

THE CHALLENGES OF PROVIDING
PUBLIC WATER AND SANITATION
SERVICES IN A RURAL TOWN IN ZAMBIA,
THE CASE OF THE SOUTHERN
WATER AND SEWERAGE COMPANY IN CHOMA TOWN

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TABLE OF CONTENTS

	Content	Page
1.	INTRODUCTION	4
2.	RESEARCH METHODS AND ANALYTICAL FRAMEWORK	7
3.	RESULTS	9
4.	CONCLUSIONS AND RECOMMENDATIONS	18
5.	ACKNOWLEDGEMENTS	20
6.	REFERENCES	21
7.	APPENDIX 1: CONSUMER QUESTIONNAIRE	22

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Abstract

The paper reports on whether the performance of privatized water and sanitation companies in Zambia have lived up to expectations of improving the quality of the services to the consumers using a case study of the performance of Southern Water and Sewerage Company (SWASCO) in Choma town.

To determine consumer ability to pay for water and sanitation services since privatization, eight sample figures each of recovery rates before and after privatization were compared using simple algebraic comparison. Results as shown by histograms, confirm that despite the increase in tariffs for services, more consumers are able to pay for the services after privatization.

To assess the effectiveness of the privatized water and sewerage service provider, The percentage of account holders with in dwelling water taps before privatization were compared to respective percentage after privatization. The results of simple algebraic comparison confirm that the privatized Water and Sewerage service provider in Choma has proportionally increased the number of account holders with in dwelling water taps and hence has improved the effectiveness of service delivery.

To determine whether privatized water and sewerage service provider is delivering quality services to the satisfaction of consumers, a random sample of 528 household account holders (representing 20% of household account holders in Choma) from major residential areas in Choma were surveyed. The results confirm that the privatized service provider is delivering quality services according to consumers as regards six important service indicators identified.

However, the study reveals that there is a lot of scope for the privatized water service provider in Choma to further improve the services. This is in accordance with number of challenges identified during the unstructured interviews with the management officials of the privatized service provider. The biggest challenge is for the privatized service provider to balance between social and commercial interests in the provision of water and sanitation services as the country strives to achieve millennium development goals.

1. INTRODUCTION

In some societies water has long been treated as a scarce and valuable resource. In majority of countries however, water has been treated as though it were available in unlimited quantities, and supplied at zero or low cost to consumers. Consumers, assisted by their political leadership, have clear notions of their water requirements, and the task of water authorities has, until recently, been seen as supplying those needs, with little consideration for subsequent costs. Pricing for water services has been meager and sporadic, and is normally done with inadequate information at hand.

However, fresh water is a finite resource and the need to conserve and efficiently allocate fresh water has been gaining popularity recently. As population continued to rise throughout most areas of the world, it has become increasingly difficult to provide an adequate supply of water for all uses.

Water is increasingly becoming a scarce resource in Zambia. Despite the fact that it is traversed by five major rivers and hosts three big lakes with minimum annual rainfall ranging from 400 to 1,000 mm, a high proportion of people still do not have access to safe drinking water.

Experience has shown that state run water supply and waste water disposal were highly inefficient especially in developing countries as the emphasis was on providing water as a public good although this scarce resource does not meet all of the economic criteria of a public good (i.e. non exchange use and no competitive consumption).

Until 1993, the water supply and sanitation sector in Zambia was under the state, specifically under the Ministry of Local government and Housing and run by local, Municipal and City councils. The cost of supply of water was heavily subsidised by the state and consumers were getting water for free or at a very low price. Rapid population growth and the inefficient operation of the water supply network were having a negative impact on the living conditions of the urban poor {GTZ Report, Reform of the water sector, (2005) ww.nwasco.org.zm}. The situation was made worse by the government's debt crisis which made it increasingly difficult to supply water and hence the services deteriorated considerably causing public outcry. 40% of the urban poor had inadequate access to clean drinking water and sanitation. This often resulted in cholera and other epidemics stemming from polluted water. Two unusually dry years worsened the supply situation in rural areas. New sustainable means of supplying water had to be sought and the response was to consider water as an economic commodity (as indicated in the Dublin principles that influenced the formulation of the water chapter in agenda 21 in Rio Conference 1992). In other words, water supply should come at a cost, but at one which is not distorted by subsidies, thus reflecting the scarcity and the outlay incurred in extracting, processing and distributing it. Hence Zambia introducing a far reaching reform process in the water sector in 1994.

By 2003, a new water supply and waste water disposal law had been passed and a regulatory authority- NWASCO and ten commercial water service providers set up. Hence commercial water and sanitation companies were established in almost all the towns in the country which together have three million consumers of the total national population of eleven million. The objectives of the Zambian water reforms were to supply urban people and those in urban fringe with safe drinking water and sanitation. This was to be achieved through the better use of water resources, the more efficient operation of facilities and increasing self financing of the sector.

However, four years down the line, some urban consumers still feel that the water reforms have not improved the services, despite that they are paying a lot more than they used to before the reforms were implemented.

