

Reaching the Millennium Development Goals for Water Supply and Sanitation in Zambia - The Urban Perspective -



Foreword

The Zambian water sector is now set to address the problems of poor service delivery, having reorganised the sector, putting in place a more effective and efficient institutional framework. The government, since adopting the seven sector principles in the National Water Policy, 1994, has steadily been implementing the reforms without diverting from the guiding principles. The reform is still ongoing, with milestones achieved so far being:

- The new legislative and institutional framework,
- The water supply and sanitation act, 1997
- Establishment of 8 water Commercial Utilities (CUs) in addition to the two existing at the start of reforms,
- A government Department for Infrastructure and Support Services (DISS) to coordinate and facilitate support for improved water supply and sanitation service delivery,
- A water sector regulator, the National Water Supply and Sanitation Council (NWASCO) and
- A Devolution Trust Fund (DTF).

Significant improvements have been achieved in the quality of service and management of WSS during the recent years. Many of the goals set by the Water Policy became reality, leading to improved services for the customers, as well as, to improved cost coverage and therefore sustainability at the CUs. Nevertheless, so far, the service provision to the urban poor has not improved to the same extent as for the wealthier urban population due to lack of investments. The internal revenue generated, is just adequate for operation and maintenance costs and not yet any capital investments. The number of people living in low-income urban areas without adequate access to safe water and sanitation remains very high.

The Government of Zambia in the reform process has always had a strong emphasis on the need to improve service delivery to the unserved urban poor. The declaration of the UN

MDGs, has thus only served to strengthen this emphasis and effort. To this end, the government in its reorganisation of the sector, without having to compromise service improvements to the peri-urban areas, decided to set up a special purpose vehicle that would be effective and efficient. Thus, being able to realise objectives of improved services without the encumbrances of the long processes of resource mobilisation and implementation for general infrastructure development. The government, therefore, instituted the DTF under the water regulator NWASCO, to ensure that CUs use this fund to accelerate improvement of service provision to the peri-urban areas. The fund was set-up in 2002 and demonstration projects to consolidate the approach used have been carried out in four separate CUs, under which 80,000 people in the low-income urban areas have been served with affordable and adequate safe water. The approach has been elaborated and the understanding of the implementation process enhanced among the CUs. All the stakeholders now have a better understanding and picture of the needs of the low-income urban areas. The factual figures on the situation and required interventions will be compiled in a baseline study report currently being undertaken by GWK, who have provided valuable information in arriving at some of the figures presented in this paper.

It is the authors' belief that the strategies and guiding principles outlined in this paper will help to realise the reduction of the proportion of people without sustainable access to safe drinking water and basic sanitation in the urban areas in the year 2015 most effectively and efficiently. It needs to be realised that the government's approach to service provision is incremental service level improvements. Those without, should be allowed to have access to the basic services and as they improve, upgrade to better service levels.

The input and support of GTZ in the elaboration and publication of this paper is appreciated.

Table of Contents

Foreword

1	Millennium Development Goals and the World Summit on Sustainable Development Targets for Water and Sanitation-the most urgent needs in Zambia	1
2	Sector reform and present situation in the low-income urban areas	2
2.1	Sector reform	2
2.2	Institutional set-up	2
2.3	Socio economic situation	3
2.3.1	Definition and development of peri-urban areas	3
2.3.2	Definition and development of low-cost areas	4
2.3.3	Population residing in peri-urban and low-cost areas	4
2.4	Existing WSS systems	5
2.4.1	General situation	5
2.4.2	Different types of public outlets	6
2.4.3	Sanitation situation in low-cost and peri-urban areas	8
2.5	WSS coverage and per capita consumption levels	8
2.5.1	Water supply coverage	8
2.5.2	Sanitation coverage	10
3	Reaching the MDGs	11
4	Closing the gap for water	12
4.1	Strategy	12
4.2	Choice of technology-the kiosk as most appropriate system	13
4.3	Institutional aspects of kiosk systems	14
4.4	Financial aspects of kiosk systems	15
4.5	Required investments for water in order to reach the MDGS	16
5	Closing the gap for sanitation	17
5.1	Strategy	17
5.2	Choice of technology for on-site sanitation	18
5.3	Institutional aspects	19
5.4	Financial aspects	20
5.5	Required investments	21
6	Required investments per province, existing commitments and agencies	22
	List of Abbreviations	24
	Bibliography	25

1 Millennium Development Goals and the World Summit on Sustainable Development Targets for Water and Sanitation – the most urgent needs in Zambia

At the United Nations Millennium Summit in September 2000, 189 heads-of-state adopted the Millennium Development Goals (MDGs), which set clear and time bound targets for making progress, by 2015, in tackling the most pressing issues developing countries face.

Goal 7 of the MDGs is to ensure environmental sustainability. Target 10 under goal 7 is the subject of this paper: “Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation”. The target for sanitation was established at the 2002 World Summit on Sustainable Development in Johannesburg. Although the MDGs were formulated in 2000, the baseline for most of the MDG targets, including that on water and sanitation, has been set as 1990.

Since the declaration on the MDGs, policy makers and development agencies recognise that the ultimate goal of all efforts to improve water supply and sanitation (WSS) is poverty reduction.

Achieving the MDGs requires WSS interventions in both the rural and urban areas. The focus of this document, however, is upon the urban areas and in particular the low-cost and peri-urban areas.¹ Rural areas should not be ignored, though several good reasons indicate that concentrating on the urban poor has significant strategic advantages:

- The water supply situation in the rural areas is often better than in the peri-urban areas. High population densities in urban areas lead to smaller plots. The distance between latrines and open yard wells or hand pumps is very short and therefore, the risk of subterranean and surface pollution of water is considerably

higher than in rural areas. This is one reason why in peri-urban areas the hand pump has ceased to be a sustainable water supply solution. In many low-cost areas the existing WSS systems are dilapidated or no longer functional. Residents often complain about the subterranean communication between sewer lines and the water distribution network which is rightly considered to be a serious public health risk. Although the water supply situation in many rural areas is far from ideal, one has to conclude that WSS infrastructure such as windlass wells, hand pumps, springs and other water outlets are usually better maintained than in urban settings where social cohesion and social control levels are lower and vandalism significantly higher.

- The sanitation situation in many urban areas, as a result of high population densities and low investment levels, is critical and a serious threat to public health. This therefore requires more urgent attention than sanitation in the rural areas. In recent years a number of cholera outbreaks have occurred in several cities and towns, even in areas where residents have access to clean water.

Although the water supply and sanitation situation in many rural areas is far from ideal the bigger challenge to improve living conditions through WSS is in the overcrowded fringe areas of towns. Subterranean pollution and dilapidated WSS systems communicating with each other lead to a public health risk which is worse in towns than in the countryside.

¹ Paragraph 2.3 contains a definition of “peri-urban” and of “low-cost area”.

2 Sector Reform and present situation in the low-income urban areas

2.1 Sector reform

Increasingly aware of the constant degradation of WSS, as well as, the growing weaknesses of water resource management, the Zambian Government embarked on an ambitious sector reform with the adoption of a new water policy in 1994. The policy included seven sector principles which guided the reform process until today. Milestones of the reform so far have been the new WSS Act, 1997, establishment of 10 Commercial Utilities (CUs), an urban WSS sector regulator, National Water Supply and Sanitation Council (NWASCO) and the Devolution Trust Fund (DTF, poverty fund / basket). Presently, a baseline study for all peri-urban areas in Zambia is being carried out.

