privileges. Also, the construction contracts have as much potential for corruption as the existing system, if not more. They will in total run into hundreds of millions of dollars, and vested interests may be in a position to reap windfalls from the award of these contracts.

Relationships are therefore complex, and have many underlying sub-texts, both political and economic. Also the repayment of loans for the Development Contract may have an impact on who is targeted for the extension work carried out in the contract. This is clearly a major concern for the improvement of water supplies to those informal settlements which are currently completely unconnected. A small amount of money (US\$3-4 million of the US\$165 million) has been set aside specifically to service 40-60 informal settlements through community-managed systems, but this is not going to meet demand.



The main road of Keko Mwanga B, in Temeke. Photo by Eric Gutierrez

VI. Voices from Temeke

Temeke, one of three municipalities that comprise metropolitan Dar es Salaam is typical of sprawling, 'spontaneous', settlements in a growing city of a developing country. Each day, a small army of informal, street entrepreneurs — water vendors working individually — bring the community to life by criss-crossing the roads to haul and deliver 20-litre plastic containers of water from a diversity of sources to their customers. They perform a valuable service, a coping mechanism that has emerged in this low-income settlement of some 1.3 million people, where formal water and sanitation services are largely unavailable (CIP, September 2000). Water vendors have become indispensable to life in these streets. Some enterprising individuals provide informal sanitation services as well — by hauling solid wastes from households to dump sites around the settlement, and by serving as 'frogmen' emptying pit latrines for a fee.

Temeke Municipality comprises roughly half the population of Dar es Salaam. It is a legally recognised area, which means that it has a basic network of roads laid out according to a plan made in the years of Tanzania's socialist government. This also means that in theory, no illegal or 'invisible' settlements exist in the area — all squatters possess some kind of land tenure security because they are occupying government land. But because the area is spontaneous and unplanned, most of the households that have sprung up followed no regular, measured pattern. It is now common to find a small six-room house

being shared by six different families. Roads are made nearly impassable by the rainy season. Temeke Municipality is largely an unserved area as far as basic services are concerned. Electricity connections, as well as water and sanitation facilities, are improvised (WUP No 5, April 2000). Most of Temeke's residents live in poverty, earning less than US\$1 per day. A large proportion were originally migrants from poorer rural areas or smaller urban centres who remain unemployed for long periods of time. Therefore, many of them become informal entrepreneurs — such as water vendors, whose only starting capital is their brawn, carrying loaded water containers around the community. The quality of life in areas like Temeke Municipality is reflected in the national life expectancy figure of Tanzania — a person born today is likely to live only for 48 years.

Access to safe water as well as adequate sanitation facilities are the greatest of Temeke's many problems. There is no reliable estimate of water yield from various sources in the area. One estimate made is that only 33 per cent of demand is actually reached: a yield of 6.14 million gallons (27.91 million litres) per day against a demand of 19.49 million gallons (88.6 million litres) per day (Temeke WATSAN Coordination Committee, 2001). There are no sewer lines and only very few people are able to afford septic tanks. Pit latrines are the main form of sanitation services, followed by open defecation.

Box 2 – Zainabu Rajabu from Tungi Street explains her daily life

"I have to wake up early, around five am every day, before people go to the mosque for morning prayers. I can spend 30 minutes collecting up to five small buckets of water."

"We normally have to ensure that we reach the place before the water vendors come, as they push us backwards when they collect the water. We are not strong enough to resist which means we have to wait longer and sometimes, we don't even get to reach the water. We are forced to buy water from a vendor taken from the same source for as much as 100 Shillings or more per jerry can."

Life in the community

Results from a preliminary sampling of enumeration sheets reveal many things about daily life in Temeke.⁶ First, it is quite clearly a poverty-stricken community where nearly two out of every three income-earning residents earn less than US\$1 each day (see Table 3).

Table 3 – Income levels (in Tanzanian Shillings per week)

Income group in TSh	Frequency	Per cent
Less than 1,000	21	13.1
1,001 to 2,000	16	10.0
2,001 to 5,000	33	20.6
5,001 to 10,000	47	29.4
10,001 to 15,000	26	16.3
15,001 to 20,000	6	3.8
Above 20,000	11	6.9
Total	160	100.0

Note: One US dollar is roughly equivalent to 1,000 Tanzanian Shillings (TSh). A person earning TSh7,000 per week is earning about US\$1 each day. The table shows that most respondents (47 cases) earn from TSh5,000 to TSh10,000 per week. A total of 73.1% of respondents earn TSh10,000 or less each week.