Southern Water and Sewerage Company (SWASCO) started operations of providing water and sanitation services in Choma town in 2000. It replaced the Water department of the Choma District Council following the national water reforms. SWASCO pumps an average of 9,000 cubic metres of water from Munzuma and Choma Dams and serves a population of 51,500 in Choma town.

Objectives

The study intends to highlight the challenges the private water companies are facing in a bid to provide quality water and sanitation services to consumers. Using Choma town as a case study, the study intends to determine whether the private water and sanitation companies are delivering quality services to the satisfaction of consumers who are paying in for the services.

Specifically, the study is designed to:

1. Determine whether the private water and sanitation companies are delivering effective service to the consumers.
2. Determine whether the private water companies are delivering water and sanitation services to the satisfaction of consumers (in the opinion of the consumers).
3. Determine whether the consumers are able to pay the increased prices for water and sanitation services.
4. On the basis of research findings, to recommend the most effective and sustainable interventions/strategies to enhance provision of quality services by the privatised companies.

Hypothesis

Privatisation of public domestic water and sanitation companies will ensure delivery of quality services to the satisfaction of the consumers.

Research questions

1. Have the consumers been able to pay for water since the privatisation of the water and sanitation service companies?
2. Have the privatised water and sanitation companies been able to improve the effectiveness of delivery of services to the consumers?
3. In the opinion of the consumers, have the privatised water and sanitation companies have been able to deliver water and sanitation services to the satisfaction of the consumers?

Literature review

A study by Farolfi et al (2006) suggests that household income had a positive and statistically significant impact on willingness to pay (WTP) for both quality and quantity of water. Farolfi and colleagues surveyed a sample of households and applied a Tobit model to explain household preferences for quality and quantity of domestic water supply and derived estimates of WTP for such a service. They also reported that there was room for improving water service levels in Swaziland.

Banda B. M. et al adopted a contingent valuation method (CVM) to quantify and analyse the relationship between willingness to pay (WTP) for improved availability and quality of water. The study suggests that the domestic users attribute the reliability of water supply and the quality of this water as a function of several determinants, such as the source of water and the socio economic characteristics of households among other variables. The researchers commented:
“Users that have private tap water at home may value less improved availability or more reliable source than households for which the only source of water is the closest rivers or borehole. On the other hand, users connected to regular portable water supply are more interested in quality improvements compared to those who fetch water from surface source.” (Banda B.M. et al, 2004). The justification to quantify and analyse the relationship between WTP for improved availability and quality of water is that it gives an indication of the efficiency criteria for investing in the public good at various levels of development.

Gordon McGranaham et al (2006) in a report about “Governance and getting the private sector to provide better water and sanitation services to the urban poor”, focuses on whether better governance can improve water services and sanitation by making private providers more responsive to the needs of the poor. In conclusion, Gordon McGranaham indicates that there may not be a single model or set of models for good water and sanitation governance to get private enterprises to provide better services for the urban poor. Examples of such principles include; attempts to curb corruption, strengthening the capacity of communities to organize and negotiate with water and sanitation providers, and regulatory regimes that respond to the concerns of low income groups. (Gordon

McGranaham et al 2006 IIED International Institute for Environmental and Development, London, U.K. www.iied.org). McGranaham's study puts emphasis on the dilemma involved on how best to govern a multi faceted commodity like water to ensure its effective and efficient provision.

Dr. Hakan Tropp, SIWI in an article concerning development of water capacities suggests that while water managers need skills in managing water resources and services (hardware), there is a concurrent need to step up significantly the capacity for managing people and regarding knowledge of production, and management, participation, negotiation and mediation. He concludes that proper "software" that runs and governs the "hardware" need to be provided. Dr. Hakan's article describes the knowledge and skills that an ideal modern public water and sanitation manager requires to enable him/her effectively manage a valuable and yet basic resource like water.

2. RESEARCH METHODS AND ANALYTICAL FRAMEWORK

A survey was carried out in which a random sample of consumers in major residential areas in Choma indicated the quality of water and sanitation service provided by Southern Water and Sewerage Company (SWASCO). Officials from Southern Water and Sewerage Company (SWASCO) were interviewed to find out the challenges the private Company faces in the provision of water and sanitation services. These methods were supplemented with the collection of secondary data from SWASCO and Choma district council. Other sources of secondary data included relevant reports and literature from National Water Supply and Sanitation Control (NWASCO), Environmental Council of Zambia (ECZ) and other relevant organisations.

- **To determine consumer's ability to pay for water and sanitation services since privatisation;**

Records showing consumer compliance of paying bills were collected to determine whether the consumers are able to pay increased prices for allegedly improved water and sanitation services provided by the privatised water provision company-SWASCO. In this regard, a concept of recovery rate was used. This is defined as the total monies collected against the amount due on the bills issued and is expressed as a percentage. {Recovery rate = Total amount of money collected divided by the amount on the bills issued (which include the charges for the services rendered for that particular month plus accrued arrears for previous months) multiplied by 100}. One hundred percent (100%) recovery rate implies that the bills for the services rendered for that particular month have fully been paid for while one hundred-plus percent (100-plus %) recovery rate implies that the consumers have paid for the value of the bills for services rendered for that particular month plus arrears accrued from previous months. The average of each of the eight figures of recovery rates immediately before privatisation was compared to corresponding eight figures of latest months of the era of privatisation.