It is noteworthy, that since 10 years the reform progressed steadily without diverting from the guiding principles. The continuity of this process has ensured the achievements of key milestones and an anchorage of the key elements to such a degree that many achievements can be regarded as irreversible (see Brochure: "Water Sector Reform in Zambia" published by NWASCO, 2004).

2.2 Institutional Set-Up

The implementation of the sector reform in Zambia led to a new institutional framework which is shaped according to several principles:

- With the separation of Water Resources Management (WRM) from WSS two Ministries have become the key players in the sector, responsible for policy

making: The Ministry of Energy and Water Development (MEWD) as lead ministry for the entire water sector and responsible for WRM / Department of Water Affairs (DWA). The Ministry of Local Government and Housing (MLGH) is responsible for WSS / Department of Infrastructure and Support Services (DISS).

- Decentralisation was implemented by devolving WSS functions to the Local Authorities (LA), bringing service provision closer to the consumers.
- Separation of policy making and service provision on national and provincial level which protects the day-to-day operations of the service providers and the regulator against political interference.
- Zambia has opted for commercialisation of the service provision by encouraging the LA to form CUs (shareholder companies) which are large enough to generate the benefits of economies of scale. Presently, more than 90% of the urban and peri-urban population live in the service area of one of the 10 CUs and projects are ongoing or being discussed which aim at establishing CUs for the remaining towns. Since the year 2000, therefore, one is able to observe a rapid increase in the involvement of specialised professionals in WSS service provision.
- Separating policy making from regulation led to the establishment of an autonomous regulator in 2000. NWASCO has since developed and implemented all major regulatory tools and guidelines such as on service

provision to the urban poor, tariff negotiations, yearly reporting. The latter enables NWASCO to publish sector reports in order to inform the public/politicians about progress in the sector and promote comparative competition between service providers. The regulator has also established Water Watch Groups (WWGs) in order to resolve disputes between consumers and providers and to receive a feedback from the consumers on issues concerning the effectiveness of regulation. NWASCO, in accordance with the Water Supply and Sanitation Act of 1997, established the DTF (poverty fund) as a financing tool (basket) in order to assist the providers to extend their provision of services to the urban poor.

The management of NWASCO and the DTF is strictly separated (separate accounts, separate yearly financial audits, etc.). Both institutions recruit their personnel from the labour market and pay competitive salaries in order to attract skilled and motivated professionals. Additionally, both institutions enjoy financial autonomy with financing coming from licence fees (NWASCO) or a percentage of project funding (DTF) and to a limited extent from government. The personnel of both institutions have a track record of successful handling of funds provided by development agencies. The recent low-cost water supply technology demonstration projects on the Copperbelt, implemented by CUs and monitored by the DTF, are a very successful example of how government institutions that have the appropriate operating environment can own and control development initiatives from the planning stage through to successful implementation.

Commercialisation and regulation helped to stop the decades long degradation of WSS systems and to improve service provision in most of the towns. Service provision for the urban poor has started to be effectively promoted with the collaboration between the DTF (poverty fund for urban areas) and the CUs (commercial providers).

2.3 Socio economic situation

In almost all Zambian cities and towns the residential areas can be categorised as follows: planned areas of high-, medium- and low-cost housing and peri-urban areas. By far, the biggest share of the urban population resides in the low-cost (20%) and peri-urban areas (60%), both covered under the expression “low-income areas”.

2.3.1 Definition and development of peri-urban areas

A peri-urban area can be defined as an initially unplanned informal or formal settlement within the area of jurisdiction of a LA. Most peri-urban areas in Zambia are found on the outskirts of municipalities and cities. These areas are now referred to as peri-urban areas in preference to the earlier terms of “squatter” or “shanty” compounds. Many peri-urban areas are characterised by a high incidence of poverty, high population densities, their unplanned appearance and inadequate or non-existent basic services (such as water supply, sewerage, roads, storm water drainage and solid waste disposal). According to the Peri-Urban Water Supply and Sanitation Strategy (1999, bibliography) the lack of adequate or even basic services provided by the municipality tends to make “the living environment essentially unhealthy.”

In the last three decades the peri-urban areas have absorbed, by far, the largest proportion of Zambia's population growth because the new formal residential (high, medium and low-cost) areas have been unable to keep up with demand. The 1990 census concluded that the formal housing stock had only increased by about 10% between 1973 and 1987 whereas that of informal housing areas or unplanned settlements had increased by 65%. According to the Central Statistical Office (CSO), in 1996 over 28% of the national population and 60% of the urban population resided in these unplanned settlements. At present an estimated 45% of the total Zambian population reside in an urban area and an estimated 60% of the total urban population reside in peri-urban areas. The Peri-Urban Water Supply and Sanitation Strategy of MLGH concludes that the percentage of peri-urban population in relation to formal urban areas is estimated to range from about 40 in the smaller towns to 80 in the big cities. Lusaka, for example, has 33 peri-urban areas, which account for well over 60% of the city's population. In Kapiri Mposhi more than 80% of the population live in one of the peri-urban areas.

Economic development, social stability and development as well as public health are therefore largely determined by the changes that are taking place in these parts of urban Zambia. It is in the peri-urban areas where the majority of the population will continue to reside and where most population growth will take place.

New housing areas with peri-urban characteristics are developing from villages on "Chief's land" particularly where some form of industry exists or in cases where the town lacks extension areas within the Council boundary.

2.3.2 Definition and development of low-cost areas

A low-cost area is a planned residential area. Most low-cost areas were built just before or after Independence (October 1964). They were planned as housing areas for junior council staff (messengers, etc.), government workers and miners. Nevertheless, the economic decline pushed residents to rent out rooms on a large scale which led to mushrooming of informal structures, often built on reserved space between premises (service lanes). This, and the lacking maintenance of the systems, had, in general, devastating effects on existing WSS infrastructure and often led to communication between water and sewer networks. Houses or yards are usually connected to the water distribution network and to the sewer line or, individual or communal septic tanks. In most cases the water supply and sanitation infrastructure is in a very poor state of repair and often non-functioning. Although originally well planned, the low-cost areas increasingly acquire the same or at least very similar characteristics to peri-urban areas.

2.3.3 Population residing in peri-urban and low-cost areas

According to the CSO, urban *low-income housing areas* accounted for 53% of the urban population in 1991 and 77% in 1996. This means that in 1996, at least 2.9 million people lived in urban *low-income* housing areas. Since construction of planned or formal low-cost housing has been virtually at a standstill over this period, the vast majority of the population growth is absorbed by peri-urban areas.

Based on previous growth rates published by CSO for the period 1990-2000, the

current total population in Zambia can be estimated at about 11 Million people. Analysing the data compiled in table 1 and the figures concerning the population growth, it is estimated that currently 4,9 Million people (45% of the total population) in Zambia live in urban areas. From these, about 80% (or 3,9 Million) reside in low-cost (1 Million) and peri-urban areas (2,9 Million).