Forty-seven per cent, or nearly one out of every two people in Temeke are self-employed petty traders (see Table 4). They may be water vendors or youngsters who run down city intersections to sell anything from sweets, soft drinks, sunglasses to furniture. Nearly one out of every five are seasonally employed, meaning they are part-time farmers cultivating small plots in vacant spaces of the semi-urban areas, or seasonal workers. Some 9.4 per cent have more stable employment as government employees, and 5% are employed by private firms and enterprises as handymen, security guards, or skilled workers. About 7 per cent are artisans. About 12.5 per cent indicated they were not employed at all, and were dependent on the income of relatives, or from rents they charge to families living in rooms of their houses. Massive

⁶ For purposes of this case study, we have randomly selected 160 enumeration sheets from over 4000 that were collected in the course of the community research in Temeke. There are problems of "representativeness" in this sample, but we are nevertheless confident that the picture it presents is not too far away from the reality on the ground.

under-employment is prevalent in the area. Petty trading, seasonal jobs and part-time employment are also highly risky jobs, and strictly speaking, should not be categorised as regular employment. The ability of the poor to survive is shown by how many of Temeke's residents are able to squeeze themselves into some form of income-earning activity that they classify as employment.

Table 4 – Employment in Temeke

Type of employment	Frequency	Per cent
Fully employed in government	15	9.4
Fully employed in private sector	8	5.0
Seasonally employed	24	15.0
Petty trading	75	46.9
Self-employed (artisans)	11	6.9
Part-time employment	3	1.9
Not employed	20	12.5
Retired	4	2.5
Total	160	100.0

None of the Temeke residents in the sample have gone beyond secondary education. Two-thirds have undergone some form of primary education, while 11.3 per cent have received no education at all. For every male that had no formal education there are two women similarly without education. Those who have not received education tend to be 51 years old and above (see Table 5).

The enumerations did not cover information on residents born from 1986 onwards, to see whether access to education improved or deteriorated after the adoption of the IMF structural adjustment programme.

Table 5 – Educational attainment

Education Gained	Frequency	Per cent
No formal education	18	11.3
Primary level	107	67.3
Intermediate level	1	0.6
Secondary level	33	20.8
(missing answer)	1	0.6
Total	160	100.0

The sample (see Table 6) had a fairly normal distribution of ages, and there are more women (51.3 per cent) than men (48.8 per cent).

Table 6 – Age distribution of respondents

Age group	Frequency	Per cent
16 to 25 years	25	15.6
26 to 30 years	32	20.0
31 to 40 years	45	28.1
41 to 50 years	25	15.6
51 to 60 years	18	11.3
Above 60	15	9.4
Total	160	100.0

There are a variety of settlements in Temeke. There are low-density areas, like the Ferry area where houses are dispersed and tend to look more like a rural neighbourhood. But there are also high-density areas, like Keko Mwanga, where houses are packed tightly in spaces between industrial estates and enterprises. Fifty-five per cent of those interviewed owned their houses, meaning they had built the houses themselves but are not necessarily the owners of the land on which those houses stand. There are few tin shacks in Temeke, as most houses are permanent but are constructed of materials that the house owners could afford. Housing is an entitlement guaranteed in Tanzania's socialist years. Tenants are about 34 per cent of the sample, and one case was recorded of a resident living in a government-provided house. The rest of the respondents were relatives of the house owners (see Table 7 below).

Table 7 – House ownership status

	Frequency	Per cent
Self-owned house	88	55.0
Tenant in a private house	54	33.8
Living with relative	17	10.6
Gov't-provided house	1	0.6
Total	160	100.0

The average number of people living together under one roof is six to ten. What was surprising though was that there were houses with 15 or more people. The highest recorded number was 38 people living in one house – most of them

children of tenants who are migrants into the city. It is not unusual to find houses in Temeke with six families of up to five members each, with each family living in one of six 6ft X 8ft rooms (see Table 8).

Table 8 – Number of people living in the house

Number in one house	Frequency	Per cent
1 to 2 people	11	6.9
3 to 5 people	40	31.9
6 to 10 people	70	43.8
11 to 15 people	17	10.6
Above 15	22	13.8
Total	120	100.0

Fifty-six per cent have lived in their communities for six years or more. One out of every five has lived in Temeke for more than 15 years. Some 30 per cent are recent migrants. At least 13.1 per cent moved into their houses within the last year (see Table 9).

Table 9 – Length of time living in Temeke

Number of years	Frequency	Per cent
Less than 1 year	21	13.1
1 to 5 years	49	30.6
6 to 10 years	40	25.0
11 to 15 years	17	10.6
Above 15	32	20
(missing)	1	0.6
Total	160	100.0

Residents in Temeke typically rely on a number of sources for their water needs. In the overcrowded Keko Mwanga area for instance, the water table is high, lying just about four feet below the ground. Residents thus dig wells, which they line with used car tyres. Keko Mwanga has a number of these hand-dug, tyre-lined wells, which residents use for their washing needs. They will then go to neighbours with DAWASA connections, or to water vendors, to get their drinking water. The distribution of drinking water sources is presented in Table 10. Note that there is a high number of people using water from kiosks (35.6 per cent). This is because a large number of respondents in this research are residents in areas where WaterAid has assisted in setting up eight community water projects. Also, it

should be noted that only eight per cent indicated that they relied on water vendors for their drinking water source. This apparently low figure is explained by water vendors being only secondary sources for many users. Also, the construction of community kiosks has put some water vendors out of business. They only trade when electricity fails, as water in the kiosks is pumped by electric motors.