The inadequacy of this method is that it does not take into account of the social economic side of the account holders and so it may be difficult to determine the disposable incomes available to account holders to enable them pay for the bills.

- **To assess the effectiveness of the privatised water and sewerage service provider;**

Percentages of account holders with in-dwelling water taps just before privatisation and of the latest month after privatisation were calculated to give an indication of the effectiveness of the privatised water companies. The difference of these two percentages gives an indication of the effectiveness of the service provider.

The inadequacy of this method is that it was difficult to calculate the percentages as the records especially the pre privatisation era were not entirely reliable.

- **To determine whether privatised water and sewerage companies is delivering quality services to the satisfaction of customers;**

A survey of house hold account holders was conducted with a structured questionnaire. The questionnaire was administered to consumers to indicate how they rate the quality of services the private water and Sewerage Company (SWASCO) provides in terms of the following service indicators; quality and quantity of water, hours operation of water provision, frequency of sewer blockages, frequency of customer contact and frequency of billing for services. The survey was conducted in all the residential areas served by SWASCO. At least 20% of households in each major residential area were sampled at random. With the permission of SWASCO operations Manager, metre Readers assisted to administer the questionnaire. A pilot was not necessary as the consumers do often fill in similar questionnaires from SWASCO and the metres Readers have a lot of experience in this area. Some residential areas only have at most twenty or less households and so it was thought that leaving them out of the survey would not significantly affect the results. 20% of the major residential areas chosen at random would give a fair representation of what is obtaining on the ground. The survey was carried out during working hours and so it was normally the female spouses who are undoubtedly more familiar with the water and sanitation services that took an active part in the survey.

An average of the results of the survey for the six indicators was calculated (“the global indicator of satisfaction”) and this was graphically presented in form of a pie chart.

The inadequacy of this method is that it does not take into account the socioeconomic data of the surveyed households to give an indication of the ability to pay for the services. This was omitted due to budget constraints. However, it is adequate to show the ability of the service provider to persuade the customers to settle the bills for services provided.

- **To identify challenges/constraints of SWASCO;**

It was important to interview SWASCO management officials to find out the challenges/constraints the utility company is facing in the provision of the services. The officials, who were interviewed separately, were required to identify the challenges that the company faces.

Interview transcripts were examined question by question and answers to specific questions were compared to come up with proper analysis.

The inadequacy in this method is that officials interviewed were giving their own opinions and as such it may be possible that they might have either omitted some challenges or exaggerated others.

Literature concerning similar studies and other relevant information was obtained from a variety of sources. Some of these sources include; SWASCO, National Water and Sanitation Council (NWASCO), Environmental Council of Zambia (ECZ) and the GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) web site. These sources of literature are reliable in that;

- NWASCO is the regulatory body of all water and sanitation service providers
- SWASCO diligently keeps all appropriate records while
- GTZ has all along been involved in water and sanitation reforms in Zambia.

Documentary analysis so as to carefully consider a range of related questions was done. Those elements which are considered to be important or relevant were abstracted from each document and these were set alongside other related issues.

The mother population is the residential households that are served by SWASCO in Choma town corresponding to 51,500 inhabitants. On the average, most people residing in high cost residential areas like **Mochipapa, Riverside, Zambia Railways** and **show grounds** are either in regular employment or operating reliable business ventures and are considered to be in the high class bracket of the town. They generally have good access to water and sanitation services. Those residing in medium and low cost residential areas like **Macha, Sha, Shampande** and **Munzuma** are generally considered to be in the medium to low class brackets of the town. While some may be in regular employment or running business ventures, a good number of them are not in regular employment and survive on erratic business ventures and casual employment. Their access to water and sanitation services may not be as good as those in high cost residential areas. The rest in unplanned for or shanty residential areas like **Zambia** compound are generally poor people who have no regular source of income and their access to water and sanitation services is limited as such residential areas are created illegally and may only be legalised after many years with the help of politicians. They rely mostly on own pit latrines and boreholes provided mainly by non-governmental organisations (NGO's).

3. RESULTS

Consumer compliance of paying bills

To determine whether consumer are able to pay for increased charges of water and sanitation services offered by the private Southern water and sewerage Company

(SWASCO), recovery rate figures for eight consecutive months immediately after privatisation of the water and sewerage service provider were compared with corresponding figures for the most recent months. {Recovery rate = Total amount of money collected divided by the amount on the bills issued (which include the charges for the services rendered for that particular month plus accrued arrears for previous months) multiplied by 100}

Table 1: Recovery rate of SWASCO-Choma in early times of privatisation (representing the pre-privatisation era)

Month	November 2001	December 2001	January 2002	February 2002	March 2002	April 2002	May 2002	June 2002
Charges (ZK)	78,801,116	78,388,197	69,758,134	66,621,052	71,372,467	65,805,118	73,634,004	70,484,967
Payments (ZK)	31,059,092	25,124,798	22,639,841	31,816,832	23,771,750	25,244,022	44,458,076	27,722,287
Recovery rate (%)	39.41	32.05	32.45	47.76	33.31	38.36	60.38	39.33

Note: The unusually high figure of collection rate May in table 1, may mean that a lot of customers were issued with warning notes for disconnection of the services.