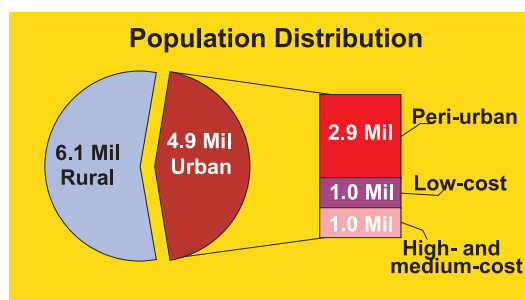


Table 1: Percentage of population according to housing category

Provinces	High-cost	Medium-cost	Low-cost	Peri-Urban	LC + PU ⁽⁷⁾
	%	%	%	%	%
Central ⁽¹⁾	5,7	6,5	18,6	69,2	87,8
Eastern ⁽²⁾ (Chipata)	9,0	12,0	21,0	58,0	79,0
Lusaka ⁽³⁾	–	–	–	60,0	–
NorthWestern (Solwezi) ⁽⁴⁾	5,6	8,4	18,8	67,1	85,9
Southern ⁽⁵⁾ (15 towns)	7,3	8,3	28,6	55,8	84,4
Southern ⁽⁶⁾ (Livingstone)	15,0	21,3	37,2	26,5	63,7

Sources: 1) GWK Consult (Household count) (2002) (1996) 2) GWK Consult (Household count) (1998), 3) Peri-Urban Water Supply and Sanitation Strategy, (2000: v), 4) GWK Consult (Household count) (2003), 5) GWK Consult (Household count) (1996), 6) GWK Consult (Household count) (1998), 7) LC + PU = Low-cost and peri-urban

A precise picture of the WSS situation of the urban poor will emerge with the results of the currently ongoing Baseline Study, which will be completed in July 2005. The Baseline Study, financed by KfW and Danida and carried out by the DTF will help to create a detailed database on technical and socio-economic data. Furthermore, it will allow extension of the NWASCO Information System to obtain detailed information on all low-cost and peri-urban areas in Zambia. Nevertheless, the data presented in table 1 can be considered accurate even if they are based on fragmented and to some extent outdated data. Next to this information, data from the Baseline Study (for Mansa, Luapula Province and Kasama, Northern Province) collected in September and October 2004 is already available. Estimations are now based on 15% of the total urban population of Zambia.

It is estimated that currently 3,9 Million people live in low-income (low-cost and peri-urban) areas.

2.4 Existing WSS systems

2.4.1 General situation

Piped water supply systems are operational in almost all 87 towns. This is not the case for piped sewerage systems. Many off-site sanitation systems, are either in poor condition or even non-functional. It should be noted, however, that these functional and non-functional systems only serve or are supposed to serve a minority of the total urban population.

Water supply services in peri-urban areas vary widely from one settlement to another even within the same town. Residents have access to a variety of water sources but mainly to public standpipes and traditional, unprotected shallow wells. Existing water supply systems in peri-urban settlements are in most cases inadequate for the level of demand and systems were poorly maintained during the last 20 years because LAs and Ministry departments as providers have lacked capacity and professionalism to operate and sustain these services. High incidence of vandalism from frustrated potential consumers further contributes to poor functioning systems. Furthermore, the providers derive little or no income from water charges due to poor management and/or because consumers are unwilling to pay for poor services. (Information derived from Peri-Urban Water Supply and Sanitation Strategy, GRZ, 1999)

Almost all low-cost areas in the past were serviced through yard or house connections and through sewer lines or septic tanks. When many low-cost houses were sold by the Council in the mid 1990's to sitting tenants, the deterioration of infrastructure accelerated further. Rapid population growth and the uncontrolled construction of "cabins" within the yards which are rented out also contributed to this. Consequently, in many low-cost areas the WSS infrastructure is no longer functional and residents increasingly depend on open wells and pit latrines (e.g. in Kabwe or in Luapula Province).

Although commercialisation in the last 4 years has resulted in improved maintenance, large investments are needed in order to upgrade the systems to satisfactory levels. Substantial initiatives are at various stages

of being implemented or have been planned with funds from the World Bank and Norad (Copperbelt, Lusaka, etc.), KfW (Southern, Eastern and North-Western Province), Danida (Southern, Western and Luapula Province), AfDB (Central Province) and DCI (Northern Province).

2.4.2 Different types of public outlets

In Zambian peri-urban areas, a variety of public outlets for water can be found and different names and definitions are given to these systems. In the context of the present document distinction is made mainly among:

- Communal taps, managed by the community. At communal taps, access is usually restricted to a specific user group and water is paid for. Communal taps can be metered or unmetered.
- Public taps providing water to everyone who comes to fetch. Water at public taps is often provided free of charge. Public taps are mostly unmetered.
- Water kiosks managed by a kiosk operator, usually working on a commission basis. The kiosks are linked to the main network and the kiosk operator signs a contract with the CU responsible for supervision and maintenance of the system. In order to ensure a reasonable income for the kiosk operator, provision is made for the sale of other goods at the kiosk. Kiosks are metered and customers have to pay according to consumption.

Experience with community managed systems (Copperbelt, Lusaka, Livingstone, etc.) serving the urban poor shows that involving local communities or their representatives in the operation of the

systems often results in the diversion of collected water fees, as well as, neglect of water quality and necessary maintenance and repair works. At the same time water prices at community managed systems are often higher than in areas where the CUs provide the services (prices often vary between 2,000 and 5,000 ZMK per household per month) because the CUs control tariffs at kiosks which have been approved by the regulator. Economies of scale also enable the CUs to produce water at lower costs and therefore to sell it at a lower price.

Increasingly, community operated systems are handed over to the CUs or seek support from the CUs to provide maintenance and control water quality. For the CUs as professional providers this is often a disadvantage as such services are not sufficiently or not at all paid for by the community. Additionally, the operation of such systems was set up without the participation of the CUs and therefore, does not fit the management principles of commercialisation. Therefore, the CUs are often called in as “fire fighters” to maintain a system which is not to their convenience and which does not adhere to technical standards elsewhere applied by the CU. NGO supported community managed systems in such areas should always be in close cooperation with the licensed provider.

Today, the trend is to involve professionals such as the CUs because it has been recognised that they can offer a better service to the poor (particularly water quality). In order to ensure sustainability, WSS systems should be maintained and managed on a commercial basis. Experience with pilot schemes on the Copperbelt show clearly that

CUs, with the financial and technical support provided by the DTF, are able to plan, design, construct and manage peri-urban water schemes (evaluation report DTF/EM).

Currently an increasing number of peri-urban areas in Zambian towns are served through water kiosks (Chipata, Lusaka, Monze, Ndola, Kitwe, Livingstone), where the CUs have been involved right from the beginning of the establishment. Although the various kiosks differ in design and are managed in different ways, a large majority of residents in these areas appreciate the kiosk system. Their introduction has in all cases resulted in improved accessibility to treated water and in almost all cases in lower tariffs for the poor. Studies* document that, a large majority of the peri-urban population consider the kiosk system to be the most feasible peri-urban WS solution.

Water service provision to the urban poor deteriorated over the last 20 years and was only improved where public outlets had been introduced. The issue of service quality, sustainability and justified tariffs for the poor can best be tackled where a CU has accepted responsibility for the system.

*Carried out by GKW Consult in Southern Province (1996, 1998) and Central Province (2001-2)

2.4.3 Sanitation situation in low-cost and peri-urban areas

On-site sanitation is the most common form of excreta disposal and considering the constraints it will remain the most appropriate level of service for the urban poor in the medium term.

Most peri-urban residents depend on simple pit latrines. Only a few ventilated pit latrines were built at schools and public places. Usually pits are not lined nor covered properly. In some few areas with a high water table or with rocky ground, pits are raised above ground often using termite mounds.

