

**The World Bank's Framework for Service Provision: The Case of the Water Kiosks
of the Zambian Commercialised Utilities**

By

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**The World Bank's Framework for Service Provision: The Case of the Water Kiosks
of the Zambian Commercialised Utilities**

Julie Ann Self

Abstract

In the 2004 World Development Report, the World Bank presented the Framework for Service Provision. Through the analysis of three variables considered key in influencing accountability relationships in service delivery - state orientation, preference heterogeneity, and ease of monitoring – this analytical framework seeks to prescribe institutional arrangements best able to improve service provision to the poor. Using the experience of the water kiosks managed by the Commercial Utilities of Zambia as an example of the application of the recommendations of the Framework, this study assessed whether the kiosks have provided quality water services to two peri-urban compounds, and the role “accountability” in service outcomes. Research indicates that although there is potential for future success, the kiosks have generally not succeeded in extending reliable services in the two compounds studied. This thesis concludes that the Framework fails to capture the importance of resources and culture in the success of service provision to the poor.

March 26, 2010

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TABLE OF CONTENTS

1.0	CHAPTER 1: INTRODUCTION.....	1
2.0	CHAPTER 2: LITERATURE REVIEW	6
2.1	The Public/Private Debate	6
2.2	The World Bank Framework for Service Provision	12
	Making Services Work for the Poor: The Framework for Service Provision.....	12
	Prescribing Arrangements that Work for the Poor: the 8 Eight Sizes Fit All Model ..	15
	Making Urban Water Network Services Work for the Poor.....	18
	Corporatisation: Size 3 in the Framework for Service Provision	22
2.3	Criticisms of the Framework for Service Provision	24
	The Role of Resourcing in Service Failure.....	24
	A Role for Government in All Eight Sizes	27
	A Lack of Clear Definitions in the Eight Sizes Fit All Model.....	28
2.4	The Case Study	31
3.0	CHAPTER 3: RESEARCH METHODOLOGY	33
3.1	Research Strategy.....	33
3.2	Research Design & Methodological Approach	34
3.3	Research Methods	36
	Community Data Collection	36
	Research with Organisational Representatives.....	45
	Data Collection from Other Primary and Secondary Sources	47
3.4	Ethical Considerations	48
3.5	Language & the Use of Research Assistants	49

4.0	CHAPTER 4: WATER SUPPLY IN ZAMBIA	51
4.1	Water in Zambia	53
4.2	Water Sector Reforms in Zambia	56
4.3	Water Commercialisation in Zambia: The Commercial Utilities	65
4.4	CU Presence in Peri-Urban Areas & the Devolution Trust Fund.....	70
4.5	The Devolution Trust Fund Water Kiosk System.....	71
5.0	CHAPTER 5: THE DTF-FUNDED KIOSKS: A STUDY OF KIOSK SYSTEMS IN KITWE, COPPERBELT PROVINCE, ZAMBIA.....	75
5.1	Case Study Compounds: Mulenga & Itimpi.....	75
5.2	The Managing Commercial Utility: Nkana Water & Sewerage Company	80
5.3	Evaluation of the Service Quality Provided by Kiosks in Mulenga and Itimpi....	87
6.0	CHAPTER 6: VENDOR ABSENCE: A FAILURE OF ACCOUNTABILITY 94	
6.1	Vendor Income Failure: Commission Scheme	95
6.2	Vendor Income Failure: Grocery Business.....	105
7.0	CHAPTER 7: THE ZAMBIAN WATER KIOSKS AND THE WORLD BANK FRAMEWORK	109
7.1	The Zambian Water Kiosks and the World Bank Framework for Service Provision: A Failure of the Short Route of Accountability	110
7.2	The Application of the Framework for Service Provision in Zambia	114
	Zambia: The Eight Sizes Fit All Model.....	115
7.3	The Zambian Case: Compatibility with the Framework for Service Provision..	118
7.4	Conclusion	120

8.0	APPENDIX A: INTERVIEWS & FOCUS GROUPS	124
9.0	APPENDIX B: NWSC PERI-URBAN SERVICE	126
10.0	APPENDIX C: SALES & COMMISSIONS	128
11.0	APPENDIX D: KIOSK CONSUMPTION	140
12.0	APPENDIX E: INTERVIEW GUIDE: KIOSK USERS.....	141
13.0	APPENDIX F: INTERVIEW GUIDE: KIOSK VENDORS	150
14.0	REFERENCES.....	157

FIGURES

FIGURE 2.1 RELATIONSHIPS IN THE SERVICE PROVISION FRAMEWORK

FIGURE 2.2 THE EIGHT SIZES FIT ALL MODEL

FIGURE 4.1 ROLES & RESPONSIBILITIES WITHIN WATER SUPPLY & SANITATION

ABBREVIATIONS AND ACRONYMS

CDN - Canadian

CU – Commercial Utility

DANIDA – Danish International Development Agency

DTF – Devolution Trust Fund

GTZ – Deutsche Gesellschaft für Technische Zusammenarbeit GmbH

KfW – Kreditanstalt für Wiederaufbau (Credit Institution for Reconstruction)

kw – Kwacha

LA – Local Authority

l/p/d – Litres per person per day

MEWD – Ministry of Energy and Water Development

MLGH – Ministry of Local Government and Housing

NGO – Non-Governmental Organisation

NWASCO – National Water Supply and Sanitation Council

NWSC – Nkana Water and Sewerage Company

PUU – Peri-Urban Unit

RDC – Residents Development Committee

SADC – Southern Africa Development Community

SAP – Structural Adjustment Programme

UFW – Unaccounted-for-water

USD – United States Dollar

WSS – Water Supply and Sanitation

ZMK – Zambian Kwacha

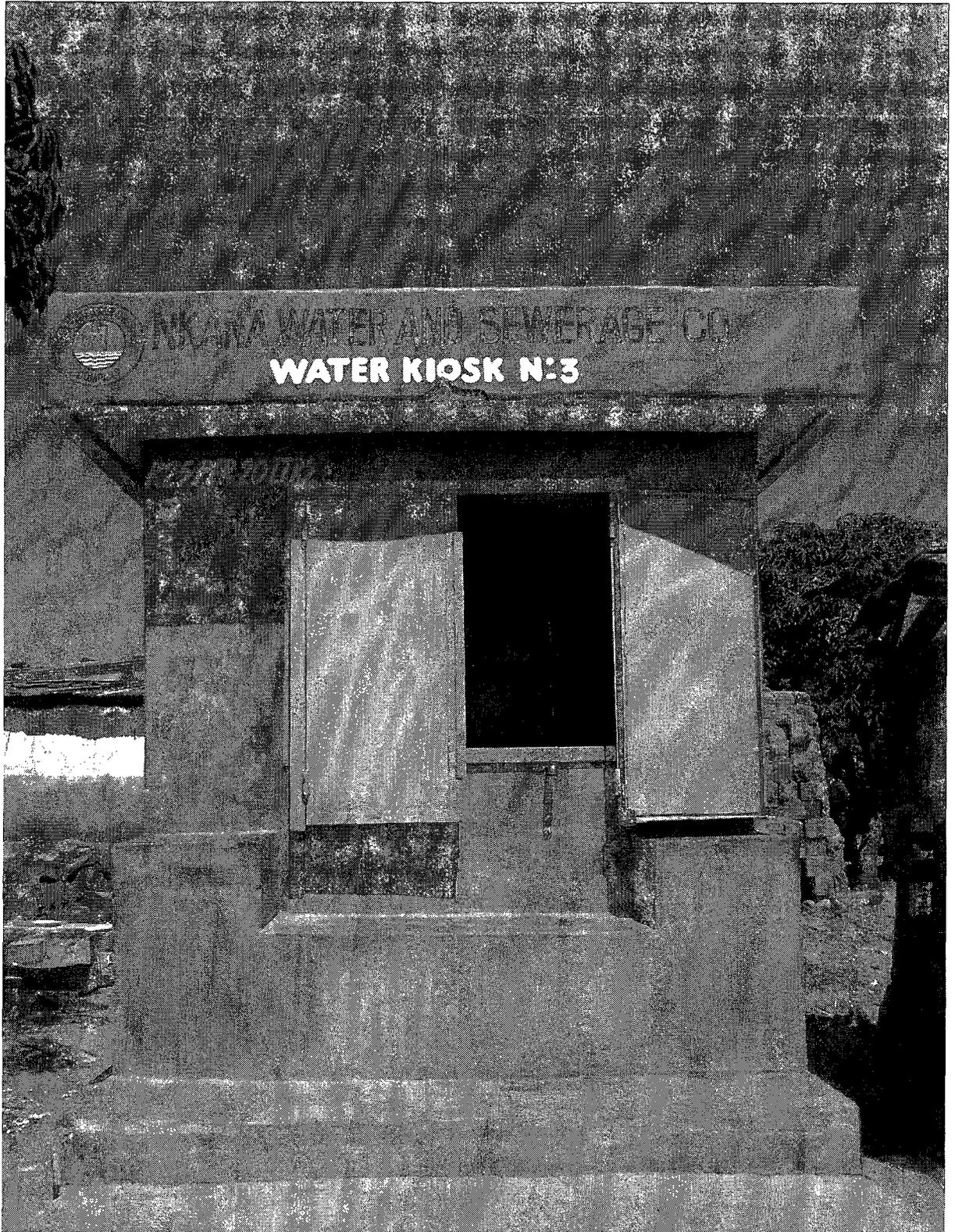


Photo by Julie Self

1.0 CHAPTER 1: INTRODUCTION

In 2000, 189 countries signed the United Nations Millennium Declaration committing to achieve the eight Millennium Development Goals and 21 targets. These time-bound goals address key factors that affect development (United Nations, 2008).

Target 7c under Millennium Development Goal 7 (Ensuring Environmental Sustainability) seeks to reduce the proportion of people without sustainable access to safe drinking water and basic sanitation by half, by 2015 (United Nations, 2008).

Water is an essential input for development. Inadequate access to safe water hinders development by reducing opportunities for revenue generation, by preventing the development of an educated workforce, and by weakening workforces through water-related illness. Water-related illness, due to the consumption of poor quality water, contributes to the loss of an estimated 443 million school days each year globally (United Nations, 2006, p.6). Sick children who do attend school may be less able to learn (Tearfund, 2008, p. 3). Water-related illness can also reduce the productivity of workforces and can represent a significant cost to health systems. Where parents, particularly mothers, are prevented from going to work as they stay home to care for children or themselves, opportunities for income generation are also lost. Research undertaken for the 2006 Human Development Report further indicates that approximately five percent of GDP or US\$28.4 billion is lost each year to health spending, losses in productivity, and labour diversions (United Nations, p. 6).