Table 2: Recovery rate of SWASCO-Choma in current times of privatisation (representing the post-privatisation era)

Month	October 2006	November 2006	December 2006	January 2007	February 2007	March 2007	April 2007	May 2007
Charges (ZK)	107,696,822	94,354,085	112,840,380	90,295,740	98,321,030	95,275,375	74,465,380	87,100,480
Payments (ZK)	119,678,576	91,133,740	122,641,650	101,974,140	96,684,910	100,970,917	79,217,920	91,292,596
Recovery rate (%)	111.13	96.59	108.69	112.93	98.34	105.98	106.38	104.81

Table 3: Average recovery rate before and after privatisation

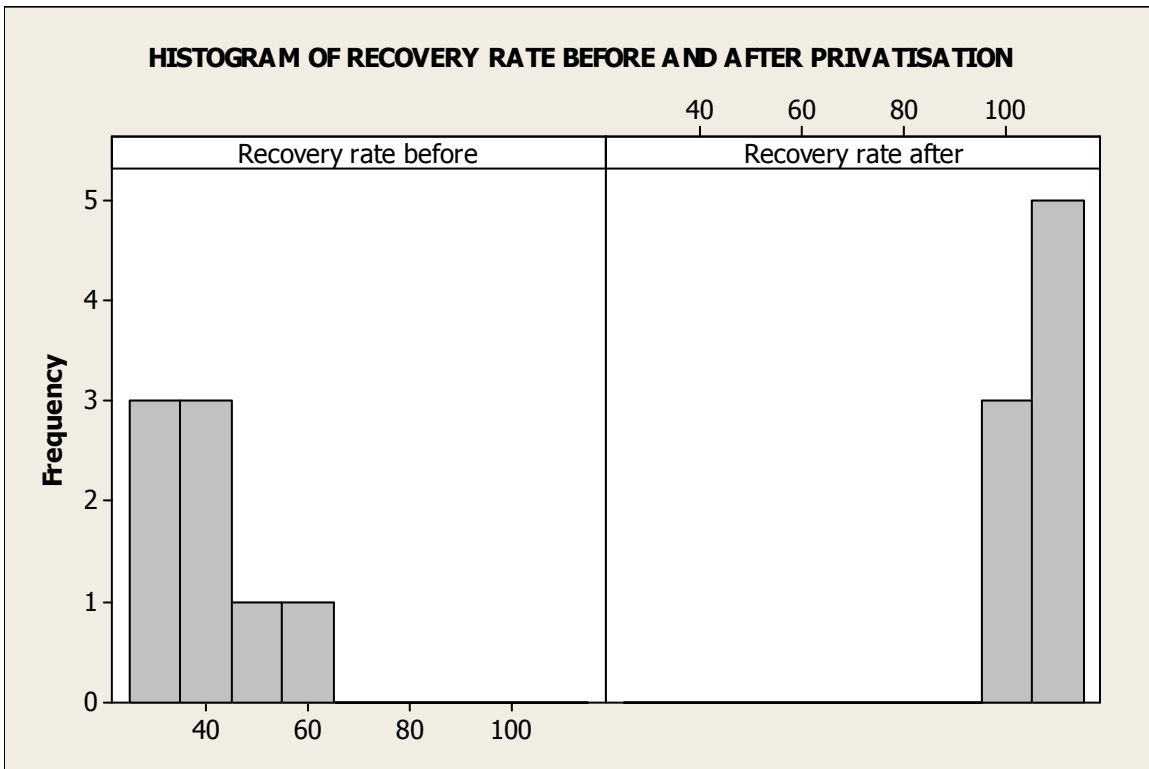
Average Recovery rate Before privatisation	Average Recovery rate After privatisation
40.38	105.61

Worksheet size: 10000 cells.

Welcome to Minitab, press F1 for help.

Recovery rate (%) before privatisation	Recovery rate (%) after privatisation
39.41	111.13
32.05	96.59
32.45	108.69
47.76	112.93
33.31	98.34
38.36	105.98
60.38	106.38
39.33	104.81

Figure 1: Histogram of Recovery rates by SWASCO in Choma before and after privatisation (Recovery rate is in percentage)



It is overwhelming that the average recovery rates after privatization (105.61%) is far much higher than that before privatization (40.38%). This is also clearly depicted in the respective histograms in figure 1.

We conclude that there is evidence that the recovery rates after privatization (which are higher) significantly differ from those after privatization. Therefore we conclude that despite the higher tariffs charged, consumers in Choma town are able to pay for the water and sanitation services provided by SWASCO.