As low-cost residential areas are planned residential areas, most of the houses are connected to either the sewer line or to individual or communal septic tanks. In some areas the houses are equipped with flushing toilets but in most low-cost areas, residents have access to ablution blocks with 2-4 compartments serving 2-4 households. Because of erratic water supply, people often flush their toilets using a bucket. However, due to lack of maintenance over several decades, much of this infrastructure is no longer operational and pit latrines are now a common feature in these residential areas.

Currently, households in Zambia do not consider improvements to sanitation as much a priority as access to safe drinking water.

Most residents in low-income areas depend on pit latrines, some of them shared by 2-4 households.

2.5 WSS coverage and per capita consumption levels

2.5.1 Water supply coverage

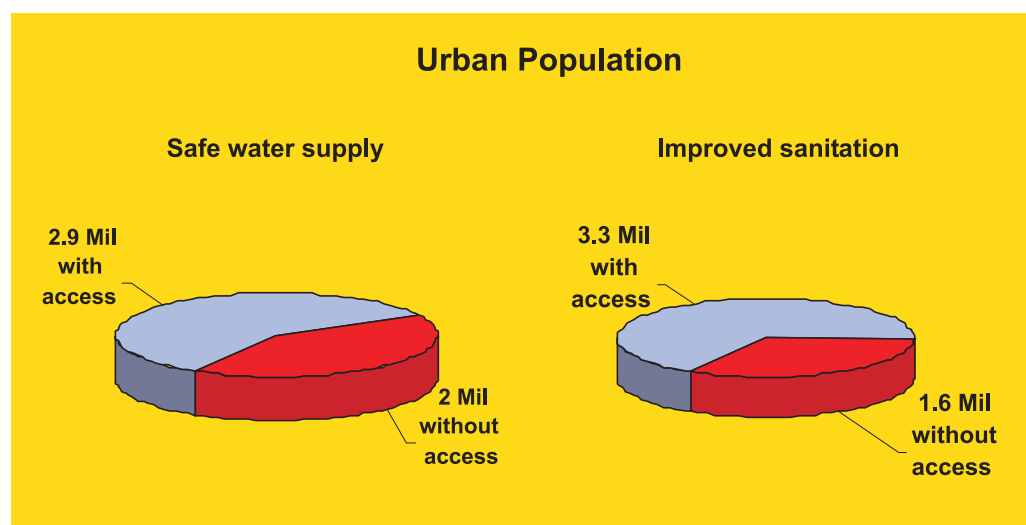
Data available on water service coverage in 1990 (the baseline for the MDGs) is

unreliable and does not give a realistic picture of the supply situation at that time. Some reports state that 86 - 88 % of the urban population had sustainable access to an improved water source. These figures however only refer to existing installations but do not take into account that many water supply systems had already ceased operation at that time. The high and persistent incidences of water borne diseases, especially in the rainy season and in high-density, low-cost and peri-urban settlements document the gap between the reported coverage and reality.

The water supply situation had further deteriorated during the early and mid 1990s but significant improvements have been achieved during the recent years.

Currently, coverage data are reliably obtained only through projects and not by "official" publications. This is particularly true for sanitation and per capita consumption. Nevertheless, project data documents that in some peri-urban areas the situation continues to deteriorate, whereas in other areas (e.g. in Kitwe, Monze, Ndola and Livingstone), which have benefited from the implementation of kiosk systems, the deterioration has been stopped and real improvements for the poor have been registered.

Therefore, it is estimated that the proportion of the urban population without sustainable access to an improved water source in 2004 with 40%, is the same as it was in 1990. This means that from the total of around 4,9 Million urban residents, almost 2 Million people have no access to safe water today. Precise data will be available after the completion of the Baseline Study in July 2005.



The patterns observed in towns such as Kitwe, Ndola, Mansa, Kasama, Livingstone, Choma indicate that the situation in most towns and cities is similar to Kabwe (table 2), with 179,000 inhabitants (2001) the largest town in Central Province and the 4th largest town in Zambia.

Table 2: Most important source of *drinking* water (Kabwe, Central Province 2001)

Most important source of <u>drinking</u> water	Type of housing								Total	
	High-cost		Medium-cost		Low-cost		Peri-urban			
	No.	%	No.	%	No.	%	No.	%	No.	%
Own house connection	221	87.4	207	77.2	70	16.2	8	.7	506	24.9
Connection of others	14	5.5	26	9.7	19	4.4	20	1.8	79	3.9
Communal tap	2	0.8	5	1.9	7	1.6	115	10.6	129	6.3
Public tap	2	0.8	7	2.6	17	3.9	311	28.7	337	16.6
Open well	3	1.2	20	7.5	313	72.3	533	49.3	869	42.7
Hand pump	6	2.4			5	1.2	78	7.2	89	4.4
Windlass well	3	1.2					3	.3	6	.3
Dambo well										
Stream, river or lake										
Other	2	0.8	3	1.1	2	.5	14	1.3	21	1.0
Total:	253	100.0	268	100.0	433	100.0	1082	100.0	2036	100.0

Source: GKW Consult, Household survey

With regard to per capita consumption, surveys have been carried out in various towns where some or all (Chipata) peri-urban areas are supplied through kiosks. Consumption at water kiosks and other public outlets varies primarily as a result of

seasonal influences, availability of alternative sources, walking distance and water tariffs. table 3 shows the average consumption level at kiosks and public taps for a number of towns and peri-urban areas.

Table 3: Daily per capita consumption at kiosks and public taps

Town	Water outlet	Payment	Per capita consumption
		Yes/No	Litres/person/day
Chipata, Eastern Province	Kiosk	Yes (per container)	4-7
Monze, Southern Province	Kiosk	Yes (per container)	3-5
Livingstone, Southern Province	Kiosk	Yes (per container)	14
Kabwe, Central Province)	Public tap	No	9-12
Nampundwe, Central Province	Public tap	No	12-16
Kitwe (Itimpi), Copperbelt	Yard tap	Yes (per month)	12
Solwezi, North-Western Province	Various	No	6-11

Source: GKW Consult, water consumption measurements (1995 – 2003)

From the 3,9 Million urban people living in low-cost and peri-urban areas about 50 % (almost 2 Million) have to use water for primary use from open wells and other un-safe or expensive sources although for many the main water pipes are nearby.

2.5.2 Sanitation coverage

It is more difficult to estimate sanitation coverage levels in low-cost and peri-urban areas not only because of insufficient data but also because of a missing common understanding of standards (What is acceptable?). Most residents in peri-urban areas depend on on-site sanitation facilities

such as pit latrines which, unlike sewers, are usually the responsibility of the households. The majority of the households use shared pit latrines, although few people still use the “bush facility” or the “kavela” (plastic bag) system.

However, available data indicate that 90% of residents in low-cost areas and 50% in peri-urban areas, have access to sanitation. Therefore, presently about 32% (about 1,6 Million people) of the urban population do not have access to adequate sanitation facilities. The baseline study will provide a more accurate picture on sanitation coverage.

3 Reaching the MDGs

In the peri-urban and low-cost areas, where residents are no longer supplied through the old distribution network and their house or yard connections, the MDGs can be achieved with the expected amount of funds if an appropriate low-cost technology is chosen for the urban poor.