Table 10 – Main drinking water source in Temeke

Source	Frequency	Per cent
Traditional wells	25	15.6
Community kiosks	57	35.6
Private DAWASA connection	13	8.1
Neighbour's DAWASA connection	34	21.3
Neighbour's well/pump	12	17.5
Water vendor	13	8
Others	6	4
Total	160	100.0

Income does not appear to have any bearing on access to a DAWASA connection. There are 17 "high-income" respondents in the sample earning TShs 15,001 or more each week. Only one had a private DAWASA connection; six relied on traditional wells; six on community kiosks; three on a neighbour's DAWASA connection; one on water vendors and one on a private well. In contrast, there are four out of 21 low-income residents earning less than TSh1,000 each week with a private DAWASA connection in their houses. These were most probably connections constructed under the socialist government. Ten low-income residents relied on their neighbour's DAWASA connection. Our assessment is that access to a DAWASA connection is primarily dependent on the proximity

of the house to the pipe network, and secondarily on the income of the house owner.

Sanitation, as expected, is a huge problem. Three out of every four respondents said they did not have any system for disposing of their solid wastes. About 22 per cent, mostly those in the semi-urban areas where space is available, dig garbage pits to bury their solid wastes. Only two per cent benefit from solid waste collection by the city government. These are residents whose houses are on the main streets which are accessible by the garbage trucks dispatched by the contractors.

Waste water disposal is an even greater problem. Only two respondents (1.3 per cent) revealed they had a septic tank. Some 76.3 per cent use pit latrines, while 22.5 per cent were not even using pit latrines, relying on open defecation or putting their faeces in plastic or newspaper that gets thrown away with the solid waste.

Again, income appears to have no significant bearing on sanitation use and hygiene practices. Two out of 17 "high-income" earners were not using pit latrines, but it could be that they have access to other more sanitary facilities, perhaps in their places of work. In contrast, five out of 21 low-income earners do not use any system for waste water disposal. Those who had septic tanks are in the middle-income range.

Similarly, there appears to be no relationship between educational attainment and sanitary/hygiene practices in Temeke. Of those who received secondary education, two out of every three had no system for solid waste disposal, while about one out of every four had no system for waste water disposal. Comparisons are shown in the two tables below:

Table 11 – Link between education and having solid waste disposal system

	No formal education	Primary Education	Secondary Education	Total
No system of solid waste disposal	14	82	23	119
Uses self-dug garbage pits	4	21	11	36
Refuse collected by city contractor		3		3
Small-scale collector		1		1
Total	18	107	33	160

Table 12 – Link between education and having wastewater disposal system

	No formal education	Primary Education	Secondary Education	Total
No system of wastewater disposal	5	23	8	36
Uses pit latrines and open drainage	13	83	25	121
Uses a septic tank		1	1	2
Total	18	107	34	160

PSP issues

Community awareness of processes taking place on the part-privatisation of Dar es Salaam's water and sewerage system is extremely poor. Generally, there is a lack of understanding of what is going on, especially in the areas not reached by the piped distribution network. More than half of those interviewed are not even aware that these processes are happening. Of those who have some awareness, there is no basic understanding of the PSP policy, nor is there understanding of what will change in DAWASA when the policy is implemented. At least 15 per cent of respondents have not even heard of DAWASA. Some 30 per cent indicated that they got their information from the print and broadcast media. There is no public education to sensitise people on the PSP process. The changes and the relationships that are starting to emerge are indeed confusing. It is therefore no wonder that many residents of Temeke who had some awareness of the process are apprehensive and generally suspicious of what might happen. But there is a great deal of ambivalence as well, as some residents, tired as they are of the inefficiencies and failures of DAWASA, are willing to see some hope in the process of involving the private sector. A number of issues and concerns emerged from the interviews and enumerations made in the course of the field research. These are:

- Four out of every five indicated that the extension of the piped distribution network into their area is of utmost priority. Proximity to water sources like standpipes, and reliability of supplies, are, in general, more urgent issues than cost to most of the respondents. But there are a number who felt strongly about the reported increase in water tariffs when a private operator takes over. It is mostly women who are concerned with the imminent increases in tariff.

- There is cynicism in Temeke that low-income communities will be considered at all in the scheme. One out of three people think the PSP process will benefit only a few individuals with the money and the connection to powerful people. There is pessimism about the majority of poor communities being served. High- and middle-income communities will be prioritised. There are even those who doubt that the plan will take off at all.
- A number were of the opinion that the proposed changes will primarily benefit foreigners. The interests of foreign investors are going to be prioritised over the interests of poor people. It is not the mission of profit-seeking companies to serve the poor. Also they believe that the changes will fall into the same pattern of foreigners extracting huge benefits, such as resources, big salaries and top jobs. In contrast, employees of DAWASA who will lose their jobs are not even sure of getting retrenchment benefits.
- Water vendors are hostile to the PSP idea. Some are threatened by any change that will remove the need for vendors. PSP is increasingly associated with the loss of employment and opportunities for survival. However, there are some water vendors who believe that even when a private operator takes over, they still could not cover the entire city, or that this will not happen overnight. Hence, they see themselves continuing for some time yet.