Inadequate access to safe water can lead women and young girls to spend time fetching water from distant sources, preventing them from engaging in other economic activities or attending school. The estimated 40 billion hours per year spent by women in

Sub-Saharan Africa fetching water results in lost opportunity for employment and income generation (United Nations, 2006, p.47).

Approximately 884 million people lacked adequate access to an improved drinking water source in 2008 (WHO/UNICEF, 2010, p.7). While all other regions of the world are on track to meeting the Millennium Development Target for drinking water coverage, Sub-Saharan Africa is not. It has been the slowest region in improving access to water, with no marked increase in coverage between 2002 and 2006 (WHO/UNICEF, 2005, p.5; WHO/UNICEF, 2008, p.23), and many countries still not on track in 2008 (WHO/UNICEF, 2010, p.9). In 2008 only 60 percent of the population in Sub-Saharan Africa had access to safe drinking water (WHO/UNICEF, 2010, p.7).

It has been argued that “water is a problem of governance above all” (Global Water Partnership, as cited by McCaffery, 2004, p.14). Low water usage has been attributed to institutional and management failures, not physical unavailability (McCaffery, p.15)).

The World Bank’s Framework for Service Provision

To assist in improving service provision to the poor the World Bank (2003) has developed an analytical framework that seeks to prescribe the institutional arrangement most appropriate for service delivery in specific sectors and socio-political circumstances. The Framework for Service Provision is based upon the proposition that services fail to reach the poor due to failures in accountability. Within the Framework, the Eight Sizes Fit All model is presented to assist service delivery planners in identifying the institutional arrangement most likely to improve accountability and therefore services

for the poor. A series of recommendations for improving urban water network service provision to the poor is also provided within the Framework (World Bank, 2003, pp. 159-171).

Zambia: The Case of the Commercialised Water Kiosks

In Zambia, meeting the Millennium Development Target of halving the number of people “unable to reach or to afford safe drinking water” will require a reduction in the number of people without access from 40 to 20 percent. This will require new supply for 1.75 million people by 2015, and an investment of about 20 million euros (NWASCO, 2005, p.16).

The water sector of Zambia has been undergoing reforms since 1994. These reforms have included the use of an institutional arrangement - commercialised utilities - as prescribed by the Eight Sizes Fit All model, as well as the introduction of three of the four measures recommended to improve urban water network services to the poor.

In addition to the prescribed strategies, a donor-driven basket funding mechanism – the Devolution Trust Fund (DTF) – has been established to assist utilities in improving access to water services in low-income peri-urban areas, primarily through a pay-at-the-tap water kiosk system. Water kiosks are argued to be the “most appropriate” technology for meeting the needs of peri-urban and low-cost areas in Zambia (NWASCO, 2005, p.13).

The purpose of this thesis is twofold. First, it assesses the ability of the Devolution Trust Fund-funded water kiosk system managed by a Zambian Commercial Utility (CU) to successfully provide water services to two peri-urban compounds in

Kitwe, Zambia, and the role of accountability in the resulting service outcomes. Second, using the experience of the “commercialised kiosks” as an example of Size 3 in the Eight Sizes Fit All model and as instituting the recommendations under the Framework provided for urban water network services, it considers the usefulness of the World Bank’s Framework for Service Provision in providing guidance to planners seeking to improve urban water network service delivery to the urban poor in Zambia and elsewhere.

This study finds that despite the use of an institutional arrangement that relies almost entirely on accountability generated by the market for providing quality water services to residents, many of the kiosks in Mulenga and Itimpi are failing to provide reliable services. This is a result of low vendor incomes, which are influenced by three factors: regulation, poverty, and low effective demand.

This thesis concludes that the World Bank’s Framework for Service Provision fails to capture the importance of resources and culture in determining the success of service provision to the poor in developing countries. As a result of these key omissions, the Framework is limited in its usefulness for planners in solving the problems associated with urban water network service provision to the poor. Research does indicate, however, that the kiosk model holds potential for providing water access to peri-urban communities if additional support is provided to improve vendor incomes and to facilitate behaviour change required to generate interest in water services.

To support these conclusions, the discussion proceeds as follows. Chapter 2 presents the debates surrounding public and private service delivery, and presents the World Bank’s Framework for Service Provision as a means for determining appropriate

institutional arrangements for public services that reach the poor, and specifically those prescriptions for improving urban water network services. Criticisms of the Framework from the literature are also presented in Chapter 2. Chapter 3 outlines the research design and methodologies used for this study. Chapter 4 provides background on water sector reforms in Zambia and current institutions providing urban water network services in the country. Chapter 5 presents the kiosk systems managed by the Nkana Water and Sewerage Company in the compounds of Mulenga and Itimpi in Kitwe, and provides an evaluation of the service provided by these DTF-funded kiosks. Chapter 6 explores the reasons for kiosk service failure. Chapter 7 provides an analysis of the kiosk case study in relation to the World Bank Framework for Service Provision and concludes with some remarks about the implementation of World Bank's Framework in Zambia, and how their weaknesses in Zambia may point to more general weaknesses with the use of the Framework in other locations.

2.0 CHAPTER 2: LITERATURE REVIEW

The level of government and/or market involvement in the delivery of services has been in debate for many years. While water scarcity is becoming an increasing challenge in parts of the world, it has been argued that “water [service delivery] is a problem of governance above all” (Global Water Partnership, as cited by McCaffery, 2004, p.14), because low water usage has been attributed to institutional and management failures, not physical unavailability (McCaffery, p.15).

In an attempt to navigate this debate and provide guidance to planners in assigning institutional arrangements that would improve service delivery for the poor, the World Bank presented the Framework for Service Provision. This Framework includes a model for prescribing institutional arrangements that are most likely to improve service provision, and a series of recommendations for improving urban water network services for the poor. Criticisms about the completeness of the Framework and its usefulness, however, have emerged in the literature.

2.1 The Public/Private Debate

State Delivery: Market Failure

In the 1960s and 1970s many analysts perceived state enterprises to be efficient and appropriate providers of public services. State-owned enterprises were considered necessary to correct market failure or make up for the shortcomings of the market in providing social welfare (Shleifer & Vishny, 1994). Three sets of arguments in favour of state delivery were developed: the public goods, market failure, and distributional equity arguments.

Public Goods

Public goods are defined as those goods that are non-excludable, non-rival in their consumption, and non-rejectable (Budds & McGranahan, 2003, p.92). Non-excludable implies that individuals cannot be excluded from the consumption of the good. Non-rival in their consumption implies that the consumption by others is not precluded and users do not have to compete for consumption. Non-rejectable implies that people cannot abstain from using it even if they want to (Bannock, Baxter, and Davis, 1987, as cited by Budds & McGranahan, p.92). The market tends to produce insufficient public goods because of the free-rider problem (Walsh, 1995, p.7). Where users cannot be excluded they will tend to pay for less than they use. This leads the market to produce less than needed, and the public goes underserved (Walsh, p.7). Through the intervention of the state, additional public goods can be produced so that a socially efficient supply is created (Walsh, p.7).

In contrast, private goods are those that are consumed individually and are exclusive and divisible in their consumption. These are often sold for a fee, and therefore exclude those unable or unwilling to pay (Savas, 1987, as cited by Smith, 2004, p.376). Since those who want the service pay for the service, there is a direct relationship between demand and supply. The argument is that markets can create the socially optimal supply of private goods.

Some argue that urban water services are not public goods (see Nickson, 1997, p.167). They are excludable, as individuals can be charged for such services, excluding those that do not pay for the use of the service. They are rival in their consumption, in that users do have to compete for them (Batley, 1996, p. 729; and Nickson, 1997, p.167). Urban water services are identified as private goods, but private goods that possess

several characteristics that make them susceptible to market failure, or inefficient allocation via the market (Nickson (1997, p.168; see also Batley, 1996, p.729).

Market Failure

Urban water supply possesses characteristics that make it susceptible to market failure. Urban water services are usually natural monopolies¹, which fail to allow for competition due to the loss of economies of scale with the introduction of competing networks (Batley, 1996, pp.726, 728). The large costs associated with water supply infrastructure may also be too large or risky for a private operator to undertake even if there will be a monopoly created (Batley, p.728). Further, monopolistic operators may have an incentive to “overprice and underproduce” to increase profit (Budds & McGranahan, p.93), which could leave society with inadequate water services to meet their needs.

Urban water services also have externalities, or effects of the use by one party on third parties that do not have a choice to be affected by that use and whose interests are not taken into account in the use. Positive externalities associated with urban water services may include health benefits or productivity benefits; while a negative externality associated with urban water services might include the pollution by effluents (Batley, 1996, p.728; Nickson, 1997, p.168). Where market prices are unable to reflect these additional benefits or costs, it is argued that an unregulated market will fail to allocate

¹ A natural monopoly is a situation where one firm can produce a product or service at a lower cost than multiple firms producing the same product or service in the same market. In the case of water services, infrastructure investments, for example, are so substantial that it is difficult for additional firms to enter the market and generate sufficient revenue to cover investment, leading to the establishment of only one provider for the entire market.

resources optimally (Nickson, p.168), with, for example, important positive externalities (such as health benefits to society at large) unattainable if potential (private) users are unable or unwilling to pay (Batley, p.728).

Merit goods are those goods that would be underprovided if provided solely via the market (McDonald & Ruiters, 2002, p.20), as consumers (and/or society) may benefit from their consumption to a greater extent than they are aware (Nickson, 1997, p.186; see also Walsh, 1995, p.10, as cited by Batley, 1996, p.728). Under-consumption of such goods or services can impact societal welfare, as positive externalities (or benefits to society) such as positive health outcomes may not be realized at the levels of consumption encouraged by the market. Thus, public intervention (i.e. through subsidisation) is required to ensure an optimal level of consumption (Nickson, 1997, p.168). As Walsh (1995, p.10, as cited by Batley 1996, p.728) suggests: “government needs to act to provide merit goods because individuals are not necessarily the best judges of what is in their own or the public interest”. Individuals in such cases may not wish to expend the resources (including financial, but also time and effort) required to consume the good and/or may not prefer the nature of the good provided (Santhakumar, 1998, p.5), resulting in the under-consumption of the merit good.