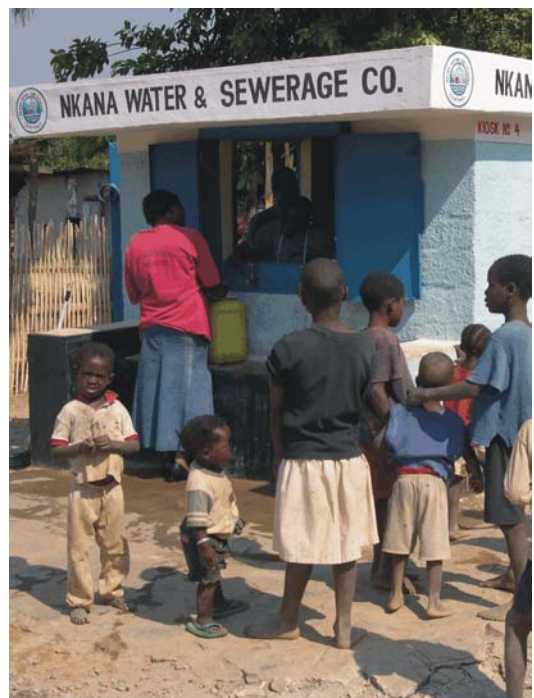
Existing and planned projects tend to concentrate on the upgrading of existing water supply systems. This approach should be supported if it allows for easy extension of the distribution network into the areas where services are currently not available. Some of the funds made available for the improvement of water supply are already earmarked for the introduction of affordable water supply technologies in peri-urban and low-cost areas. Despite this encouraging development the currently available and pledged funds are insufficient and do not allow for the achievement of the MDGs. So far hardly any funds have been made available for the improvement of the sanitation situation in low-income areas.

The nation-wide implementation of improvement of water service provision to the urban poor is ready to go ahead. NWASCO and the DTF have built capacity in terms of qualified human resources and in most towns sufficient water can be made available in order to serve the low-income areas. Additionally, standards have been developed, data on all peri-urban areas are in the process of being collected and the financing and implementation procedures have been defined by the DTF. Many CUs have established the required structure such as Peri-Urban Units or Community Relations Sections. Consequently, improving service provision to the poor through kiosk systems

with the existing institutional structure can be carried out without time consuming preparations to ensure obtaining immediate results.

With the capacity of the new institutions in implementing low-cost technology Zambia is ready for a large scale implementation to meet the MDGs for water supply in the urban areas.

Unfortunately, this can not be said with regard to sanitation. Currently there is no clear pro-poor sanitation concept on national level. The development of such a concept is still in its infancy but within the existing constructive institutional environment it will be relatively easy to accelerate this process.



4 Closing the gap for water

4.1 Strategy

The MDGs will only be reached in the urban setting if the service provision to the urban poor is substantially improved and if the funds raised are invested in areas with the greatest leverage (i.e. lowest costs per capita). Additionally, low-cost technology needs to meet minimum standards. Thus, the best strategy is as follows:

- **Focus on the urban poor:** Investments for water should concentrate on peri-urban and low-cost areas where the majority of the urban population lives and a very high number of residents can be reached with a single installation (1000-1800 with one kiosk).
- **Services offered must be affordable for the urban poor.** This eliminates the possibility of introducing house connections and sewer lines for all in peri-urban and low-cost areas. The solution is low-cost technologies such as water kiosks and improved onsite sanitation. Thereby, the poor should be able to profit from economies of scale which implies that the systems for the poor are linked to the main network wherever possible. Additionally, the money paid by the poor for the services should flow entirely to the service providers and kiosk operators. Any additional payments to others would unjustifiably increase the tariffs for the poor.
- **Low-cost technology must meet minimum standards:** Water supply to low-income areas must meet a number of important criteria linked to social, public health, commercial, technical and operational objectives. The social objective can be translated in accessibility and affordability. The poor should receive value for money such as a good water quality, continuity of service etc.
- **Professionals can best ensure service provision to the poor.** Water should be sold in the peri-urban areas by a provider which has the capacity to ensure proper maintenance and to control water quality. The retail tariff must be approved by the regulator. The water outlet should be operated by a well trained water vendor who is supervised by the professional service provider. Community managed systems should only be considered where no professional water provider can take over.
- **Sustainability is crucial:** The provider should be able to cover its operation, maintenance and basic replacements costs. Community operated systems which rely on subsidised services from professionals such as repair, control of water quality etc. are not a permanent/sustainable solution.



The new institutional set-up and the legal framework with CUs and regulation have created an environment where supply systems for the poor meeting these criteria can easily be established. Interim solutions such as community operation of WSS systems can now phase out. Systems for the poor can be linked to the main network and operated by professional providers. While communities and LAs will always have an important role to play (e.g. in the preparation of WSS projects), their comparative advantage is not the operation of the WSS systems. With the current conducive environment, the poor can get value for money and the MDGs can be achieved with sustainable systems.

Shift focus on service provision to the poor and optimise the potential offered by the new institutional and legal frame work (CUs, poverty fund and regulation). Additionally, make best use of the experience gained with low-cost technologies in Zambia.

4.2 Choice of technology – the kiosk as most appropriate system

Experience in towns like Chipata (where commercially operated water kiosks were introduced in 1994) and Monze, as well as, in 4 towns on the Copperbelt and in Western Province demonstrate that well designed and operated kiosk systems implemented in peri-urban and low-cost areas are most appropriate. Kiosk systems are a sustainable and acceptable water supply solution from a social, technical and commercial point of view compared to other tested solutions for the poor such as communal taps, public taps, hand pumps and house connections.

Water has to be affordable and at the same time sale of water has to cover operation and maintenance costs. Therefore, the design of the kiosk is not only crucial for the acceptance by the residents in the service area, but also for the successful and sustainable operation of the kiosk by its vendor/operator. Since the income generated from the sale of water can cover costs of the provider but is often not sufficient to keep kiosk operators motivated, provisions (e.g. shelves, sufficient space) for the use of kiosks for other income generating activities such as the sale of other goods should be made. The design of the kiosk should be customer friendly (women in particular) which means that it has to reflect ergonomic considerations as well as concerns of vendors.

The placement of kiosks must take the preferences of the water vendors and of future customers into account, as well as the technical and commercial constraints and objectives identified by the CU. In other words, a kiosk should be placed in a way that it can serve a maximum number of customers in an efficient and customer friendly manner. Involving the community in finding proper sites for the kiosk has proven to be an efficient way to improve psychological ownership, prevent vandalism and make treated water accessible.

In order to avoid repetition of mistakes in design of kiosks and its management NWASCO has issued guidelines for the service provision to the poor and the DTF set minimum standards (community participation, design, management etc.) on national level for kiosk systems. Kiosk water is considered to be affordable and the professional input of the CUs, the DTF and

NWASCO guarantees a minimum service level and the sustainability of the systems. (refer to Evaluation report DTF/EM, 2005).