Effectiveness of the private water company (SWASCO-Choma)

One of the indicators to show how effective the water provision company has been to improve services to the customers is the percentage of account holders with in-dwelling water taps. A comparison between such percentages before and after privatisation indicates the level of the effectiveness of service delivery by the service provider. If the service provider is delivering water inside homes of the customers, then it is more effective than the one which cannot deliver water inside the homes. This is because the consumer desires for such services to be as close as possible in order to make life as comfortable as possible.

A comparison between such a percentage before and after privatisation is provided to indicate either progress or regression.

Table 4: % householders with in-dwelling taps

% Accounts with indwelling taps	
Before privatisation	60.09
After privatisation	67.81

Conclusion:

There is an increase in the percentage of the account holders (consumers) in Choma with indwelling water taps from 60.09% before privatisation of the water and sanitation service provider to 67.81% in the latest month of the privatisation era.

Proportionally, there are more customers with indwelling water taps after privatisation. Hence the private water company (SWASCO) in Choma can be said to be effective in the provision of services to the consumers.

To determine whether privatised water and sewerage companies are delivering quality services to the satisfaction of customers

In line with the mandatory requirements of the regulatory body NWASCO, SWASCO has set up service level guarantees to ensure quality delivery of services to the consumers. NWASCO regularly inspects all affiliated water and sanitation service providers to ensure that they provide services to the guaranteed levels. Table 4 below shows the service level guarantee for SWASCO for the period 2005-2005;

Table 5:

**SOUTHERN WATER AND SEWERAGE COMPANY LIMITED (SWASCO)
SERVICE LEVEL GUARANTEE FOR THE PLANNED PERIOD 2005-2007**

Service Indicator Number	Service indicator	Service level guaranteed
1.	Drinking water quality	1. 95% residual chlorine tests to be within Ministry of Health standard. Daily residual chlorine testing 2. 95% bacteriological tests within Ministry of Health stands. Monthly bacteriological tests 3. Complete physical, chemical and biological tests every six months
2.	Service hours	12 hours
3.	Billing for services	Monthly meter reading Bills sent monthly 14 days : time allowed to settle bills
4.	Client contact	Response time for paid new connections to be within 3 weeks Response time for phone calls: 5 minutes
5.	Interruption of water and blockage of sewer	Disruption of more than 20 hours will be communicated by public announcement in media as soon as possible. A week's notice in the public media will be given for planned disruptions. Emergency water will be provided for disruptions of more than 48 hours Disruptions will affect the following number of connections in one calendar year: 20-36 hours < 25% 36-48 hours < 5% >48 hours < 5%
6.	Flow rates in network for water supply	-3 lit//minute in all areas
7.	Unjustified disconnections	Unjustified disconnections to be less than 0.55 of water connections within a calendar year. Service will be restored within 24 hours and written apology within 5 days. Any wrongful charges refunded within 21 days. Discount 25% of previous month bill or 1005 of reconnection fee which ever is less.
8.	Sewage flooding	Maximum 0.5% of sewer connections experience sewer flooding in one calendar year. These will be attended to within 24 hours from receiving of complaint.

Six of the eight service indicators which consumers considered as important were identified and a sample of 528 households indicated the level of performance (i.e. whether good, fair or poor) by SWASCO in each one of them.

Results of consumer survey

SWASCO currently has a total of 3,479 accounts the majority of which are households from residential areas while the rest include training/educational institutions and commercial undertakings. Major residential areas composing of 2,622 households (which are equivalent to accounts) were identified. 20% of these households chosen at random in each residential area were surveyed.

Table 6: Household Account holders surveyed

Residential area	No. of households/ Accounts	No. of households/ Accounts surveyed
Macha	363	73
Mochipapa	199	40
Munzuma	202	41
Riverside	257	52
Shah	94	19
Shampande	1027	206
Showgrounds	129	26
Zambia	240	48
Zambia Railways	111	23
Total	2622	528

On the average, most people residing in high cost residential areas like **Mochipapa, Riverside, Zambia Railways** and **Show grounds** are either in regular employment or operating reliable business ventures and are considered to be in the high class bracket of the town. They generally have good access to water and sanitation services. Those residing in medium and low cost residential areas like **Macha, Sha, Shampande** and **Munzuma** are generally considered to be in the medium to low class brackets of the town. While some may be in regular employment or running business ventures, a good number of them are not in regular employment and survive on erratic business ventures and casual employment. Their access to water and sanitation services may not be as good as those in high cost residential areas. The rest in unplanned for or shanty residential areas like **Zambia compound** are generally poor people who have no regular source of income and their access to water and sanitation services is limited as such residential areas are created illegally and may only be legalised after many years with the help of politicians. They rely mostly on own pit latrines and boreholes provided mainly by non-governmental organisations (NGO's).

Table 7: Response from 528 households surveyed representing 20% of households served by SWASCO

Service indicators	Scores			
	Poor	Fair	Good	Total
1. Quality of drinking water	69	145	314	528
2. Quantity (flow rate) of water supplied	69	115	344	528
3. Service hours (Reliability of water supplied)	62	128	338	528
4. Client contact (Response time)	113	153	262	528
5. Sewage flooding	74	66	388	528
6. Billing for services	11	69	448	528

The majority of households sampled rated the **quality of water** provided by SWASCO as good (59.5%), while a sizable number of households rated the quality of water as fair (27.5%) and very few indicated that the quality was poor (13.1%). However there are isolated locations like in Mochipapa residential area where most of the sampled households indicated that the quality of water was poor. This is because the area is still served by very old galvanized water pipes which are corroded and hence reduce the quality of water.