Distributional Equity

It is further argued that if certain goods were left to the market, it would fail to distribute the goods equitably (Wolf, 1993, p.28-29). Inequitable distribution can result under what would be considered “efficient” market operations (Wolf, 1988, p.3), as markets allocate resources in a manner that may not be in keeping with ethical or societal

norms (Wolf, 1993, p.29). Savenije (2001, p.13) argues that the market fails to recognize that different consumers have different levels of willingness to pay for water, while others simply cannot afford to pay anything. As a result, some argue that the value of “consumer’s sovereignty” – or valuing a good or service according to the amount that consumers are “ready, willing, and able to pay” – is inappropriate in the case of water (see Perry et al, 1997, p.2).

Hall (2001, p.21) suggests that because private companies are limited to financial objectives and the satisfaction of shareholders, they will not provide an adequate supply of water. Hall contends that maintaining water in public hands allows for the consideration and achievement of social, economic, political, and environmental objectives in pricing policy formulation (see also Grusky, 2001).

Private Delivery: State Failure

Proponents of privatisation, argue that the provision of services by the market is better than state delivery because it is free from political pressure or interference, subject to monitoring (via the market), and provides incentives to managers to improve their performance (see Sheshinki & Lopez-Calva, 2003, pp. 432-436; Nellis, 1994, p.1; Vickers & Yarrow, 1991, pp.113-116; Cuervo & Villalonga, 2000, p.582). As a result, proponents of privatisation contend that it will improve operating performance and efficiency (Cuervo & Villalonga, p.582).

Public choice theory assumes that all people, including government officials, act in their own best, self-interest (Hodge, 2000, p.36). Under state ownership, managers (ministers and bureaucrats) may seek to provide for social welfare objectives, while also

seeking to realize personal objectives (such as re-election) through the redistribution of money, jobs, or services toward interest groups and/or certain sectors (Vickers & Yarrow, 1991, p.113). This results in high operating costs (Shleifer & Vishny, 1994), poor management, financially inefficient operations (Fundanga & Mwaba, 1997), and underinvestment (Nellis, 1994, p.1).

Further, it is argued that without the monitoring of the market (Sheshinski & Lopez-Calva, 2003, p.436), and without a “bottom-line” (Wolf, 1988, as cited by Walsh, 1995, p.23), public managers have little incentive to be efficient. In comparison, being subject to judgment by the market, the private firm seeks to maximize profit, which Vickers and Yarrow (1991, p.113) argue can be “closely aligned” with welfare objectives, when externalities are small. With private ownership, firms will continue to operate only if they are viable, as the market will reallocate resources to more viable and efficient operations if performance is poor (Fundanga & Mwaba, 1997, p. 2; see also Nellis, 1994, p.1).

Thus, it is argued that privatisation will improve efficiency by making managers accountable to the market and shareholders instead of to political decision makers with political agendas and weak monitoring systems (Vickers & Yarrow, p.115; see also Nellis, 1994, p.2).

Some suggest that improved performance and efficiency (see Budds & McGranahan, 2003, p.109) and/or the use of full cost pricing under private provision will generate income for expansion of water services to the poor (Nickson, 1997, p.729). And, without political pressure to favour investment or provision to one group over another, privatisation can eliminate the service failures of the state (Wolf, 1988). It is also

suggested that privatisation will provide for faster investment in services and better service (see Grusky, 2001), provide revenue and free-up government resources that would otherwise be used on inefficient operations (Megginson & Netter, 2001, p.324; World Bank, 1995; Shirley, 1999, p.120).

2.2 *The World Bank Framework for Service Provision*

Making Services Work for the Poor: The Framework for Service Provision

In an attempt to navigate the ongoing complex debate surrounding the most appropriate institutional arrangements for public service delivery, the 2004 World Development Report published by the World Bank presents a framework for service delivery, including a model for identifying the institutional arrangement most appropriate for service delivery for reaching “the poor”, in specific sectors and socio-political circumstances. “Accountability” is the central concept, and the underlying proposition is that without accountability between actors, service delivery will fail as a result of “inadequate institutional arrangements”² (World Bank, 2003, p.58).

The Bank highlights three actors involved in service delivery: the client, the policymaker, and the provider. The “client” is the user or potential user of services. The “provider” is the entity responsible for the general delivery of the service, and may include a ministry, a public enterprise, or a private organisation (World Bank, 2003, p.50). “Policymakers”, both elected and unelected, are those responsible for setting and

² The Bank also identifies “failed states” and history as two other factors that may influence whether an institutional arrangement will be successful. Having a history of private provision and/or charging for water, for example, can determine how these measures will be accepted and/or can provide incentive for certain institutions to emerge; institutions that determine whether or not service delivery will be successful (World Bank, 2003, p.15).

enforcing regulations, and setting the conditions for provider-funding (World Bank, p.49). The three actors give rise to three binary “accountability relationships” between the actors: user-provider; user-policymaker; and, policymaker-provider. The Bank contends that weakness in any one of these accountability relationships can result in service failure (World Bank, p.47).

According to the Bank, in a strong *client-policymaker* accountability relationship, citizens can participate in defining societal objectives and influence public action to meet those objectives (World Bank, 2003, p.6). However, where this accountability relationship is weak, citizens may be excluded from formulating objectives and/or may be unable to hold policymakers accountable for meeting social service objectives (World Bank, p.6). A weak electoral system and/or inadequate information about services may prevent citizens from penalizing or “firing” policymakers if their efforts do not result in good services. When citizens are unable to hold policymakers accountable and the jobs of policymakers are not affected by the quality of service delivery, policymakers will have incentive to divert to political supporters funding that would otherwise be used on services for the poor (World Bank, p.6). This results in inadequate funding for services for the poor.

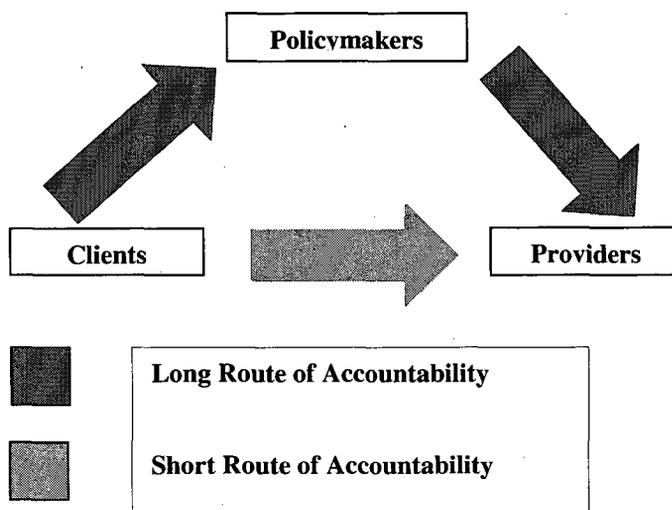
In the *policymaker-provider* relationship, policymakers offer providers incentives and hold them accountable for serving the poor. However, policymakers may be unable to hold providers accountable due to limited resources for regular incentives (such as performance contracts, performance-driven remuneration, adequate and regular compensation, or higher than average pay to incent service provision in less desirable areas), poor monitoring capacity, and/or weak regulation and enforcement (World Bank,

2003, pp.8-9). Such weaknesses result in poor service delivery because the provider has no incentive to serve the poor and incurs no penalty for service failure (World Bank, p.8). In the *client-provider* relationship, the client holds the provider accountable through *choice* in providers (World Bank, p.66). When clients have choice, they can purchase the services of those providers that adequately meet their needs, “voting with their feet” (World Bank, p.9). In doing so, they bypass poor quality providers and prevent them from collecting revenue (World Bank, p.66), in effect, using competition to monitor providers (World Bank, 9). Where choice is not possible, the Bank (p.70) contends that clients can influence service outcomes by acting as monitors and disciplinarians of the services. The Bank contends, however, that users must have incentive to monitor providers. It suggests that user fees provide this incentive (World Bank, p.9). This client-provider relationship is the relationship most comparable to a market relationship.

The Bank divides the foregoing three relationships into two “routes” of accountability – a “long route” and a “short route” (World Bank, 2003, p.6). The long route links the client to the policymaker and the policymaker to the provider, and relies on political processes and institutions to maintain accountability. In this case, clients influence the policymakers (through elections, for example), who then influence providers to deliver good services through regulation, incentives, and enforcement (World Bank, p.6). The Bank contends, however, service outcomes are often compromised when provided through the long route because the poor are often excluded from defining social objectives, are excluded from the electoral process, or policymakers may be unable to hold providers accountable (World Bank, p.6).

“Given the weaknesses in the long route of accountability”, the Bank contends that services can be improved by strengthening the short route of accountability (World Bank, 2003, p.6). The short-route eliminates the policymaker as an intermediary and provides clients a direct role in holding providers accountable (World Bank, 2003, p.58). This route uses the market to monitor performance and maintain accountability, making provider revenue contingent on client satisfaction with services and leaving providers offering poor quality services without revenue (World Bank, p.66).

Figure 2.1 The Framework of Accountability Relationships



Adapted from World Bank, 2003, p.6

Prescribing Arrangements that Work for the Poor: the 8 Eight Sizes Fit All Model

In addition to the three central actors involved in service provision and the three relationships of accountability, the Bank identifies three variables that can influence the accountability relationships described above: state orientation, preference heterogeneity, and ease of monitoring. From these variables, the Bank generates a set of eight possible

institutional arrangements for service delivery that can improve accountability and thus, the services and quality of service that reaches the poor. This is referred to as the *Eight Sizes Fit All* model or approach (Figure 2.2).