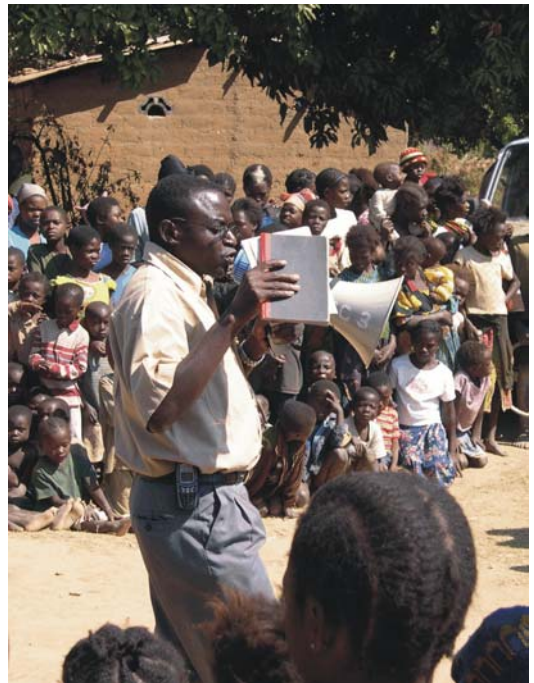
Water kiosks are the most economic and effective way to reach the MDGs regarding access to water.

Decayed water distribution systems, with unprotected outlets, erratic supply and often close to broken sewer lines should be replaced by kiosk systems if an upgrading of the old system is not feasible as a medium term solution while resources are being mobilised to maintain the service standard in the long run. Promoting kiosks, however, does not exclude the introduction of mixed systems, especially in low-cost but also in peri-urban areas where there is a substantial market for individual house connections.

4.3 Institutional aspects of kiosk systems

Community participation is important during the planning stages of a kiosk system (placement, sensitisation, recruitment of vendors) and during the operation of the kiosks (prevention of vandalism, expressing customer complaints). The management of the kiosks and the supervision of the water vendors, however, are the responsibility of a professional team of the CUs. The day-to-day operation of the kiosk is the responsibility of a water vendor, preferably a woman, who has been recruited with the consent of the community. The vendor is not an employee of the CU but works on a commission basis and signs a contract with the CU which stipulates the rights and responsibilities of all parties. This institutional set-up allows the CUs to keep the costs low and to assure an acceptable service level.

Customers at water kiosks require a different approach and attention by the provider. Consequently, a water company needs a number of specialised professionals for the service provision to the poor. If the service provision for the poor becomes a strategic focus of the providers it must be reflected in the structure ("structure follows strategy"). Such a person or team within the CU (the Community Relations Officers or the Peri-Urban Unit) must take care of data collection in peri-urban areas, the extension of service provision (planning and sensitisation) and thereafter the management of the kiosk systems. Experience from Chipata, where kiosks are managed by the Customer Relations Section of the CU since 10 years, proves that CUs are able and willing to deal successfully with peri-urban areas and are well placed to address the needs of special customer groups like the poor, prisons, hospitals etc.



During tariff negotiations, NWASCO can offer incentives for the providers such as adjustments of tariff levels in certain brackets to allow for cross-subsidisation which will help to extend service provision to the poor. Thereby, the provider can cover overall costs and NWASCO ensures that the tariff for the poor will be set according to the willingness and ability of kiosk customers to pay.

Additionally, the DTF is an appropriate financing instrument to help the CUs to extend their system to the poor by providing the funds for the low-cost technology investment as well as for the support to implementation and strengthening of the capacities in managing low-cost systems. The DTF also ensures compliance with national standards (adequate accountability, design, implementation and operation) and closely monitors the progress and quality of the work carried out.

4.4 Financial aspects of kiosk systems

The kiosk projects implemented in Monze (2003), Western Province and on the Copperbelt (Kitwe and Chingola, 2004) indicate that approximately € 5,00 - € 8,00 per resident are needed in order to establish a kiosk system which gives all residents of the area easy access to clean water. This amount will in most cases have to be increased to about € 10,00 per resident if an upgrading of the distribution system is required to ensure continuous supply and sufficient pressure.

The cost recovering tariff at the kiosk (which does not include the replacement cost of the entire system, a burden which should be borne through cross subsidies by consumers with household connections) is estimated at € 0,15 per m³. Considering an estimated average daily per capita consumption of 10 litres per day² a household of 6 persons³ will spend approximately € 0,30/month on clean water, which is the price of a bottle of local lager beer (Mosi 0,35 litres).

It has been proven that introducing kiosks in areas with dilapidated water supply systems, which are beyond justifiable repair, has not only a positive effect on the residents but also upon the performance of the service provider and upon the sustainability of the service provision to the urban poor. In areas supplied through new kiosk distribution networks, unaccounted for water (UFW) is reduced due to elimination of leakages, illegal connections, unprotected public outlets (where water can be fetched free of charge) and non-paying connected households, resulting in considerable savings for the CU.

Kiosk systems are cheap to establish (€5 – 10 per resident) if implemented by the CUs and financed through the DTF. Kiosks not only offer advantages to the urban poor such as easy access and controlled social tariffs but also to the providers which can reduce UFW and increase collection rates.

² Based upon surveys of consumptions carried out in Monze, Chipata, Kitwe and Lusaka.

³ In many peri-urban areas in Southern Province, Central Province, North-Western Province the average household size is 6 persons. Nevertheless, there are important local and regional variations in average household size.

4.5 Required investments for water in order to reach the MDGs

For the achievement of the MDGs, the proportion of people in urban areas without sustainable access to safe water has to be reduced from 40% to 20%. Assuming a population growth rate of 2% per annum the urban population in 2015 will be about 6,1 Million. Achieving the MDGs means that the number of urban dwellers with access to water has to be increased by about 2 Million by 2015. As population densities, particularly in areas with functioning infrastructure will increase, it can be assumed that 10% - 15% of the new residents can be supplied by existing infrastructure. Hence, supply systems for an additional 1,75 Million people will have to be provided by 2015.



Table 4: Required improvement of access to water by 2015

	2004	2015
Total urban population [Million]	4,9	6,1
People without access [Million]	1,9	1,2
People with access [Million]	2,9	4,9
Proportion of people with access[%]	60	80

For the implementation of the required kiosk systems, an estimated € 17,5 Million (€10 per capita) is needed to provide access to 1,75 Million additional people until 2015.

In addition, management fees for the DTF and funds to procure limited, but essential activities such as technical assistance, capacity building, sensitisation, training and short term consultancies will be required.

Therefore, funds in the order of € 20 Million will have to be mobilised in order to meet the MDGs for water in urban areas.

The estimated investment requirements to meet the MDGs for water in urban areas in Zambia with kiosk systems established through the CUs and the DTF are €20 Million over 11 years (€1,8 Million annually). The total expenditure will be € 12 per capita. This will leave 1,2 Million urban poor without access to safe water in 2015 compared to currently 2 Million people.

5 Closing the gap for sanitation

The indicator for monitoring progress when it comes to sanitation is “Proportion of population with access to improved sanitation”. The Joint Monitoring Program⁴ (JMP) classifies sanitation facilities as either “improved” or “unimproved”. In doing so, it makes the assumption that those classified as “improved” are more likely to be sanitary than “unimproved” ones.

According to the mid-term assessment of progress towards the MDGs, improved sanitation facilities are defined by the JMP as:

- Connection to a public sewer
- Connection to a septic tank
- Pour-flush latrine
- Simple pit latrine
- Ventilated improved pit latrine.

In general, sanitation technologies need to be locally appropriate and based on what people want and are willing to use and maintain. Nonetheless, professional and political pressures do sometimes resist the use of “alternative” or “low-cost” options. There is a body of evidence to suggest that rigid adherence to “higher” definitions of levels of service, constrains access in many countries. This restraint has been noticed in Zambia with a degree of reluctance in low-cost housing areas to accept solutions other than rehabilitation of sewers and piped water supply which are perceived as ‘down-grading’. There is also evidence, however, that these constraints can be overcome.