The costs of water for the poor

Current water tariffs are paid depending on water pressure in the area. The high pressure zones pay TSh12,787 (approx. US\$12.78) and are estimated to consume 43.2m³ per month and the low pressure zones pay TSh9413 (approximately US\$9.40) and are estimated to consume 31.8m³ per month. However these prices are paid in a flat rate system. Some of the low-income areas like Keko Mwanga B falls into a high pressure zone which means residents have to pay high costs for water, even though water has not been available in the area for some time.

The current water supply tariff is such that the low-income areas pay a lower rate compared to the middle and high-income areas. Commercial and industrial consumers pay the highest tariff. A flat, post-consumption rate is charged to high density, low-income customers. The lowest rate charged by DAWASA is TSh9413 per house, irrespective of the volume of water used. In the low-income communities, most people would earn between TSh20 – 40,000 per month. The DAWASA charges are therefore considered unaffordable, and many with connections do not pay them anyway because of regular disruptions in the supply.

Most, but not all, house owners in poor communities with piped connections are engaged in retailing water to their neighbours. Some retail their water to regular customers at a fixed rate of TSh1000 to 1500 per month. They will have at least ten, sometimes as many as 15, neighbours who are regular customers. Some retail their water at a price of TSh20 per 20-litre bucket or plastic container. Queues often form at their tap, comprised of regular customers as well as those who pay per bucket.

Water retailers are found mostly in the areas with DAWASA connections. In areas without DAWASA connections, the community relies mainly on water vendors. Water vendors, on average, charge at TSh100 per 20-litre bucket. However, their rates vary. In areas where a water source is closer, the vendors would charge only TSh50 per 20-litre bucket. In areas far from water sources, or during difficult periods, vendors would charge up to TSh200 per bucket; there have been crisis days when they charged up to TSh500 per bucket.

A comparison of rates paid by the poor is presented in Table 11 below:

Table 13 – Comparison of drinking water charges paid by poor consumers

Type of poor consumer	Amount paid per month and volume consumed	Cost per litre	Paid to
Household with a piped connection to DAWASA	TSh12,787 for high pressure zone and TSh9,413 for low pressure zone. It is estimated that high pressure zones are consuming 43.3m ³ per month and low pressure zones 31.8m ³ per month. However, all prices are paid in at a flat rate.	TSh0.29	Flat rate paid to DAWASA
Household which buys water from a neighbour on a regular basis	TSh1,000 to TSh1,500, average of four jerry cans (80 litres) per day	TSh0.42 – TSh0.63	Flat rate paid to owner of piped connection or private well
Household which buys water from a neighbour on an irregular basis	TSh2,400, average of four jerry cans (80 litres) per day	TSh1	Rate paid to owner of piped connection or private well
Household which buys water from water vendors	TSh12,000 shillings, average of four jerry cans (80 litres) per day	TSh5	Rate paid to water vendor per jerry can delivered

Note: Households that buy from water vendors get water for washing or bathing from other sources, eg shallow wells, rivers, etc

The small-scale providers

The *wauza maji wa mikokoteni*, or water vendors with pushcarts, are the stop-gap solution that has become the semi-permanent and institutionalised response to Dar es Salaam's water distribution problems, particularly in the low-income areas. With supplies being chronically unreliable, and usually having no means to fetch safe water from distant sources, residents in low-income communities rely on the *wauza maji* to supplement their drinking and cooking water needs. Small-scale commerce in water distribution is the only means for communities like Temeke to gain access to relatively safe drinking water.

Water vendors purchase/obtain their water from a variety of sources: mostly from owners of private water connections; but sometimes from illegal taps, public standpipes and community kiosks. In Yombo street in Temeke, water vendors purchase water from a community-managed water kiosk set up by WaterAid, and re-sell it to their customers. Often, queues for water sources are comprised mainly of vendors, as their time on these queues is also what they are paid for. The vendors usually purchase water for TSh20 (US\$0.02) per 20-litre jerry can and re-sell it, on average, for TSh100 (US\$0.10). On days when water is extremely scarce, they have been known to sell water for as much as TSh500 (US\$0.50) per jerry can.

The vendors move around in carts, which they load with six to ten containers, depending on the size of the cart. An associated business has grown out of the water trade vendors' — the manufacture and hiring out of handcarts. Vendors who have enough savings purchase their own carts for around TSh30,000 (US\$30), or rent them for TSh500 per day. It is estimated that more than half of the vendors do not own the handcart they use. In lieu of rent, some handcart owners will require a vendor to deliver a load of water to their homes at the end of the day. A trip from the water source to customers is enough for them to break even. But the number of trips made each day is also dependent on the length of time they spend in the queues. Vendors usually make three to four trips in a 12-hour working day, starting at six am and ending at

6 pm. On a good day, they can make up to five trips. During crisis days, they can work well into the night or get up before dawn, especially if that is the only time when water flows at the taps.