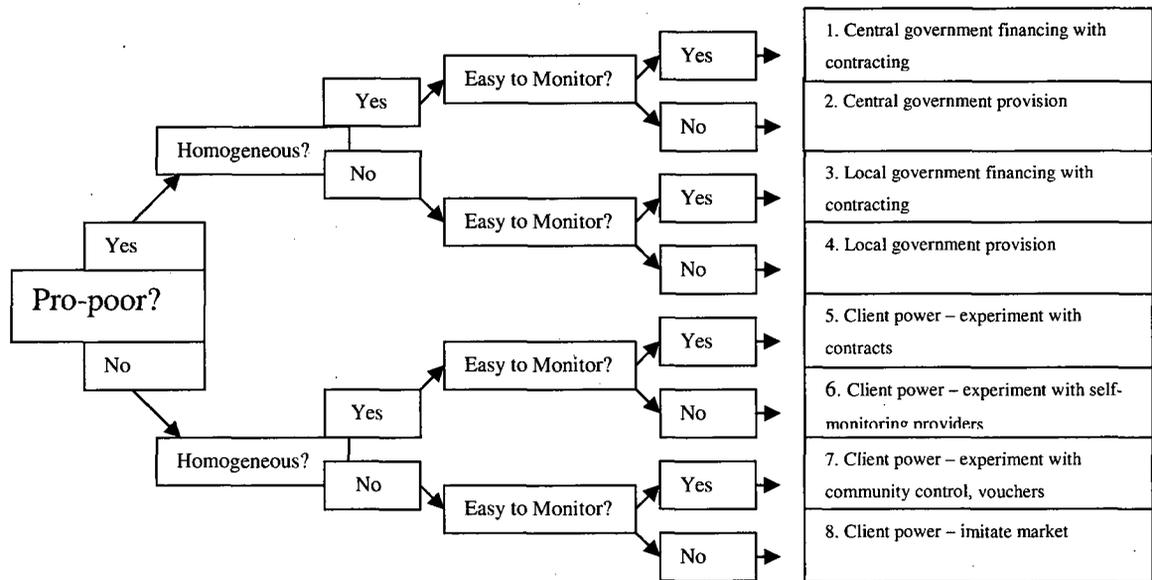
Variable one, state orientation, may be either *pro-poor* or *clientelist*. State orientation is pro-poor when citizens are able to hold policymakers accountable for service performance or when the policymaker cares about providing services to the poor (World Bank, 2003, p.7). For determining whether a state is pro-poor or clientelist, the Bank proposes four indicators (World Bank, p.80). These include politicians' incentives, service delivery expenditure design, inclusion and exclusion, and systemic service capture. In a pro-poor environment, the Bank states that there will be "no strong incentives to cater to special interests, preferring instead to address general interests"; the design will "promote universal provision of broad basic services that benefit large segments of society, including poor people and the non-poor"; "most people enjoy the same access and service quality as non-poor due to network, political, social, and altruistic reasons" (World Bank, p.80); and, there is no systemic service capture (World Bank, p.81).

In pro-poor environments the state may be an appropriate service provider and/or financier. However, in clientelist environments, where means for holding policymakers accountable are weak, politicians have incentive to divert funds to serve their patrons instead of providing service to the poor (World Bank, 2003, p.48). In this case, non-state providers may be better service providers to the poor.

Notably, despite the Framework's focus on strengthening the "short route" of accountability in order to make up for the weaknesses in the long-route, all sizes (whether

explicitly or not) provide for some role for government in the provision of services. Sizes 1-4 allow a pro-poor government to take on the responsibility for service provision, either using public providers directly, or contracting out to private partners. Sizes 5-8 offer at least a role in financing, if a level of government is pro-poor. Where governments are not pro-poor, non-state organisations take over the roles of contracting to and monitoring of providers in Sizes 5 -8 (World Bank, 2003).

Figure 2.2 The Eight Sizes Fit All Model



Adapted from World Bank, 2003, p.14

Variable two, user preferences, may be *homogeneous* or *heterogeneous*. User preferences are considered “homogeneous” when the needs of all users can be satisfied by a uniformly delivered service, such as immunization. User preferences are heterogeneous when they vary by region, community, user groups, or individuals (World Bank, 2003, p.13). According to the Framework, the level of heterogeneity will partially

determine whether services should be administered at the local level or centrally (World Bank, p.74). The Bank suggests that local level providers will be more aware of the different needs of users and better able to monitor services than central providers. Strategies to address heterogeneous preferences include decentralization, community involvement in decision making, and/or payment mechanisms that facilitate choice in providers (World Bank, p.74).

Variable three, ease of monitoring, is also assigned two values: *easy to monitor* and *difficult to monitor*. Monitoring provides information about service performance that allows clients to decide whether they will re-elect policymakers (World Bank, 2003, p.90) and/or whether they will purchase from a particular provider (World Bank, p.66). Further, monitoring assists the policymaker in holding the provider accountable by providing information about service outcomes that can be compared to the agreed upon performance levels (World Bank, pp.8-9). The ease of monitoring depends on the service (i.e. whether there is significant discretion allowed in its delivery) and on the institutional capacity of the government to monitor the service (World Bank, p.13). The ease of monitoring can vary with policies and with time (World Bank, p.13).

Making Urban Water Network Services Work for the Poor

Applying the Framework for Service Provision to water services, the World Bank presents recommendations for arrangements to improve the accountability relationships within urban water network service delivery. Key considerations for urban water network services include whether the policymaker and provider are separate and whether providers are accountable to policymakers or to clients (World Bank, 2003, p.164).

Traditionally, urban water network services have been delivered using the long route of accountability due to the potential for market failure and inequitable distribution (World Bank, 2003, p.161). The conditions that allow clients to hold the provider accountable (the short route), such as “choice, ease of monitoring, and market enforceability” are not always met in infrastructure services, necessitating the use of the long route of accountability (involvement of the state) (World Bank, p.161).

However, the Bank (2003, p.159) suggests that the potential for patronage in urban water services is higher than in other services. The Bank (p.162) further states that in order to gain political support, public providers have failed to charge full cost for water services. This has led providers to be dependent on and more concerned with the demands of policymakers than with those of clients. When funding for services to the poor are diverted to political supporters, under-funded providers must cut services, but are not held accountable by the policymaker for the resulting service failure (World Bank, p.162). This, the Bank (p.163) contends, leads providers to become “extensions” of policymakers and results in the roles of provider and regulator being performed by the same entity, making accountability difficult to maintain.

The World Bank (2003, p.164) suggests that for urban water services to improve, the roles of the policymaker and provider must be separated. To this end, the Bank (p.164) recommends *decentralization* and the use of *private partners* to improve the accountability relationship between the policymaker and provider (the long route), and the use of competition through benchmarking, *user fees*, and *independent providers* to increase the client’s ability to influence service delivery (the short route).

Decentralization

In addition to improving accountability between clients and policymakers (see above discussion), decentralization can also provide opportunity for one level of government to operate as provider and another as a regulator and enforcer (World Bank, 2003, p.164). In this case, public providers can be held accountable more easily, as performance-based rewards and sanctions are enforced by another level of government (World Bank, p.164). Devolving service provision to another level of government also allows for the use of benchmarking systems to reward efficient service delivery (World Bank, p.164). To avoid a loss of economies of scale, the Bank suggests considering measures used in developed countries, including the establishment of companies jointly owned by several municipalities (World Bank, p.165).

Private Participation

Private participation can provide expertise, investment, and incentives in operations (World Bank, 2003, p.165). The Bank maintains that the use of the private sector instead of a decentralized government provider may also be effective in improving accountability between policymaker and provider. In this case, the roles and responsibilities of a provider are assigned to an entity outside of the government, and policymakers hold private providers accountable for explicit performance contracts (World Bank, p.165). For greater accountability, regulation must be done by a pro-poor policymaker, the provider (through self-regulation); or, where policymakers and providers have historically been the same entity, through a third-party regulator that sets and interprets regulations (World Bank, pp. 168). For regulators to hold providers

accountable for service delivery outcomes, information on provider performance will also be required; and, for clients to impact accountability of providers, the Banks states that opportunities for participation in regulation and in debates about private sector contracting should be provided (World Bank, p.169). Benchmarking is considered necessary for maximizing the performance of private participants in the water sector (World Bank, p.170).

Benchmarking is the systematic comparison of provider processes or performance, and is promoted as a means of inciting competition among providers to improve performance, as providers seek to become the better provider and, as a result, generate higher returns. Forms of private delivery noted by the Bank include corporatisation, management contracts, vertically integrated public utilities, and multi-utilities (World Bank, p.170).

User Fees

The Bank (2003, p.170) argues that charging fees for services will provide incentive to the provider to improve service delivery by making provider revenue contingent on client satisfaction with the service. User fees are also argued to evoke a sense of ownership within users that creates motivation to demand better service (World Bank, p. 68). Further, user fees provide a source of funding that is independent of the policymaker, reducing the potential for dependence on policymakers and the potential for services to be negatively affected by diversion to political patrons (World Bank, p. 170). Where monitoring capacity is low, the use of pricing and market mechanisms can also provide an indication to policymakers of which providers are meeting the needs of clients

(World Bank, p.68). The Bank (p.10) suggests, however, that user fees reduce demand and therefore should not be used when the reduction in demand outweighs the benefits to society derived from the use of the service, as in the case of primary education.

Independent Providers

The Bank also suggests that the use of independent water service providers can increase the choice available to clients. This can improve the short route of accountability when clients are able to choose to pay a better provider instead of having only one option (World Bank, p.171).

Corporatisation: Size 3 in the Framework for Service Provision

Corporatisation is one arrangement that introduces market mechanisms into the decentralized “long route” and is considered by the World Bank as a variation on *Size 3* in the *Eight Sizes Fit All* model – local government provision with contracting out (see reference on page 14 to corporatised South African water utilities).

Corporatisation may emerge in such forms as a crown corporation, a business unit in a government department, or a “corporatised utility” (Bakker & Cameron, 2002, p.17, as cited by Smith, 2006, p.1). Under a corporatised model, publicly owned entities are run like private businesses under private sector principles (Yarrow, 1999; PDG, 2001, as cited by Smith, 2004, p.378), and are turned into separate legal and operating entities with government as the only contracting client (Smith, 2006, p.2), and owner of the infrastructure (Bakker & Cameron, p.23). *Corporatised utilities* operate under corporate, not public, law and may or may not own assets. These utilities also operate under a board of directors, which is appointed by the government as the shareholder. Utility

management, however, has full control over daily operations. Some key issues (such as pricing policies), however, may remain with the municipality/government (Bakker & Cameron, p.23). Corporatised utilities may or may not be for-profit (Bakker & Cameron, p.23).

During reforms toward corporatisation, financial ringfencing³ is undertaken to make costs and benefits easier to isolate and identify, in order to understand costs and charge accordingly (McDonald & Ruiters, 2002, p.18). It also provides performance-related information that allows for the establishment of performance targets for which management can be rewarded (McDonald & Ruiters, p.18). Subsidies are often removed, which then requires state-owned-enterprises to compete for funding like private firms (Shirley, 1999, p.115), and financial systems are reformed that ensure that state-owned enterprises are treated the same as private credit risks (Shirley, p.122). The business unit is created separately from the state and a corporate culture is developed to operate autonomously (Smith, 2006, p.2), and to remove politics associated with policymaking from service provision (McDonald & Smith, 2002, as cited by Smith p.2). Daily management and long-range planning are done by the managerial team, while the authority sets delivery targets and evaluates performance (McDonald & Ruiters, p.18).