The majority of the households sampled, indicated that the **quantity** (rate of flow or pressure of water), is good (65.2%) while a few equal amount of households each indicated that it was fair (17.0%) and poor (17.8%) respectively. This is a general picture obtaining in all the residential areas in Choma town.

In terms of **service hours** of water provision, the sampled households were overwhelming in rating this type of service as good (64.0%). This was followed by those who rated it as fair (24.2%) while a small number of households were not impressed with the service and subsequently rated it as poor (11.7%).

Just slightly less than half of the households sampled indicated that the **frequency of client contact** by SWASCO officials in service delivery was good (49.6%), while others indicated that it was fair (29.0%) and the rest rated it as poor (21.4%) in this order. Client contact is interpreted as the response for new connections, to attend to complaints etc.

An overwhelming majority of those households sampled, feel that **sewage flooding** is rare {meaning that the sewage service provided is good (73.5%)}. Very few indicate that the sewage service is fair (14.0%) and poor (12.5%) in that order. It is however noting that SWASCO is not responsible for sewage disposal in some quite new residential areas like Riverside. Households themselves provide septic tanks. This is because the Planning department of the local Council who allocate residential plots apparently does not involve SWASCO to plan for required services. Sewer flooding is however common in residential areas which were poorly planned especially those like Zambia compound which came into being as squatters before they were legalized.

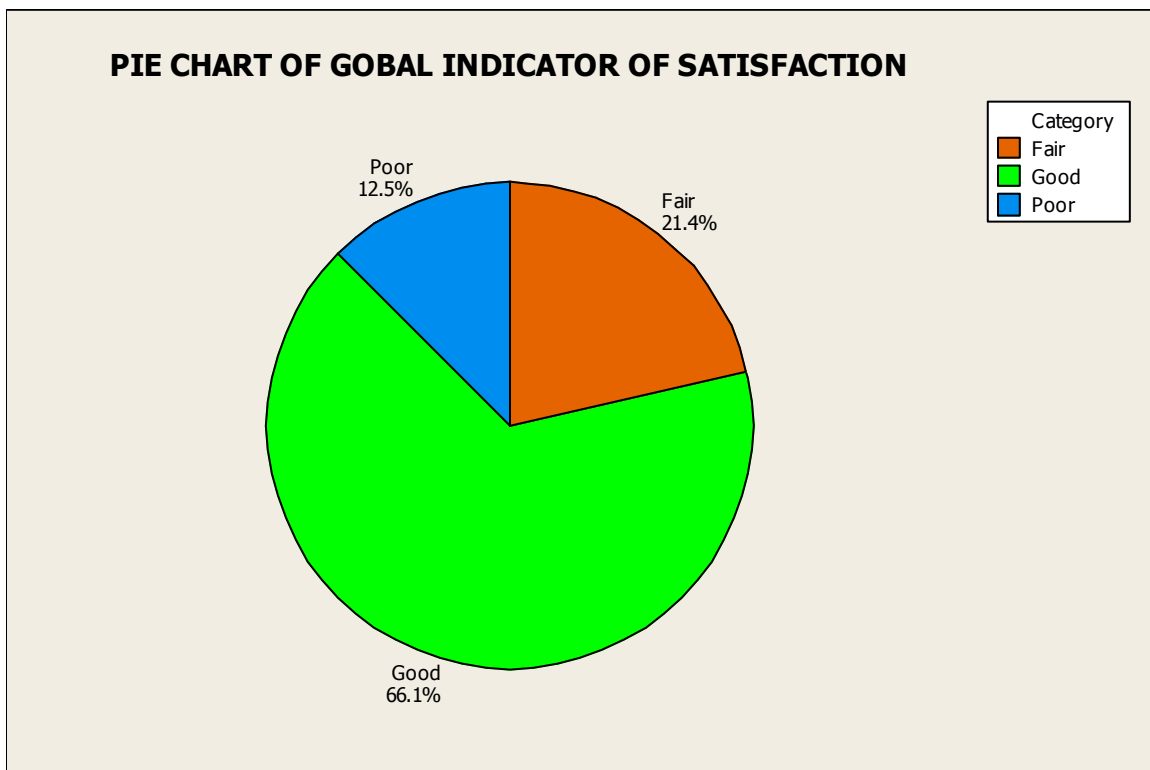
Extremely overwhelming households sampled felt that **billing frequency** of services by SWASCO was consistently regular and hence good (84.8%). Only a small number (13.1%) and a negligible number felt it was fair and poor (2.1%) respectively.

(All the above explanations refer to the results in table 7 above).