Box 3 – Mr Hemedi Ali, a water vendor from Keko Mwanga B

"I started this business a year ago. Before, I was a security guard at the CCM offices and one day we were invaded by bandits and I was severely injured. After I recovered I decided to find another job that would not threaten my life. Relatives gave me capital to buy equipment to start this job."

"I start at 6 am collecting and distributing water to my five regular customers. By 9:30 am, I am packing and waiting for other customers."

"I buy water from households with DAWASA connections for 20 shillings per jerry can and sell them for 100 shillings. I normally sell between 18-24 jerry cans per day. The price can change depending on the season, or, if there is a shortage, and the distance of the customer from the source. When demand goes down, like in the wet season, prices go down."

"Everyday, you have to ensure you start earlier to get many customers, as there is more demand in the mornings than the afternoons. For us, we are happy with the water problems of the city as it is what lets us survive."

A family of five with enough cash may purchase up to four jerry cans (80 litres) each day. Hard-up families will purchase only one jerry can (20 litres), and get their non-drinking water needs from other sources, like shallow wells, traditional sources or rivers. Poor families usually do not care if they use slightly less clean water for washing clothes. Water purchases are usually made on a daily basis. Residents will purchase water from any vendor who comes by. Those with stable incomes can make long-term arrangements with individual vendors for regular deliveries.

Box 4 – How many vendors are there, and how many people rely on them?

Temeke's population is 1.3 million and it is officially estimated that at least 75 per cent of them rely on water vendors. But there are no estimates of how many water vendors there are, and how many people actually rely on vendors. If the average family size is five, we can extrapolate that 195,000 families in Temeke (75 per cent of the population) rely on the vendors in some form. If a family consumes 10 litres per day of drinking water, and relies on the vendor for this, this means that 97,500 20-litre jerry can deliveries have to be made to families each day. A vendor with a cart able to carry six jerry cans can make up to four deliveries each day. This means 16,250 cart deliveries each day on a normal day. To make this number of deliveries, there would have to be some 4,000 water vendors in Temeke.

This estimate of 4000 water vendors operating in Temeke graphically illustrates the magnitude of the problem of serving the unconnected population of Temeke. In a situation where there are almost no piped water connections, it takes the labour power of 4000 water vendors to distribute drinking water to the majority of Temeke's population. This army of water vendors individually makes net earnings of TSh1,800 on average per day. These vendors, many of whom are threatened by changes that make water distribution more efficient, present another policy dilemma.

There has been some initial research into water vendors in Dar es Salaam, which would suggest that even when the cost of resold water is high, the typical vendor does not receive higher net earnings, as his waiting times are also longer, and he can deliver less water. There is clearly an opportunity for more research on this issue, perhaps looking beyond water cart users to other vendors, such as kiosk and yard tap operators, borehole operators and bulk tanker operators.

Selling water from a private domestic connection is prohibited, since only DAWASA is empowered by law to sell water. However, given the prevailing circumstances of widespread shortages, this prohibition could not be enforced. Many retailers with private connections do not

see themselves as profiteers living on DAWASA's water, but rather as good neighbours helping out those in need. Vendors just go on with their trade despite the threat of sanctions. To date, there seems to be no case of a water vendor or an owner of a private connection being prosecuted for engaging in the sale of water. In fact, some retailers and water vendors are known to be ex-DAWASA employees.

Different types of investments are needed for the commerce of small-scale water distribution. Families will have their own jerry cans, which cost about TSh1500. Vendors who own their carts will also have to buy their own jerry cans. The cost of maintaining the carts is minimal, as they only need the replacement of tyres or welding of worn-out joints. Carts wear out after two to three years of use, and can be re-welded and new tyres refitted for TSh4000. Owners of private connections will often invest in 1000, 5000 or 10,000-litre holding tanks. A 1000-litre holding tank may cost up to TSh100,000.

Water vending is a very flexible trade. It is estimated that there are actually more vendors than handcarts. Some vendors work part-time, and are engaged in other work as well. In the rainy season for instance when residents can rely on rainwater, the demand for water vendors go down, so many of them find other means of livelihood. Water vending is also very flexible for the low-income consumers — water is delivered to their door based on their immediate need and economic ability. So, if families have no money, they can get the water themselves.

Water vending is also market-regulated. Prices are not determined by officials, but by what emerges from day-to-day negotiations between vendor and consumer. Hence, prices fluctuate — water automatically becomes more expensive on days when there is less water available. This clearly has implications for those who already have the poorest access to water services, and can least afford to pay more for water at times of water scarcity. This then impacts on how much drinking water is purchased, which has consequential effects on health.