Corporatisation can be a precursor to full privatisation and is a recommended intermediate step before privatisation by the World Bank (Bakker & Cameron, 2002, p.23). Corporatisation requires the provider to consider the market and customer

³ Ringfencing refers to separating all the financial and human resources directly involved in the delivery of a service, from other services (McDonald & Ruiters, 2002, p.18) under the purview of the state. For example, those resources involved in the delivery of water supply services are accounted for separately from those used in the delivery of education services, instead of coming from a general budget for all services.

purchase decisions in its operations (the short-route) (Jaaskelainen, 1994, as cited by Seppala et al., 2001, p.55). Corporatisation also has the effect of separating the policymaker and provider, and with the use of user fees, it makes providers accountable to clients (see World Bank, 2003, p.164). As the state acts as an owner of a corporatised entity, corporatisation is suggested to allow for greater state involvement in service delivery than does traditional “privatisation” - thus “mitigat[ing] negative social risks” (see Smith, 2006, p. 1) - while improving efficiency, increasing financial viability, and improving organisational flexibility (Smith, p. 1). Thereby, in theory, maintaining a longer route approach to service delivery while deriving the proposed benefits of the short route.

Balancing the goals of universal access regardless of ability to pay and business objectives may be difficult in developing countries (Smith, 2006, p.2), as a result of the resource challenges, a lack of political will, and/or a demand base that is comprised primarily of low income residents (Smith, p.2).

There are a number of criticisms of the Framework for Service Provision in the literature that lead to questions about its usefulness and the ability of Size 3 of the Eight Sizes Fit All model to be successful in improving service to the poor.

2.3 Criticisms of the Framework for Service Provision

The Role of Resourcing in Service Failure

Financial Resources

Kessler (2004a, p.8) argues that the World Bank’s Framework fails to assign adequate weight to the importance of adequate resources in the success of service

provision (see also Global Campaign for Education, n.d., p.2). The Framework also fails to consider that more resources can result in improved productivity and accountability. Instead, Kessler suggests that these are treated as separate issues (p.9). In practice, however, a lack of resources results in delayed investment and maintenance, which results in poor productivity (Kessler, p.9). Even where political will exists – i.e. governments are “pro-poor” -, many developing countries do not have the finances available to extend access to unserved populations or adequately maintain existing services (United Nations, 2006, p.86).

Deteriorating and leaking network infrastructure is expensive to repair and can impact the quality of water and service provided (Khatri & Vairavamoorthy, 2007, p.11). Further, “service backlogs” for minimal levels of service created as a result of resource constraints can represent a challenge to accessing or providing water services (Smith, 2006, p.43). And, the large losses of revenue as a result of unaccounted-for-water (UFW) represent a drain on resources available to invest in improving the infrastructure and extending services (Mugabi et al., 2007, p.2).

A lack of access to capital has also prevented utilities from maintaining and investing in services (K’Akumu, p.214). In other cases, structural adjustment has constrained government budgets for public services (Kessler, 2004a, p.4; Global Campaign for Education, n.d., p.2).

Utility revenues can also be unreliable (K’Akumu, 2004, p.216). For example, in Nigeria, state water agencies received budget funding from the state government irregularly (Areola & Akintola, 1997, p.130). Inconsistent payment practices by other government institutions may also impact revenue flows required to maintain operations

(Areola & Akintola, 1997, p.131; Tatietsse et al., 2000, p.647), and high levels of debt have also rendered utilities insolvent (K' Akumu, p.214).

Inadequate revenue as a result of low tariffs also presents an impediment to extending services (Mugabi et al., 2007, p.2). Robinson (2002) suggests that the failure to charge full cost, either because water is considered “special” or because of a lack of political will, has prevented state agencies from generating the revenue needed to cover higher operation and equipment costs.

Social Tariffs Require Additional Financial Resources

Further, to assist in extending access to the poor, the Bank promotes the use of social tariffs. Social tariffs allow users to access water to meet basic needs at prices less than full cost recovery in order to accommodate resource constraints of the poor (NWASCO, 2004b, p.38). However, such tariffs are costly and require “tremendous” increases in budgets (Kessler, 2004a, p.9).

The Poor Lack Resources to Incent Service Provision

Some suggest that private sector participation has involved “cherry-picking” of areas for expansion that will generate a guaranteed profit instead of extending to areas that might require subsidisation to access the service (Graham & Marvin, 1994; Marvin & Laurie, 1999, as cited by Smith & Hanson, p.1519), or where per capita consumption is less (Kessler, 2004a, p.5). Several private water providers have indicated that African countries are not attractive from an investment standpoint as a result of the state of utilities and the inability of consumers to afford tariffs that would render adequate returns

(Budds & McGranahan, 2003, p.106), thereby potentially preventing the realization of improvements in accountability via the short route of accountability.

A Role for Government in All Eight Sizes

In its recommendations for strengthening the client-provider relationship (the short route), the World Bank (2003, p.64) explicitly assigns a central role to the state. Such recommendations include state responsibilities for increasing choice, improving the purchasing power of the poor, making provider revenue contingent on performance, improving the availability of performance-related information, and facilitating competition. The Bank further recommends that clients be given better access to information to increase client voice when politics are not pro-poor (World Bank, p.7).

However, the mechanisms recommended to achieve these ends and improve the short route - including vouchers, cash transfers, and capitation payments – would require direct state involvement in their development and administration (see World Bank, 2003, p.66). Further, a clientelist state may not want to shift public spending to strengthen the short route and improve services for the poor. And, the level of information made available to the public is often contingent on the government's (or provider's) willingness to make that information available (see World Bank, p.86; see also Global Campaign for Education, n.d., p.8). Thus, an attempt to bypass the state and all of its proposed weaknesses via the short route may not be successful in improving service delivery, given the strong role of the state in the implementation of the foundation for the short route.

Similarly, in the recommendations for urban water network services, the state is assigned the role of provider at one level and regulator at another, or acts as a regulator in the case of private partners acting as providers (see World Bank, 2003, pp. 164-168). It

is possible that the same accountability problems that result in the failure of public services could prevent the success of private provision and decentralized services because it is the state in the end that is responsible for regulation and ensuring consumers are protected (Kessler, 2004a, p.7).

A Lack of Clear Definitions in the Eight Sizes Fit All Model

The variables used to prescribe institutional arrangements that would improve service provision to the poor are presented as “either/or” options. This, however, is suggested to fail to consider how such variables occur in practice. For example, it is unlikely that those studying individual service sectors would classify an entire sector as either pro-poor or clientelist (Kessler, 2004a, p.3). Further, in some cases, politics may be pro-poor for some low-income groups and not for others (Kessler, p.3). Similarly, “monitoring” of a service may also include numerous activities and monitoring departments; making it difficult to define monitoring as either “easy” or “difficult”, as, for example, some monitoring departments may have greater capacity than others.

The use of “either/or” options and a lack of clear definitions, may result in different analysts prescribing different institutional arrangements to solve the same service problem. For example, a Size 3 arrangement may be chosen by one analyst to address water service provision, but a Size 4 may be chosen by another, based on whether monitoring was perceived as easy or difficult. These ambiguities limit the usefulness of the model as a guidance tool.

The Orientation of the State

The Bank fails to adequately define what is meant by “pro-poor” (Kessler, 2004a, p.3). Politics are defined in the Report as pro-poor when citizens are able to hold policymakers accountable for service performance or when the policymaker cares about providing services to the poor (World Bank, 2003, p.7). It is further possible that the “policymaker” may express care for the services to the poor, but in fact may act against services to the poor.

It may be difficult to conclusively define *state* orientation as pro-poor or clientelist due to the fact that the number of transactions in a clientelist relationship can vary in frequency and size, and by individual and individual departments. Clientelist practices that impede benefits to the poor can exist (or not exist) at the level of the individual and/or any one or all levels of government (Lemarchand & Legg, 1972, p.152-155). The Framework fails to set the parameters that would allow for a firm determination that a state’s orientation is pro-poor or clientelist, including those relating to frequency, number, and number of people involved in clientelist behaviour. This limits the usefulness of the model, particularly since this is the first variable to be assessed in the process of choosing an alternative institutional arrangement for failing public services.

Government activities may also render pro-poor results, though reduced, even if clientelism is present (see World Bank, 2003, p. 84). However, without strong monitoring in place to measure what would have happened had spending been non-clientelist, such practices may go unnoticed. This could result in a picture of a “pro-poor” state, which in reality may be more clientelist, and vice versa.

Moreover, service failure may also be difficult to link to clientelist activity. For example, inadequate funding for investment for areas without infrastructure may be due to reduced government budgets resulting from SAPs and debt servicing costs (Global Campaign for Education, n.d., p.7; Kessler, 2004a, p.4).

Finally, it is also unlikely that states will have incentive to admit that they are clientelist, particularly if funding is attached to the integrity and transparency of the borrower. And, a non-clientelist state does not necessarily translate into a pro-poor state.

Ease of Monitoring

Kessler (2004a, p. 4) argues that although the Report suggests that monitoring services is “easy”, it may not be “easy” where governments do not have regulatory capacity. Such capacity includes the ability and funding to collect performance-related data from private sector providers that may not be open with information (World Bank, 2003, p.), and may distort information (Foster, 2005, as cited by Kessler, p. 4).

The Bank also fails to consistently define urban water services as either easy to monitor or difficult to monitor, which again makes it difficult to use the model to navigate the process of determining the most appropriate arrangement. The Bank (2003, p.14) explicitly refers to water services as “easily monitored”, but also as discretionary and transaction-intensive services (p.52), which would make them difficult to monitor.

Such criticisms lead to questions about completeness of the Framework and the importance of other variables influencing service outcomes for the poor. These criticisms

also shed doubt on the potential for the short route of accountability to improve services to the poor where states have failed.

2.4 The Case Study

During the 1990s, the water sector in Zambia began undergoing reforms toward corporatisation. These reforms have included the establishment of nine “Commercial Utilities” (CUs) across the country. The sector has implemented three of the recommended actions of the Framework for improving the long and short routes of accountability in urban water network services. Service provision has been *decentralized* to the Local Authorities (LAs), separate *corporatised utilities* seeking cost recovery through *user fees* have been established, and a third-party regulator has been established to protect consumers from exploitation and providers from undue political interference (NWASCO, 2004a, p.15). In addition to these recommendations, the Devolution Trust Fund - a basket funding mechanism - has been established to assist the Commercial Utilities in providing network water services to low-income peri-urban compounds in their service areas. In 2003, CUs in the Copperbelt Province began operating the first Devolution Trust Fund water kiosks in two peri-urban communities.

Due to the limited empirical evidence surrounding corporatisation as an institutional arrangement for water service delivery in developing countries, and specifically initiatives undertaken by corporatised utilities to extend access to the poor, it was considered important to undertake field research.