5.1 Strategy

The high population densities that are common in the peri-urban areas suggest that sewer systems would be the option of choice. Nevertheless, for the poor, off-site

(net-borne) systems are out of reach as developing, connecting to and using/maintaining sewer systems is very costly. In addition, the practicalities of installing sewer systems would probably require the rebuilding of large parts of peri-urban areas due to the unplanned and haphazard layouts of the settlements. On-site sanitation will therefore remain the only viable option in the peri-urban settlements and probably also in many low-cost residential areas in the foreseeable future. As the risk of pollution of groundwater is high in densely populated areas, environmentally friendly on-site systems have to be promoted even if the cultural background might sometimes hamper the progress of such systems.

Sanitation investment is a household decision

Investments for on-site sanitation should focus on affordability and must be environmentally friendly. As sanitation investment is a household decision the emphasis should be on sensitisation as well as hygiene and health education.

Decisions on sanitation are made at the household level and behaviour changes require time. It will be very difficult to introduce new, revolutionary or unknown sanitation concepts on a large scale within the MDG target period. Thus, new concepts should be part of, but should not dominate actions at the beginning of a coherent and carefully planned programme to improve the sanitation situation in low-income areas.

Nevertheless, new concepts should be promoted wherever a household shows

⁴ The Joint Monitoring Programme is generally seen as the main mechanism for monitoring progress towards the MDGs in this sector.

interest and where multiplying effects can be easily obtained (schools with gardens, open air penitentiary facilities etc.).

Sustainable sanitation solutions have to meet criteria such as affordability, acceptability, sustainability, replicability and environmental friendliness. Therefore, focus of the strategy to reach the MDG must be on:

- Upgrading of existing on-site sanitation.
- Introduction and promotion of new sanitation concepts such as ecosan etc.
- Promotion of sanitation facilities at public institutions and places such as schools, prisons, markets, bus stations etc.
- Upgrading of existing small diameter sewer systems wherever funds are available and customers can pay for such services.

Replicability will only be achieved if the technology is readily understood and installation and maintenance is affordable.

To be sustained, any sanitation facility needs to be 'owned' by the household so that maintenance is performed. This means that the installation of sanitation facilities needs to be achieved as a result of household demand. The cultural background and financial capacity (willingness to pay) of a household will determine which technical solution is chosen. Nevertheless, solutions should fulfil minimum requirements.

To reach a large number of households, options offered must include a range of technical solutions to choose from, and these solutions need to be affordable. However, at present demand for improved sanitation facilities with higher standards and costs is suppressed due to:

- an under-estimation of the impact on health of poor facilities (people know about the connection between poor sanitation facilities and poor health but they are not aware of the large potential impact that can arise);
- an inability to afford the installation of adequately robust and hygienic facilities.

This implies the need for sensitisation activities and use of subsidies in order to stimulate the necessary demand.

Contrary to the water supply where the framework is ready to move to large scale implementation, sanitation needs more preparation on national level (policy and strategy) and demonstration on the implementation level to design, implement and learn from pilot projects.

Improvement of access to sanitation through environmentally friendly onsite sanitation is the way forward. A sanitation policy and strategy should help to give more importance to sanitation. Pilot projects should be used to induce paradigm changes on all levels in order to open the way for new solutions.

5.2 Choice of technology for on-site sanitation

Following the strategy the possible options for on-site sanitation technologies are:

- Simple pit latrines (with improved substructure)
- Ventilated improved pit latrines (VIP)
- Double VIP
- Urine diversion dry box toilet

In a reasonable proportion of cases it is anticipated that existing sub-standard or old latrines can be upgraded to meet minimum standards.

As sanitation facilities must take cultural and religious constraints into account in order to be accepted, water flushed installations with a possible combination of shower facilities have to be part of the range offered by a program to meet the MDGs.

5.3 Institutional aspects

The implementation concept must take the institutional framework of Zambia and its capacity into consideration. The involvement of professionals can be on several levels.

Local craftsman (bricklayers etc.) could be involved in the construction of the chosen sanitation facilities. These craftsmen should be trained and licensed for subsidised installation within a given area.

The service providers (CUs) can play a crucial role without being over-burdened in planning, facilitating and supervising the implementation.

NGOs could support the Peri-Urban Units at the CUs by offering services such as training for the craftsmen and sensitisation of the target population.



On national level NWASCO can set standards and promote sanitation through the regulatory instruments such as tariff negotiations, comparative competition etc. To channel funds into the sub-sector for the poor the DTF is also an appropriate financing tool for low-cost sanitation. Thus, the DTF can ensure that standards (software and hardware) are observed and transparency of implementation is guaranteed including the accountability of funds.

Pilot projects should be used to gradually build capacity on all of these levels and players. NWASCO as regulator in close collaboration with the policy makers and the DTF, must ensure that experience obtained is shared and the national concept is adapted.

Given the complexity to deal with on-site sanitation it cannot be left to Ministries or LA structures alone or to projects piloted from outside to promote improvement on a large scale. Professionals from government institutions such as NWASCO and DTF, as well as, CUs and the private sector are needed. The role of these professionals in sanitation, however, does not have to be to the same extent as in water supply. NGOs can play a major role in the implementation following national concepts and standards.

Low-cost sanitation can be promoted by the key players of the new institutional framework including professionals from government institutions, providers (to some extent) and the private sector.

5.4 Financial aspects

Demonstration projects in Zambia indicated that costs for some of the options are as follows:

Table 5: Sanitation technologies, unit costs and expected coverage

Technologies*	Unit costs [€]	Expected % of house holds	Forecast of structures to be installed to meet MDGs	Total Cost [€]
Improvement of existing latrines	30	20%	55,000	1,650,000
Improved pit latrines	100 **	57%	155,000	15,500,000
VIP	150	11%	30,000	4,500,000
Double VIP	200	6%	15,000	3,000,000
Urine Diversion	300	6%	15,000	4,500,000
Total/average	106	100%	270,000	29,150,000
Soak -away ⁵	25	30%	80,000	2,000,000
				31,150,000

*Technologies other than for improved pit latrines are not included for the purpose of promotion of new technologies that exceed the minimum standards to meet the MDGs.

**These unit costs are based on a fully contracted price for construction. Significant reductions (up to 70%) are achievable if householders use their own labour and source cheaper materials particularly for superstructures and where linings are not required.

It is important to emphasise that the above estimate may require adjustment when more experience from pilot projects is available.

In order to foster sustainability the sanitation approach should be demand driven and subsidies for sanitation facilities should therefore be limited. Subsidies should be used as an incentive whereby the different technologies can have different subsidy levels and components. In order to avoid misuse and distortion of competition, subsidies should focus on specific technology related components such as slabs, mesh wire, ventilation pipes etc. and not on material such as cement.

It is assumed that subsidies will not exceed a total of 30% of the entire average unit costs. The subsidy structure should be determined by the policy makers on the basis of the experience from pilot projects. The pilot projects will also give an indication of the willingness and ability to pay for the different technologies by the urban poor. The household will be able to reduce spending by contributing in labour for e.g. digging pit, moulding bricks.