Box 5 – A retailer explains selling water from a DAWASA taple at my house and neighbours come asking me to help. I can't stop helping them. Generally, I do not intend to generate profit, my intention is to help people get their water. Every household collecting water from this tap has to pay 1,000-1,500 shillings per month, depending on how big the family is. I am not making any profit from that — they are contributing to the money I pay to DAWASA. There are nine neighbours who buy water here, we share the cost I pay to DAWASA."

The sanitation situation and small-scale vendors

There is no proper system of garbage collection, sewerage and drainage in Temeke. All respondents in the research revealed that they dig garbage pits for their solid wastes and use pit latrines for urination and defecation. Only 12.9 per cent — the middle class of Temeke — have the more expensive septic tanks for their households. Thus, Temeke presents itself as an example of a sanitation bomb waiting to explode. In the wet season, as the water table rises, these pit latrines overflow in the lanes and streets, creating a risk of diseases such as cholera.

Again, small-scale entrepreneurs have become the temporary but now virtually institutionalised solution to most sanitation problems. The most extraordinary of these are the 'frogmen' — professional, private pit latrine cleaners who work mostly on the 'passport-size' latrines⁷. The passport-size latrines are often located in places inaccessible to pit-emptying trucks, hence, the need for frogmen. Frogmen work in groups of two to four, and can be seen pouring a black liquid solution into overflowing pit latrines to kill the stench. They will then manually empty the latrines using buckets, and bury the sludge in a hole they have dug nearby. Because of the lack of space in crowded urban settings, pit latrine emptying has become a small trade in places like Temeke. The frogmen get paid around

⁷ Locals call them "passport-size" — a reference to how a person can have his passport-size photo "taken" when he is seen inside the latrine, as the walls only come up half-way.

TSh20,000 for each latrine emptied. Pit emptying by sludge trucks from DAWASA, where possible, costs TSh25,000.

There are also small-scale entrepreneurs who collect solid wastes and garbage, especially from places inaccessible by trucks, and deliver them to collection points or mini-dump sites for a fee. This is often privately negotiated between the household and the entrepreneur.

In a growing number of cases, community organisations and NGOs are taking over the management of sanitation in these low-income communities. Funds are raised to provide push-carts to be used for collection, and to set up a system of volunteers to do the work.

The privatisation of sanitation services is better received in the community, mainly because solid waste collection and disposal services significantly improved when the city privatised operations in 1994 ([WUP No. 5, April 2000](#)).

Community-Based Water Projects

A number of international NGOs — like WaterAid, Oxfam, Concern International, Plan International — have started to organise community-based water projects. WaterAid has eight such projects in Temeke. It has two projects in the Kurasini ward; two in the Yombo ward; three in the Kigamboni ward; and a project now in its initial stage in the Keko ward.

A community-based water project involves setting up a social infrastructure that can manage community water and sanitation needs, like a local water committee and health committee. It will then proceed to build a physical water infrastructure, typically a community water kiosk. Water kiosks are located strategically in communities. The water committee employs people to operate and run the kiosk, where local residents can get water for TSh20 per jerry can, or TSh10 if there were fewer costs involved in setting up the kiosk. Community-mapping in the wards where WaterAid works revealed that kiosks have now become the main water source for household drinking and washing. It also revealed local people are more aware of their particular water situation in these areas.

In areas where there are no water services, there has been a mixed reception towards the idea of community-based management systems. A number of people are enthusiastic, since it offers the first real sign of change for the better and promises improved water delivery. But some are sceptical, comfortable as they are with the flexibility offered by the present system of water vendors, and are wary of the commitment and capacity for collaboration required to manage a community system. Water vendors too are threatened by community-based projects. In an area in Kigamboni ward, some water vendors have been put out of work by lack of demand, as residents now have a tank tower managed and operated by a local water user committee, and powered by electric pumps that extract groundwater. Demand for water vendors in Dar es Salaam continues to be great, and is not under immediate threat from improved water and sanitation services. Indeed it can be seen that both communities and vendors have increased access to cheap water.

Under the proposed institutional arrangements for a private company operating DAWASA's system on a Lease Contract, there is much discussion on retaining existing community-based water management systems. There is a concern that the low-income communities will be left out of the POC's mandate, either because they are too far away from present distribution lines or because it is thought that supplying these

areas will provide little revenue. Community mechanisms are meant to ensure that improved water supply and sanitation are delivered to the informal settlements, that arrangements are established for the sustainable operation of whatever system is built (eg standpipes or kiosks), and that better utilisation of water and improved sanitation are promoted, especially in the areas heavily affected by cholera and other water-related diseases.