The field work examined the operations of the DTF-funded water kiosks operating in two peri-urban areas in Kitwe, owned and managed by Nkana Water and Sewerage Company, as examples of Size 3 in the Eight Sizes Fits All model of the

Framework for Service Provision. The field work assessed whether services for the poor have been improved through the recommended measures to improve accountability in service provision.

3.0 CHAPTER 3: RESEARCH METHODOLOGY

The field work for this study began following an internship with a non-governmental organisation in Lusaka, and six months after arriving in Zambia. This allowed for the development of a familiarity with the country and its overarching culture, and for the establishment of social and professional networks prior to commencing field work for this project. This understanding greatly assisted in the collection and analysis of data. Primary data collection was undertaken in Zambia over the course of five months.

3.1 Research Strategy

A case study approach was taken to complete this research (see Creswell, 1998), and the peri-urban compounds of Mulenga and Itimpi in the city of Kitwe in Copperbelt Province of Zambia were selected as the case studies. The majority of fieldwork took place in the first community, Mulenga, which was chosen at the request of Copperbelt University because of its inclusion in a CIDA-funded project seeking activities and case study evidence to assist in reducing diarrhea and malaria in children under five⁴. At the time this research began, kiosks had been operating in the community for nine months. The second community, Itimpi, received five kiosks as part of the Devolution Trust Fund's pilot kiosk project in 2004. Itimpi was chosen for this study because the kiosks

⁴ Data collection for the compilation of three cases studies for the *Diarrhea and Malaria* Project, was undertaken simultaneously with my thesis research. That research explored issues of affordability of the same DTF-funded water kiosks in ensuring *consistent* access to treated water, as opposed to providing intermittent use or precluding use at all, as a result of affordability problems. Presumably, intermittent- or non-use would expose residents to diarrhea and cholera-causing pathogens, thereby reducing the proposed health benefits to be achieved with access to treated water. Although not required by the Zambian process, ethical requirements put forth for the thesis research were also adhered to for this data collection.

have been operating for four years, allowing time for adoption to take place and operational challenges to be addressed. It further controlled for initial excitement about the kiosks or “growing pains” associated with implementing new technology that might be true in Mulenga. The intent was to highlight variation between community experiences and to assess whether these variations would shed light upon the commercialisation mechanisms hypothesized by the World Bank’s Framework.

3.2 Research Design & Methodological Approach

A qualitative approach was undertaken for this research, as many of the indicators and conditions are highly subjective and required clarification of meaning. Also, much of the research explored the experience of users and their perceptions of the quality of service provided by the kiosk. This required that users have, for example, the opportunity to elaborate on their responses through discussion. A qualitative approach allowed a more in-depth understanding of issues relating to service quality as they have been experienced by the user in the social context of peri-urban areas in Zambia (Neuman, 2006a, p.158). The use of semi-structured interviews allowing for such elaboration permitted for the possible emergence of variables not already found in the literature.

A qualitative approach also allowed for the exploration of such unquantifiable conditions as the meaning of “quality” (Neuman, 2006a, p.158). For example, definitions of and perceptions about the different service quality indicators, such as perceptions about “distance”, differed among individuals and under different conditions or circumstances (see Nyarko et al., 2007, p.96).

Instruments that allow for greater elaboration in responses permitted an understanding of *why* kiosk levels are as they are - such as beliefs or a lack of understanding, affordability, reliability, or distance – were also used. As all of these factors are important to understanding the service quality and kiosk use, but were intertwined and required more questioning to understand the reasoning of kiosk users and non-users.

Mitigating Bias

A qualitative approach presents an opportunity for bias and dishonesty (see Neuman, 2006a, p.153). Data, however, was collected systematically to ensure that the integrity of the data was upheld and that the research findings presented were not an expression of opinion (Neuman, p. 153). The use of the triangulation of methods, participants, “print” sources, and measures (different indicators of quality), and well kept field notes, helped to ensure consistency and the trustworthiness and credibility of the research (Neuman, pp. 153, 196). The triangulation of methods, participants, and information derived from print sources allowed the verification and cross-checking of information collected to improve “rigor” (Denzin & Lincoln, 1998, p. 4). In terms of methodological triangulation, this research used short semi-structured-interviews, longer semi-structured interviews, focus groups, and print source research. Information provided during interviews, focus groups, and within “print” sources was compared across different groups of participants, including users, non-users, community leaders, water utility managers, government representatives, and donors (Mikkelsen, 2005, p. 96).

Further, proper channels were followed in gaining permission to conduct research in these communities and in a community in Lusaka for another study under the *Diarrhea*

and Malaria project. Permission was sought initially from the Councillor (an area representative within the municipal government), and then from the Residents Development Committee (RDC) Chairperson. In the Kitwe communities, informal meetings were held with the chairpersons and several RDC members before data collection began, and I was given a tour of communities by several RDC members before I began interviewing in each community. This association or gesture of acceptance was not done with the RDC in Lusaka and participants appeared relatively less willing to talk to me. It is unclear whether this is related to my initial association with the RDC or other factors that made residents in Lusaka leery. However, this distinction in willingness to participate should be noted by those considering undertaking research in Zambia. In order to avoid biasing results or reduce any perceptions that I might be working for or with the RDCs in the Kitwe communities, as a result of these walking tours and implied association, I explicitly explained (when perceived necessary) that information shared with me would not be shared with the RDC, except as part of a larger report.

3.3 Research Methods

Community Data Collection

Qualitative interviewing provided insight into why residents were or were not using the services of the Nkana Water and Sewerage Company, how water service and access was experienced (or not), the experience of vendors as kiosk operators, and, the perceptions of community leaders. A set of short semi-structured interviews, a set of longer semi-structured interviews, and two focus groups with community leaders were undertaken. It is the longer semi-structured interviews that have provided much of the data in Chapters 5 and 6, as they provided a greater range and depth of information. The

short semi-structured interviews with users and non-users were used to “confirm” general trends relating to kiosk service and adoption that came through in the longer interviews. All interview and focus group guides were tested with a Zambian research assistant to ensure that questions were “culturally” relevant and to reduce the risk of the misinterpretation of questions. Additionally, as the longer, semi-structured interviews were completed, supporting guides were modified to reflect new information gained, new areas of interest for investigation, and to reduce any unforeseen misinterpretation. Please refer to Appendix A for an overview of data collection activities undertaken with community and organisational representatives.

Longer, Semi-Structured Interviews

Longer, semi-structured interviews were conducted with 20 users⁵ of the kiosk in Mulenga and 10 in Itimpi to obtain information about kiosk and alternative source use, the quality of the kiosk service, reasons for usage/adoption levels (including beliefs and understanding), and certain aspects of monitoring and/or accountability within the system relating directly to the user.

These interviews were relatively structured and took approximately one hour to complete, due to the range of data needed to assess the kiosk service, the complexities of adoption, and the components of the Framework for Service Provision (see Appendices E

⁵ Use was considered at the level of household. In this case, the household was defined as a collection of people who had lived under the same roof for at least 15 out of 30 days (Project for Statistics on Living Standards and Development, 1994).

& F)⁶. However, these interviews did unfold as discussions, and were flexible to allow for the emergence of explanations and information that may not have been anticipated and therefore not covered in the interview guide, and allowed for spontaneous questions and lines of questioning to ensure the “quality” of the interview (Kirby & McKenna, 1989, p. 67).

Additionally, longer, semi-structured interviews were conducted with seven water kiosk vendors in Mulenga, and four vendors (including a former and a replacement vendor) in Itimpi. These interviews sought to obtain information about the vendor’s job, income, and certain aspects of monitoring and/or accountability relating to their job that may or may not be preventing them from opening their kiosk (a stated impediment to access to or adoption of the kiosks found in the literature), their sense of the adoption of and community perceptions about the water kiosks, and their own use of the kiosks. Again, these interviews were quite structured (see Appendix E), but unfolded as discussions that allowed for spontaneous questioning and greater exploration of ideas as they emerged.

Semi-structured interviews were also conducted with several individual Residents Development Committee (RDC) members, community zone leaders, and an RDC

⁶ Although the interview guides provided in the Appendices are very structured, care was taken to ask more general questions about the service in hopes of users speaking to the indicators of quality service found in the literature without prompting, and so as not to lead participants in providing specific answers before moving into the additional questions specifically about these indicators. In the design of all interview and focus group guides, the sequencing of all questions was very carefully considered so as not to lead or influence participants in their responses and to allow for the emergence of additional explanations not covered in the literature or guides.

member responsible for monitoring the kiosks, to gain insight into certain aspects of experience/monitoring/accountability issues surrounding the kiosks.

Care was taken to build rapport and establish an environment where participants felt comfortable sharing information and felt that what they had to say is important. Careful selection of the research assistant was important to this aspect of the research activity. It is expected that the quality of the data received was improved as a result.

Long, Semi-Structured Interviews: Participant Selection

Initially participant selection was to be done according to income level, with a focus on those with lower incomes. However, income levels are difficult to ascertain and the resident settlement distribution in these communities did not occur according to income levels (Personal Communications, RDCs, 2008). A brief attempt at community mapping with one RDC did not work, and the appearance of dwellings was suggested not to provide a reliable means of differentiating between people of different income levels (Personal Communication, Copperbelt University Representative, 2008). It should be noted that not all residents in peri-urban areas of Zambia are “impoverished”; there can be a large range of income levels in these communities (DTF/GTZ/NWASCO/GKW, 2006, Module 3, Section 8, p.4).

Further, in the original research design, participants were to be *daily* users of the kiosk and those primarily responsible for collecting water for their household. However, there was significant difficulty in finding users, let alone daily users. Ultimately, a combination of daily users and weekly/monthly/seasonal users were interviewed. In hindsight, this has contributed to the quality of data relating to the adoption and use levels of the kiosks.

Users were to have equal opportunity of being selected for an interview, and initially a random “sample” of every 10th house was to be used to find participants; the snowballing technique was to be used with the first few randomly selected participants to identify key people for subsequent interviews (Mikkelson, 2005, p. 89). However, given the daily and, subsequently, “periodic” use criterion, the use of every 10th household was not effective. Further, early attempts at using the snowballing technique as a means for identifying future interviews did not prove useful and was abandoned, as people seemed reluctant to take on the responsibility of volunteering their friends. Also, although the local leadership was willing to provide assistance in identifying participants for the study, concern existed over the potential for bias as a result of possible power relations. Therefore, this method was not used.