If skilled labour is needed, licensed local craftsmen should be paid directly by the household. Subsidies, if and where provided, would be paid to suppliers by the WSS services provider for instance.

⁵Soak-aways are anticipated to be necessary to remove sullage (grey-water) from kitchens and bathrooms in order to avoid the accumulation of waste water pools and therefore to achieve overall acceptable hygienic living conditions.

The costs of the CUs can be kept to a minimum by restricting their responsibilities to planning, facilitation and maintaining an information system. Being a commercial utility, the service provider should be able to cover the costs through the tariffs for water supply and sewerage services on the grounds that a key objective is to improve the health status of the entire urban population.

Initially, contributions by NGOs can be covered by funds made available through the DTF but should be gradually replaced by income generated by the CUs through the tariffs. Utilities will need to design relevant tariff policies and obtain NAWASCO's concurrence. NAWASCO may wish to offer some guidance in this respect.

5.5 Required investments

As indicated under chapter 2.5.2, about 32% of the urban population do not have access to basic sanitation (0,1 Million in low-cost + 1,45 Million in peri-urban areas). Following the assumptions on the population growth under chapter 4.5 the MDG for sanitation will be achieved if only 0,98 Million (16% of 6,1 Million) lack adequate access to sanitation in 2015. Assuming that about 15% (or 180,000) of the 1,2 Million new urban residents to be provided with access will use existing infrastructure, new infrastructure will be required for 1,62 Million.

Table 6: Required improvement of access to sanitation by 2015

	2004	2015
Total urban population [Million]	4,9	6,1
People without access [Million]	1,6	1,0
People with access [Million]	3,3	5,1
Proportion of people with access[%]	68	84

On the basis of an average household size of 6 people, this implies a need for nearly 270,000 additional sanitation facilities.

Based on table 5, the total investment costs to meet the MDGs in the urban-poor areas, using fully contracted prices, would be about €31 million including soak-aways.

However, it is proposed that donor investment costs should be limited to subsidies of 30% which would bring the needed investment to €9,3 Million. Funds will also be required for demonstration projects (€1 Million).

In addition, management fees for the DTF and funds to procure limited, but essential activities such as technical assistance, capacity building, sensitisation, training and short term consultancies will be required. Therefore, total funds in the order of €15 Million will be needed to halve the proportion of people without access to basic sanitation in urban areas.

The investment requirements to meet the MDG for sanitation in urban areas in Zambia with on-site systems established through the CUs and the DTF is €15 Million over 11 years (1,4 Million annually), if 70% of the costs are borne by the households. The average subsidy will be €-10 per capita. This will increase the number of people in urban areas with access to basic sanitation from 3,3 Million to 5,1 Million.

6 Required investments per province, existing commitments and agencies

The following tables (7 and 8) are based on information currently available. The figures regarding investment requirements will be adjusted once the results of the Baseline Study are available (July 2005). The tables will have to be completed and regularly updated following the commitments of funding agencies and GRZ. To some extent the improvement of water supply in these areas will involve the upgrading of existing WS systems.

Table 7: Required funding and planned interventions for water supply

	Amount needed	Covered by commitments	Agencies	Gap to be closed	Comments
Province	[Million €]	[Million €]		[Million €]	
Central	1,8				
Copperbelt	2,6				
Eastern	1,3				
Luapula	1,4				
Lusaka	5,0				
Northern	1,6				
North-Western	1,0				
Southern	1,8				
Western	1,0				
National level	2,5				
Total	20,0				

As a comprehensive pro-poor sanitation approach is currently lacking it will be necessary to test appropriate approaches with demonstration projects. This should also provide the opportunity to adapt and ameliorate the approaches and to build capacity at the national and CU level. The demonstration phase should last 2 – 3 years and be followed by a large-scale implementation phase coherent with DTF procedures and standards. Parallel to this a national strategy on sanitation should be elaborated and agreed upon.

	Amount needed	Covered by commitments	Agencies	Gap to be closed	Comments
Province	[Million €]	[Million €]		[Million €]	
Central	0,8				
Copperbelt	2,2				
Eastern	0,6				
Luapula	0,4				
Lusaka	2,9				
Northern	0,7				
North-Western	0,3				
Southern	0,8				
Western	0,3				
National level*	6,0				
Total	15,0				

*including pilot projects

List of Abbreviations

AfDB:	African Development Bank
CSO:	Central Statistical Office
CU:	Commercial Utility
DANIDA:	Danish International Development Agency
DCI:	Development Cooperation of Ireland
DTF:	Devolution Trust Fund
DWA:	Department of Water Affairs
EM:	Eigenmaßnahme
GTZ:	Deutsche Gesellschaft für Technische Zusammenarbeit
KfW:	Kreditanstalt für Wiederaufbau
LA:	Local Authority
MDGs:	Millennium Development Goals
MLGH:	Ministry of Local Government and Housing
NORAD:	Norwegian development agency
NWASCO:	National Water Supply and Sanitation Council
PSP:	Private Sector Participation
RDC:	Residents Development Committee
UFW:	Unaccounted for water
WS:	Water supply
WSS:	Water supply and sanitation
WSSD:	World Summit on Sustainable Development
WWG:	Water Watch Group

Bibliography

Central Statistical Office (1996) *The Evolution of Poverty in Zambia, 1991-1996*, In: Living Conditions Monitoring Survey Report, 1996, Lusaka, Zambia.

Central Statistical Office (1999) *Living Conditions in Zambia, 1998*, CSO, Lusaka, Zambia.

Chipata Water and Sewerage Company (1993) *CWSC file 31-11-93*, In: Improvement Programme for Drinking Water Supply and Sanitation in Chipata Town and District, September 1993, Volume 1: 6/7, Appendix 32: 21), Chipata, Zambia.

GKW Consult (2003) *WaterAid, Urban and Peri-Urban Water and Sanitation Review, Topics, Methodology and Research Tools*, Prepared by GKW Consult, Lusaka, Zambia.

Government of the Republic of Zambia (1997) *Water Supply and Sanitation Act No.28 of 1997* Laws of Zambia, Date of Assent: 11th November, 1997, Government Printer, Lusaka, Zambia. See for the full text of the Water Supply and Sanitation Act of 1997: <http://www.zambia-water.org.zm/wssBill.html>).

NWASCO (August 2004), *Water Sector Reform in Zambia*, Lusaka, Zambia

Ministry of Local Government and Housing (1999 and 2000) *Peri-Urban Water Supply and Sanitation Strategy*, Lusaka, Zambia.

Ministry of Local Government and Housing, African Development Bank (January 2002) *Sanitation Study for Seven Centres in Central Province, Development Plan Report, Main Report*, GKW Consult, PriceWaterhouseCoopers, BCHOD, Lusaka, Zambia.

Ministry of Local Government and Housing, Kreditanstalt für Wiederaufbau (January 1999) *Feasibility Study for Water Supply and Sanitation for Livingstone Town*, GKW Consult, PWC, Lusaka and Choma, Zambia.

Reaching the Millennium Development Goals for Water Supply and Sanitation in Zambia - The Urban Perspective -

Nwasco & DTF

164 Mulombwa Close, Fairview
P.O. Box 34358, Lusaka-Zambia

Tel: (+260) 1 226941-2

Fax: (+260) 1 226904

E-mail: nwasco@zamnet.zm

Website: www.nwasco.org.zm



Deutsche Gesellschaft für Technische
Zusammenarbeit (GTZ) GmbH