The proposal is for DAWASA to set up a social fund that will finance the extension of the piped system to the unserved communities that meet eligibility criteria and to fund training and other social mobilisation activities. About 40 water supply projects and ten environmental sub-projects are being considered for funding under the social fund (PPSRC, 1999). This is a fund specifically for extension into the poor settlements, compared with the Development Contract, which is for more general use. The difference, however, in the amount of money being made available for these deprived areas (US\$3-4 million) compared to the money available in the Development Contract (US\$165 million) is marked, and it is questionable how much commitment there really is to ensuring that the poor are able to access safe and adequate water and sanitation supplies.



A community water kiosk in Ferry. Photo by Eric Gutierrez

VII. Conclusion

A question that we confronted at the start of the research was whether PSP is an issue only to those who have water connections to DAWASA and will have no bearing on those currently unconnected urban poor households. In other words, in Dar es Salaam's case, was PSP more a middle class and less an urban poor issue?

In the beginning, it appeared to us that the PSP process was of less concern to the poor of Dar es Salaam. Firstly, any discussion about prices paid to DAWASA appeared irrelevant to the poor communities simply because they were not connected and had almost no dealings with DAWASA personnel. Why would tariff rates and tariff structure matter, when they were not connected? At least 15 per cent have not even heard of DAWASA. Furthermore, the actual costs they pay for their water are already extremely high. The key concern then of the poor was access, not prices. However, as we have seen, a large percentage of the population access DAWASA water indirectly from vendors or neighbours, and therefore an increase in the tariff would also have an impact on the poor. What this impact would be is currently uncertain. If the quantity and reliability of the supply is also improved then the price of water sold by vendors might actually decrease, according to the laws of supply and demand, even with a general price increase. Indeed, if a higher tariff allowed greater expansion of the piped network, the prices for vendor users, and perhaps even neighbour users, might be expected to fall.

The first part of the research on the PSP processes in Dar es Salaam provides some indication into how access by poor communities can be developed. Getting the unconnected communities of Dar es Salaam connected to a piped water supply system will involve construction projects and massive investments. These construction projects are not issues covered under the Lease Contract being proposed. The Lease Contract will deal with such issues as reducing leaks, making billing and collection more efficient, prosecuting illegally connected users, reducing the employee-to-

customer ration, tariff structure and prices. Building access through construction projects is an issue covered under the Development Contracts to be funded by donors. So, if the goal is to connect poor communities, the question will be: How can the Development Contracts be designed to ensure that poor communities are the first to benefit from extension of the network? How are the loans given for the Development Contracts to be repaid? How can this process be expedited and managed so that poor communities are considered for more than simply the grants available under the Community Water Supply and Sanitation Program?

The second part of the research provides the basis for answers to these questions. The description of life in Temeke and how the poor have coped with the crisis in water supply and distribution, provides indicators on how development contracts can be designed, or how the available resources can be maximised. The following are the key issues we believe should be addressed, and the recommendations that can be considered:

1. There is very little known about the structure of either the Lease Contract or the Development Contract. In the poor areas of Dar es Salaam, there is even greater lack of knowledge of the reforms being considered in order to address the water crisis. We believe that increased openness and transparency from the authorities managing this process will improve public understanding and will probably also improve the Contracts themselves.
2. The most immediate need is to bring the water infrastructure closer to the poor communities in Temeke. This means that tapstands built to within 10-50 metres of households should be prioritised over individual household connections. We believe that if extensions of the system are to be built in Temeke, public tapstands could be installed first, and later on, as the demand arises, individual household connections could follow. Public tapstands

- are typically scorned by the business- or efficiency-minded, since they are often seen as a mechanism for giving free water. But tapstands need not necessarily be managed in this way. The community kiosks that have been set up in Temeke are the live models of how public tapstands can be managed. Tapstands also have other advantages in the context of Temeke. For example, poor households can gain access without having to pay the typically expensive household connection. Also, public tap stands do not totally wipe out the need for water vendors. As such, this may be a more measured way of introducing the infrastructure without radically dislocating the livelihoods of the vendors. Existing water vendors could also be employed to serve as caretakers of the tapstands.
3. Community mobilisation and "social infrastructure" building should precede the introduction of tap stands. This needs as much investment as the physical infrastructure itself. Development Contracts should be designed to increase the funding available for community consultations, the setting up of water user committees, participatory processes for developing tariffs and collecting revenues from the tapstands, education on safe drinking water, environment and hygiene promotion. There is enough potential in Temeke to use community organisations as "sub-contractors" who can manage tapstands, whether under public or private management. Water user committees or social infrastructure for community management and control of water systems guarantee that costs are paid, facilities are maintained and that benefits are enjoyed from the construction of water sources. Water user committees are in the best position to decide on technology choices, on siting standpipes, on regulating local use, and so on. The 'construction' of water user committees is therefore as important as the construction of a standpipe, a borehole or a water tank. Funds and time should be allocated for this.
 4. The Lease and Development Contracts should allow for community-managed schemes to co-exist with household connections. In fact, in other cities we have studied in this research (Buenos Aires and Manila), individual household connections are managed through community schemes. Community organisations have been proven as indispensable in keeping and maintaining water supply systems in urban poor communities receiving services from private or public companies. We believe that this scheme should also be considered for Temeke.
 5. Investment in social infrastructure building and the setting-up of community managed schemes can be justified for two reasons. Firstly, it will provide the basis under which individual rights and responsibilities within poor communities are clarified and communicated. Hence once agreement is reached on tariffs and costs, the financial viability of running the system is more or less ensured. Secondly, it reduces the risks of non-payment, deals with free-riding and profiteering because there will be more people in place looking after and maintaining portions of the system. This, we argue, provides better guarantees that revenues will be generated and loans will be paid. It is the best alternative to the unilateral imposition and enforcement of cost-recovering water tariffs by a government body for the benefit of private companies and lenders.
 6. There is financial viability in investing in poor communities in Dar es Salaam. As a general principle, our study in Temeke has shown that the poor are willing to pay for an accessible and reliable supply of safe water, and are in fact paying often five times more per litre for the water they get, than those with household connections. Donors and lenders should therefore not start from the assumption that investments in poor communities are high-risk. The risks are there only because the communities are not properly consulted, high prices are imposed and not negotiated, and there often is lack of transparency and accountability. Rather than