In the end, kiosk areas were segmented and participants chosen from those areas. For example, in Mulenga there are nine kiosks. Therefore, two users were interviewed from each of the nine “service areas”, with care taken to interview one user that was “close” to the kiosk and one that was “further away” to avoid as much as possible skewing information collected about the perceptions about distance. This was also done to avoid receiving responses about the quality of service as provided by one or only a few different vendors and avoid biasing results in the direction of kiosks that may be opening more or less than others. An additional interview was undertaken near Kiosk 3 in Mulenga and the additional two interviews were individual focus group participants, discussed below. In Itimpi, one of the five kiosks was closed during the entire study period and no users were interviewed from that service area. Instead, an additional two

interviews were chosen from other service areas to round out the ten interviews in that community.

To recruit participants, residents were approached in their yard by my research assistant who explained the purpose of the study and asked permission to speak with them. The vast majority of participants were those primarily responsible for collecting water from the kiosk. Vendors were simply approached at their kiosks and interviewed if they were willing to participate.

Short, Semi-Structured Interviews

While the longer, semi-structured interviews provided a wide depth and range of data, short semi-structured interviews were used to confirm general trends relating to kiosk service and adoption emerging in the longer interviews, and to supplement elements of the longer interviews. These were not used to provide detailed information required to understand the water service experience of kiosk users and non-users (Neuman, 2006a, p. 154). These semi-structured interviews were much shorter and sought short answers.

Two sets of interviews were used. In Mulenga, an initial short interview was conducted to seek answers pertaining to kiosk use and non-use, alternative water sources, perceptions of affordability, and health-related information. These interviews were done in conjunction with an expenditure survey in attempt to link income levels with kiosk use. Due to time constraints and the challenges associated with the expenditure survey, this interview was not administered in Itimpi.

An additional eight short interviews were conducted in Mulenga and in Itimpi near the end of the study to follow-up on specific areas of interest revealed in the longer interviews. These interviews sought short answers to questions relating to kiosk use; alternative water sources; perceptions of price, affordability, and payment; and, chlorination programs. These interviews were undertaken alone by my research assistant in an attempt to reduce the effects of any misconceptions that I might be a donor or a representative of a non-governmental organisation (NGO), which may have biased responses toward affordability and/or paying for water in other interviews. Participants were selected in the different service areas in the same way that “sampling” was done for the longer, semi-structured user interviews discussed above. The interview took approximately 20 minutes.

Several non-users (three in Mulenga and one in Itimpi) were also interviewed about their current sources of water and their perceptions of the water kiosk system. Non-users were chosen randomly, though there was no repetition in one kiosk service area.

Expenditure Surveys

Incomes are difficult to ascertain in an informal economy, which is the major source of income for residents in these communities. This is due to the often piecemeal receipt of payment and the immediate consumption of that income. Expenditures, instead, are suggested to be a relatively reliable proxy for income (Narayan & Pritchett, 1999, p. 877). The intent of the expenditure surveys undertaken during this study was not

to provide quantitatively analyzable data, but simply to provide a sense of the level of incomes in these communities, so as to provide one point of assessment for affordability⁷.

These surveys were administered with the general, short semi-structured interview discussed above and sought estimates from the head of household in relation to key household expenditure categories including food, shelter, clothing, healthcare, education, energy water, and “other” (which may have included transportation, cell phones, etc.). These surveys were conducted with the head-of-household, and conducted on weekends to ensure that those with formal Monday-Friday jobs had an equal opportunity of being selected. Information was sought on all possible flows of income, including formal, informal, and government-related sources. Savings were also considered in this survey.

Information relating to food, energy, and water consumption were measured on a daily basis; shelter was considered monthly; education was considered by term; healthcare was considered by clinic visits in the last six months or a year; and, “other” expenses were considered for a week or a month, depending on the nature of the expenditure. Market prices for such items as charcoal were sought for each community.

However, due to the unreliable recall concerning such things as clothing and “other” expenses likely because of the infrequency of these purchases, the inconsistencies between the initial estimate of household income and reported expenditures, and the,

⁷“Affordability” was ultimately assessed by asking people directly whether they felt they could afford the kiosk water; by asking participants if they were able to buy all of the water that they needed (and wanted) and comparing that to use levels; and, through a line of questioning about possible trade-offs between water and other essential needs, like education or healthcare. It is recognized that this analysis is imperfect because it is unable to assess the affordability kiosks as the only source of water, as residents may alternative free sources in times of economic constraint, for example. The question of affordability and trade-offs is an area for further research.

sometimes, seemingly under- or over-reporting of expenditure levels, these surveys were not used in this analysis. Instead, the community leadership committees in each compound were asked to estimate the income range of residents in their respective communities.

Focus Groups

In the original design of this research, several focus groups of 5-8 users and/or non-users of the kiosk were to be used to capture information or perspectives on water service quality and experience that may not have emerged through the use of, for example, a one-on-one semi-structured interview. This was due to the possibility of comments by others sparking ideas for other participants in the room, or the possibility that a group setting could have been more comfortable than individual interviews for some (Kreuger, 1988, p. 45)⁸. Further, the observation of the group interaction was expected to allow for the extraction of more detailed information about the attitudes toward and experience with water services (Berg, 1998, p. 104). These focus groups were to be used to expand on, complement, or test the findings of the individual interviews conducted.

However, extensive attempts to organise focus groups after the completion of all semi-structured interviews were not successful, as only one participant per scheduled meeting attended. Users who did attend were interviewed individually, and are counted under longer, semi-structured interviews.

⁸ See Berg 1998, p.5 for discussion of the use of alternative methodologies for extracting new information.

Two focus groups were held with the Residents Development Committees in each of the communities and interviews were subsequently conducted with individual committee members who were not present at the focus groups, to triangulate information provided. However, the intended synergistic effects of the group setting are not expected to have occurred in these focus groups. In this case, it was suspected that social pressure may have prevented participants from expressing their true feelings about the water service and their experience, which may have compromised the accuracy and validity of the data collected (see Kreuger, 1988, p. 41).

Therefore, interviews were conducted with several individual members at a later date, with strict confidentiality and anonymity assured. Also, certain aspects of the data collected during these meetings were triangulated with semi-structured interviews with other members who were not present at the meetings and several other community representatives in one community. The focus of the interviews with the RDCs was to determine the successes and/or challenges associated with the kiosks in their community in general, reasons for usage levels, issues relating to monitoring and accountability, and, in the final meeting, to obtain recommendations for improvement.

Research with Organisational Representatives

Longer, semi-structured interviews were undertaken with organisational representatives identified as knowledgeable of or involved with the DTF-funded water kiosk operations. The aim of these interviews varied according to the representative's relationship with the kiosks, but generally sought information pertaining to their understanding of the quality of service provided by the kiosks, the adoption patterns of the kiosks and reason for these, and their experience and/or role in various aspects of

monitoring and/or accountability that were relevant at this level of involvement with the kiosks.

Organisational interviews ranged in length between 30 minutes and two hours. Interview guides were designed with the assumption that 30 minutes would be made available for the discussion, and questions were prioritized according to their importance to the hypothesis being tested. Additional questions were brought to guide discussion in case the representative being interviewed was willing to give more of their time. Although almost all interviews were cancelled at least once, most representatives interviewed gave more than an hour of their time to this research; several provided more than one interview. Many of these representatives were also very forthcoming with additional documentation that has assisted in answering the research questions.

Although a review of “print” documents had revealed the key organisations and individuals to contact because of their specific connection to the kiosk project, the snowballing technique was used to identify representatives of those organisations to speak with, as well as additional people to contact.

Interviews were conducted with representatives from the following fourteen organisations:

- Nkana Water and Sewerage Company
- The Peri-Urban Unit of the Nkana Water and Sewerage Company
- Kafubu Water and Sewerage Company
- The Devolution Trust Fund
- The National Water Supply and Sanitation Council
- The Ministry of Local Government and Housing
- The Ministry of Energy and Water Development
- The Environmental Council of Zambia

- Kitwe City Council
- DANIDA
- KfW (a German development bank)
- UNICEF-WASHE
- Copperbelt University
- Mulenga Health Clinic

A group meeting was also held with environmental technologists working in communities for the Kitwe District Health Office to obtain their perspectives on the kiosk system and its adoption; and, more specifically, to explore the operations of chlorination programs in the area. Chlorination programs are an area for further research and are not addressed at any length in this thesis.

Data Collection from Other Primary and Secondary Sources

Throughout the research process, primary and secondary “print” sources were reviewed to obtain background information and to triangulate data collected from other methods (Berg, 1998, p. 5). These sources supplemented data obtained from interviews and focus groups pertaining to water service quality and access, adoption, and aspects of monitoring and accountability (Berg, p. 5). These sources further provided context for the research, including such information as that relating to the administration and evaluation of the projects, and the legislative framework and reform process.

Such sources as kiosk sales and vendor commission figures, weekly reports from the CUs, DTF evaluation documents, government documents, reports from the national water regulator (NWASCO), and journal articles were also consulted. Published statistics on water access figures and income distribution information were sought to

better understand the question being studied; however, these were limited and/or problematic due to inconsistent or unclear definitions.

Organisational representatives were each provided a list of documents sought relating to kiosk administration and operations (including operating guidelines and budget information); community education materials and budget figures; analyses of certain aspects of the kiosk operation (including analyses of the vendor payment scheme and affordability/tariff setting); and, reports produced to maintain accountability between different actors. While not all documents were provided, those that were gave additional context and insight into kiosk operations for this research.

3.4 Ethical Considerations

Consent

Prior to beginning all interviews, potential participants were informed of the purpose of the study, that they could end the interview at any time without penalty, that the interview was voluntary, and that all information provided would be kept confidential and would not be disclosed to others except in the form of a larger report. Permission to use direct quotes was also obtained from all participants, except one who declined to be quoted. In the case of interviews conducted in communities, this consent was obtained verbally, due to the high level of illiteracy. This consent was recorded using a digital recorder and obtained in the local language of Bemba through the use of a translator.

Organisational representatives signed a written consent form, which included a signature section seeking permission to identify them and/or their organisation. One participant preferred to be identified only as a representative of their organisation, all others agreed to be identified.

Confidentiality & Anonymity

A coding system was used to ensure that the name or identifying characteristics of participants did not appear in the research notes or recordings. Anonymity was maintained during community interviews, no names were sought and users and vendors were identified according to the interview group (user/non-user/vendor/RDC), interview number, the community, sex, and age range (i.e. U3M, female, age 30-40). In the case of vendors, who work at numbered kiosks, care was taken to ensure that the interview number did not correspond to the kiosk number, so that they could not be identified as having participated in the study.