Table 8: Average response for service provision: Global indicator of satisfaction

	Average scores			
	Poor	Fair	Good	Total
Global indicator of satisfaction	66	113	349	528

Figure2: Pie Chart of Global indicator of satisfaction i.e. an average of how consumers rate quality of services provided by SWASCO



Overall the majority (60%) of the households surveyed rated the quality of services provided by SWASCO in Choma as good while a few (21.4%) indicated that it was fair and still fewer (12.5%) rated it as poor. This is an indication that SWASCO in Choma is according to the consumers delivering a satisfactory service.

Challenges/Constraints SWASCO – Choma is facing

To identify challenges/constraints SWASCO Choma faces, management Officials from the private water and Sanitation company were interviewed separately and a list of common challenges cited by those interviewed are tabulated below.

1. Poor or lack of coordination between SWASCO and the Planning department of the township council

Residential and other infrastructural development by the Municipal council is expanding at a faster rate than that of the water and sanitation infrastructure in the town. The local council authorities are arbitrary authorising infrastructure development without due consultation and the consent of the water and sanitation company to ensure that development of both building and water and sanitation infrastructure match. But the water and sanitation company is always taken by surprise and is under intense pressure to provide the water and sanitation infrastructure to already completed buildings. The same goes for unplanned residential areas. They develop without being serviced for water and sewerage networks. This makes it extremely difficult to lay water and sewer pipes in areas where houses have already been constructed.

2. Inadequate sewerage network to effectively deal with sewer disposal.

The Company only has sewerage network in Shempande township, the oldest township in town, leaving most parts of town to be serviced by septic tanks which are constructed by the tenants. During the rainy season, sewer spillages are common from these tenant-constructed septic tanks as the terrain of Choma is generally low. Hence the need for construction of technically efficient and suitable sewer system.

3. Commercial water losses (leakages)

Currently, the company loses up to 55% of water through leakages and in premises which are not metred. This increases operational costs especially in terms of increased energy needs for pumping operations and hence reduces efficiency.

4. Vandalism and theft of vital equipment

Vandals are currently stealing cast iron manhole covers for the sewerage infrastructure. Until recently vandals also used to dig out water reticulation pipes but this has greatly reduced with the change in placing of pipes along roads as opposed to placing them in between residential plots. Vandalism of infrastructure greatly increases operational and maintenance costs and also entails sometimes foregoing routine maintenance works at the expense of replacing or repairing vandalised infrastructure. Vandalism also contributes to water losses or leakages.

5. Inadequate financial capacity by SWASCO to subsidise peri-urban centres

Ideally the government through NWASCO is supposed to provide adequate funding to SWASCO for servicing the peri-urban areas. However, little or no funding is forthcoming and so SWASCO has to overstretch its financial resources to cater for this function. This obviously exerts undue pressure on the limited financial resources available. Peri-urban areas are characterised by the following: low income, high density,

poverty and high unemployment levels, inadequate basic services, unplanned social infrastructure and poor environmental conditions. Introduction of a subsidy to peri-urban centre is a well intentioned government directive in a bid to meet one of the millennium development goals which calls for the reduction of the population without sustainable access to safe and adequate drinking water by half by the year 2015.

6. Low tariffs charged which are inadequate to cover all the costs

Tariffs charged are still not high enough to cater for capital projects like major rehabilitation of water works or expansion projects to increase capacity. This is because when setting tariffs consideration for social responsibility has to be put into account to ensure access to water supply and sanitation services to the whole population including the poor. Otherwise tariff levels set are supposed to achieve 100% recovery of operation and maintenance costs.

7. High electricity tariffs

High electricity tariffs charged by Zambia Electricity Supply Corporation (ZESCO), the national electricity supplier are increasingly becoming difficult to service. This is because SWASCO entirely depends on electricity to pump the water.

8. Reluctance by government Institutions to pay for services

Government institutions like the Police, Prisons, Health and Educational institutions, to mention but a few, do not often comply to settle the bills for the services provided by SWASCO. This is despite that the government has adopted a cash budget in all its operations. Non payment of bills by these public institutions negatively affects the revenue base of the Company.

4. CONCLUSIONS AND RECOMMENDATIONS

The study reveals that the privatisation of domestic water supply and sanitation services in the town of Choma has improved services to the customers.

The study also reveals that customers have been able to pay for the water and sanitation services since privatisation despite that they have to pay more than before privatisation. In fact the recovery rates in the post privatisation era have been far much higher than in the pre privatisation era. Among other reasons this is attributed to improved and regular billing system put in place and also to the provision of meters to almost all the account holders.

As shown by an increase in the percentage of the customers with indwelling water taps after privatisation, SWASCO has improved the effectiveness of service delivery in Choma town.

The establishment of commercial service in Choma have resulted in improved quality and more regular supply of drinking water. The customers in Choma town have now access to safe water in their homes and at water points. The private service provider, too,

has improved its cost recovery which is a strategic step towards ensuring regular maintenance and operation works.