focus on cash flow projections or income streams, we suggest that donors focus instead on measuring community participation, evaluate agreements on roles and responsibilities, assess the potential for corruption and institute the necessary measures to address this, and so on. We think that these – lack of consultation, unclear roles and responsibilities, enforced pricing – are the real sources of risks, not the poverty of the community.

7. Closer relationships between water authorities and urban poor households will assist in the delivery of essential services. Usually, water authorities are seen face-to-face by urban poor households only when a disconnection is to be made. However, there is much to be learnt on both sides by improving the knowledge of how the poor currently access water and sanitation services, and what the Lease and Development Contracts entail. The 'denser' relationships on many levels, the more likely it is that projects will succeed.
8. Over the medium to long-term, communities and individuals should be able to choose between household level connections, a community standpipe, whether there is a meter connected, or the option of having 'group' tariffs and so on. There also needs to be discussion on payment options, such as pre-paid metres or a payment kiosk in the community that will facilitate payment.

9. Sanitation is the forgotten issue, which NGOs and communities need to be able to address, either through the POC or through other mechanisms. Sanitation needs to be included in the planning of the Lease and Development Contracts, to ensure that there are real benefits to improved water supply. Without this, the health and economic benefits of improved water supply are limited.

In conclusion, the PSP processes of Dar es Salaam have been rather confusing and difficult to assess in terms of their likely impact on the poor, or indeed their impact on anyone. This will not be resolved until decisions have been made and publicised by the government on key issues relating to the Lease and Development Contracts, and how these will be managed, and, later how investments will be repaid.

What is clear is that at present many of the solutions are present within the communities themselves, and the option of building community capacity that exists should be exploited in order to ensure that the PSP process benefits the poor. This can only be done if information is made freely available, so that all residents are able to respond to the plans. In doing the participatory research exercises – enumeration, community – mapping, etc – what we have undertaken is not just to extract knowledge from the communities, but to lay down the basis for what could be possible future collective action to deal with impending changes in roles and rules in water provision in the city.

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Appendix 1: Methodology of Mapping and Enumeration Process in Temeke

The aim of the mapping and enumeration process used in this study was two-fold. Firstly, it was intended to gather information on existing services and to gauge the extent of knowledge within low-income communities about the issues of PSP in water services in Dar es Salaam. A more crucial aspect of the study, however, was to consolidate knowledge within the communities studied and to build the communities' capacity to engage and negotiate with the local authorities and, in the future, with the private operator to ensure better access to these essential services. This was achieved through working with the communities themselves to develop relevant questionnaires and training local residents to carry out the surveys themselves, both to ensure that the knowledge gathered remained within the communities, and also to ensure that the questionnaires were answered with the greatest possible accuracy. The methodology was as follows:

WaterAid held a series of planning and training sessions to introduce stakeholders to community mapping processes. This included community members, DAWASA staff and government extension workers.

There were three parts to the survey – a) enumeration forms, which were used to gather information from every household, asking questions which had been identified by the community members themselves to highlight relevant issues, including water and sanitation, health, education and land security; b) the creation of community maps, which capture the layout of the streets and detail resources and facilities available in the area; and c) a walk to cross-check the maps created.

The data collected has been used by the community members to negotiate with the local authority and DAWASA to deliver essential services. It is also being used to start a forum on PSP which has the aim of negotiating in the future with the private operator. With this information available to every resident, their voices will be hard to ignore. The results have also been used to further policy work within WaterAid, the local government and the nascent federation of community user groups, known as PEVODE (People's Voice for Development). Two workshops have so far taken place to explain the study's findings, attended by community members as well as participants from national government and international NGOs.

This community mapping process has been successful in mobilising the community, not only to collect and analyse data, but also to use this information proactively in improving its environment. This is seen generally by local and national government to be a positive step in understanding how to best involve residents in the delivery of essential services.