One of the principles of the reform in the water sector was for the sector to attain full cost recovery through user charges in the long run. However, the study has revealed that these tariffs may not collectively be high enough to recover the costs especially the electricity bills after all. This is because people in Zambia like most third world countries are generally poor and as such a lot may not have the capacity to pay full commercial rates. The proportion of their disposable income to go towards settlement of water and sewage disposal services needs therefore to be carefully considered when formulating tariffs. Besides, the poor who can not afford the charges also need clean drinking water for survival as per the millennium development goals. According to the Water supply and sanitation Act 1997, NWASCO, the regulatory body, has an important role as an advocate to the poor. This obviously seems contradictory to the traditional economic regulatory functions mainly practised in industrialised countries where regulatory bodies exist, like in the UK and Australia. Understandably, approximately 70% of the Zambian population are considered to be poor and almost half extremely poor (Water sector reform in Zambia 2004, NWASCO, and Lusaka). This is the main reason why NWASCO as a regulator has to play a prominent role in securing service provision to the poor within its task to reach a balance between commercial and social interests in view of the fact that water is a basic need for all. The main challenge for SWASCO in Choma is therefore to strike a desirable balance between commercial and social interests. Indeed such an approach can and will substantially contribute to achieve the millennium development goals. In view of the high electricity tariffs charged by the national electricity supply company, NWASCO can lobby for moderation of such tariffs basing on the social interests they have as they serve the poor customers also.

Another revelation in the study is the apparent lack of coordination between SWASCO and the planning department of the local council. The sooner this issue is resolved, the better. However, if the council continues to show arrogance in this area it would be beneficial to lobby for a statutory instrument that would compel the local councils to only allocate land for construction of buildings with the concert of the local water and sanitation company. The ideal situation is that the local council and the water company are both supposed to cooperate and plan for development together and such a forum is provided for in the district development committee. The service charge to developers is supposed to include provision for water and sanitation infrastructure. The local council is supposed to collect this charge on behalf of the water company.

From the study, it is apparent that SWASCO may not have adequate capacity to subsidise the peri-urban areas where clean and adequate water is also required. There is need to establish a peri urban department to solve the water and sanitation challenges in these areas as has been done by Lusaka Water and Sewerage Company. Peri urban areas may need a mixture of communal and individual house connections. Water sources may include extensions of SWASCO network supplied via piped water, stand alone boreholes and community managed water schemes such as water kiosks some of which have been initiated by NGO's like CARE, and the Irish Aid. Emphasis should be on community

management. Strengthening of water watch groups supported by the water authority and by non governmental organisations would go a long way in assisting consumers in disputes with providers and help improve services. In addition the Government has adopted a community based management strategy, the Water and Sanitation Health Education Committees (WASHE) at national, district and village levels. The strategy recognises that at district and village interventions include identification and development of new water sources. This should lead to increased sustainability of water points and improved hygiene practices by the users. Hence NWASCO should continue to invite and attract more organisations to provide water and sanitation services in peri urban and rural areas and also to continue to strengthen and build capacity for WASHE committees as provided for in the water sector reforms.

Some consumers naturally are reluctant to pay for services especially because they often could get away with non payment of bills before privatisation of the water and sanitation service provider. Consistent production and issuing of monthly bills and provision of metres has helped to enhance consumer compliance of paying for services. Hence issuing of bills monthly and providing metres should continue in order to encourage and induce customers to settle bills. However, it is extremely difficult to ensure that government departments regularly settle their bills especially that an element of political influence is always at play. At times debt swapping is arranged where the government pays electricity bills on behalf of SWASCO in lieu of the amount government departments owe the water and sewerage company. NWASCO should engage government so as to find a way forward in ensuring that government institutions regularly pay for the water and sanitation services to ensure that SWASCO sustains its services.

The revelation that SWASCO loses up to 55% of water between the source and the destination is disturbing and hence needs to be rectified urgently. The challenge the company has is to reduce water losses from 55% to 35% by 2008 as required by the regulatory authority NWASCO. Continued Installation of metres on un-metred premises will obviously reduce wastage. Efficiency in detecting and attending to leaks in the reticulation system will definitely go a long way in reducing such wastages.

Vandalism of installation is another challenge SWASCO faces. One way SWASCO is tackling this problem is by placing pipes and other assets in such a way as to make it difficult to access them. However, community sensitisation is a most likely sustainable solution. Rightly so under the water reforms, is a component of community water watch groups under which the community is required to be responsible for the operations and the assets of the Water and Sanitation Company. SWASCO should invest more in this area to ensure that the consumers feel a sense of ownership of the assets and infrastructure and hence are compelled to guard them.

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APPENDIX 1:

QUALITY OF SERVICE PROVIDED BY SWASCO-CHOMA

CONSUMER QUESTIONNIARE

House No.

Location:

Kindly please tick in the most appropriate column on the basis of how you rate the services provided by SWASCO-Choma.

	Poor	Fair	Good
1. Quality of water provided			
2. Quantity of water provided (i.e is pressure adequate?)			
3. Reliability of water supply (i.e. is water provided at all times?)			
4. Response time to deal with breakdowns, for new service applications, repair and maintenance and complaints			
5. Sewer flooding (i.e regularity of flooding)			
6. Frequency of billing (i.e. is billing done monthly?)			

Please comment on the overall quality of service provided by SWASCO –Choma.

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