As noted, consent to identify organisational representatives was obtained and therefore, anonymity and confidentiality were not of particular concern with this group. Where one representative declined to be personally identified, notes contain only the name of the organisation.

Permission to use the name of the communities was sought from the respective Residents Development Committee members. Both communities agreed to be identified. No research notes or other data collected during the study will be disclosed to any third party, including government or utility officials that may have an interest in the data being collected. Instead, a summary of my findings and recommendations will be shared with relevant stakeholders.

3.5 Language & the Use of Research Assistants

The dominant language in the communities of study is Bemba. All interviews in the communities were conducted in Bemba, or some combination of Bemba and English.

Thus, a Bemba-speaking research assistant was used in the course of research in the communities. All organisational interviews were undertaken in English, and the research assistant was not present for any of these discussions.

Upon hiring, research assistants were provided a synopsis of the literature review to understand the data requirements and to inform their listening when conducting the interviews with me. These research assistants were also informed of the ethical considerations of the research study and also signed a confidentiality agreement. As noted, some shorter semi-structured interviews were undertaken alone by the research assistant. In these cases, the research assistant gained informed consent, following the guidelines noted above, from all participants.

4.0 CHAPTER 4: WATER SUPPLY IN ZAMBIA

Zambia is a land-locked country located in southern Africa. It shares borders with eight countries: Angola, Botswana, the Democratic Republic of Congo, Malawi, Mozambique, Namibia, Tanzania, and Zimbabwe. Politically, the country is divided into nine provinces: Central, Copperbelt, Eastern, Luapula, Northern, North-Western, Southern, Central, and Lusaka province. There are at least nine different language groups throughout the country (Roberts, 1976, p.241).

Approximately 11.7 million people live in Zambia (CIA, 2008). An estimated 4.9 million people, or 45 percent of the population, live in urban areas, with 20 percent of the urban population living in planned “low-cost” areas and 60 percent living in unplanned “peri-urban” areas (DTF/GTZ, 2005, p.1). In 2006, there were 198 low-cost areas and 372 peri-urban areas, with approximately 3.9 million people living in these low-income urban areas (Aquatis Information System, 2006, p.3). The capital city of Lusaka has a population of approximately 1.3 million and the average population density of Lusaka in 2002 was 150 people per hectare; in some places, however, density reached as high as 1500 people per hectare (World Bank, 2002, p. 6). In 2001, some 800,000 of the 1.3 million residents of Lusaka lived in informal settlements (World Bank, p.6). The average number of people per low-cost and peri-urban household is 6.0 and 5.4, respectively (Aquatis Information System, 2006, p. 3). In 2002, the country was the third most urbanized country in Sub-Saharan Africa (World Bank, p.7); however, the country has been experiencing a reversal of urbanization, as more people, including those born in the urban areas, are migrating to the rural areas (Potts, 2005, p.583).

Zambia is a lesser developed country and currently ranks 164th on the Human Development Index (United Nations, 2009, p.145). In 2007, 81.5 percent of the population was living on less than \$2/day and 64.3 percent was living on less than \$1.25/day; and, in 2006, 68 percent lived below the national poverty line (United Nations, p. 178). The gross domestic product was estimated at USD (PPP) \$1358 per capita in 2007 (United Nations, p.173). In 2006, 82 percent of Zambians were employed in the informal sector, including unpaid family workers (Central Statistics Office [Zambia], 2007, as cited by International Labour Organisation, 2008, p.14). In 2005, 72 percent of all employment was part-time employment (Zambia Labour Force Survey, 2005, as cited by International Labour Organisation, p.16).

Education spending as a percentage of GDP fell from 2.8 in 1990 to 2.0 percent in 2005 (United Nations, 2007, p.268), and literacy among adults over the age of 15 years was 70.8 percent in 2007 (United Nations, 2009, p.173).

Healthy life expectancy in 2007 was 40 years (United Nations, 2009, p.201), and 45.7 percent of the population was under 15 years of age (United Nations, 2007, p.246). Spending on public healthcare in 2004 was 3.4 percent of GDP (United Nations, 2007, p.250). The prevalence of HIV/AIDS in Zambia was estimated at 15.2 percent in 2007 (United Nations, 2008, p.215). HIV/AIDS was the leading cause of death in the country in 2002, accounting for 43 percent of deaths, followed by lower respiratory infections, malaria, and diarrhoeal diseases accounting for 12-, 9-, and 7 percent of deaths respectively (World Health Organization, 2006b, p.2). Diarrhoeal diseases (often associated with drinking contaminated water) were also the 4th leading cause of death in

children under 5, and accounted for 17 percent of deaths in that age category in 2002 (World Health Organization, p.2).

4.1 Water in Zambia

Zambia is located within the Congo and Zambezi river basins; and, there are five major river systems in the country, including the Upper Zambezi, Kafue, Luangwa, Luapula, and Tanganyika systems (FAO, 2005). Of the member states in the Southern Africa Development Community (SADC), Zambia ranks third in terms of total internal renewable water resources and natural renewable water resources, after Angola and Tanzania (see Country Profiles⁹, Earthtrends, FAO, 2005b), and is not expected to be either water scarce or water stressed by 2025 (United Nations, 2002). Annual rainfall varies by year and regionally, ranging from as little as 750mm in the south, 900-1200mm in the central regions, and 1400mm in the north (FAO, 2005). The southern regions of the country are, however, prone to flooding in the rainy season, which is generally between the months of November and March, with rains peaking in January. The period between April and August tends to be cool and dry, while temperatures increase significantly during the hot dry season between August and November (Encyclopaedia Britannica, 2008).

Despite the relative abundance of freshwater resources in Zambia, access to that water remains a challenge. Recent reports indicate that 47 percent of the urban population of Zambia has access to water (GTZ, 2006, p.1), with 34 percent of people in peri-urban and low-cost areas with access to piped water supply through a combination of

⁹ SADC member states include: Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

public water outlets and private water outlets. More specifically, in 2006 roughly 32 percent of people in peri-urban communities had access through public water outlets and three percent had private water outlets (for a total of 35 percent with access); while, five percent of those in low-cost communities had access through public water outlets, and 23 percent had private outlets (28 percent with access) (Aquatis Information System, 2006, p. 6).

Although piped water supply networks are functioning in almost all of the 87 towns in Zambia, these extend mainly to higher income users. Where service is provided in low income areas, it is subject to frequent interruption and the water supply is vulnerable to wastewater contamination due to poor infrastructure (GTZ, 2006, p.1). In the past, homes in low cost areas were publicly owned¹⁰ and possessed yard or house connections; however, many of these houses were sold to residents in the late 1990s, increasing the rate of infrastructure deterioration (NWASCO, 2005, p.6). Thus, while some dwellings may have the infrastructure to connect to the main network, taps and connections may be broken and therefore there is no access to the water network.

The problem of water supply has been further exacerbated by accelerated population growth. Water and sanitation services have not been able to keep up with increasing rural-urban migration; resulting in, among other problems, an over-utilization of existing infrastructure, inadequate access to water, and therefore, increased water-related illness (DTF/GTZ, 2005, p.1). This is argued to have been exacerbated by a lack

¹⁰ In the Zambian context, “low cost” areas are planned areas that were established just before or after independence to house government workers, lower level Council employees, and miners. These were sold by Councils to individuals in the mid 1990s (NWASCO, 2005, p.6). “Peri-urban” areas are unplanned low income settlements or shanty compounds (GKW Appendix to Baseline Study).

of maintenance and low cost recovery (DTF/GTZ, p.1), as Local Authorities (“councils”) responsible for water supply lacked the resources to maintain infrastructure to provide a quality of service that would facilitate tariff increases (Robinson, 2002, p.853; see also NWASCO, 2005, p.6). Alternatively, Robinson (2002, p.853) suggests that political motivations have kept tariffs below cost recovery. Further, informal settlements had been deemed illegal and therefore did not receive government investment, contributing to poor coverage in peri-urban areas (Robinson, p.852). Currently, peri-urban communities meeting certain conditions are being “upgraded” and becoming eligible for such investment. Upgrading involves efforts to improve roads and drainage, and access to services such as health centres, schools, and community centres (Personal Communication, MLGH Representative, 2008).

Where individual household connections are not accessed in peri-urban and low cost areas, users get water from alternative sources, including community-managed communal standpipes, Council-owned and -managed public taps, boreholes, shallow wells, streams, and/or water kiosks (NWASCO, 2005, pp.5-6) In the case of community-managed systems, outlets have not been maintained and water quality has been neglected (i.e. monitoring and analysis) under the management of the community, either due to the diversion of funds collected (NWASCO, p.6), and/or because of a lack of resources to perform maintenance. Illegal connections to network lines are also a source of water in communities (Observation).

4.2 Water Sector Reforms in Zambia

Prior to the early 1990s, urban water and sanitation infrastructure was owned by the central government, which was responsible for maintaining and extending that infrastructure; while the Local Authorities were responsible for urban water and sanitation service delivery under the Ministry of Local Government and Housing (MLGH)¹¹ (Dagdeviren, 2008, p.103; Chitonge, 2006, p.3). During that time, water tariffs were subsidised by government and/or often included in home rental fees (Dagdeviren, p.103).

Reforms, however, have slowly been taking place since the early 1990s to rectify the problems related to an inadequate institutional framework, lack of a strategy for the sector, unclear institutional roles and responsibilities, poor coordination among actors in the water sector, insufficient and unpredictable government funding, low cost recovery, poor investment, low service coverage, unqualified staff, deteriorating supplies and infrastructure, and low public participation (see NWASCO, 2004a, p.1; Chitonge, 2006, p.2).

These reforms seek to “reorganize the water supply and sanitation sector so as to create new institutions that can provide cost effective, equitable and sustainable water supply and sanitation services in Zambia” (Government of the Republic of Zambia, 2001, p.2). The reform seeks to increase efficiency in urban services through commercialisation, private sector participation, and regulation; develop lean and efficient

¹¹ In some cases, the central government did have the responsibility for provision. The Ministry of Energy and Water Development took over provision where Local Authorities did not have the capacity to provide services (see Chitonge, 2006, p.3). In the Copperbelt, Zambia Consolidated Copper Mines owned and managed the water network and supply to mines and mine townships (Dagdeviren, 2008, p.4).

institutional structures in order to attract external investment; achieve sustainability in services through cost recovery for urban services and “cost sharing” for rural services; provide clean water and sanitation for all with the assistance of social tariffs and the use of appropriate technology for peri-urban and rural areas; and, improve coordination among stakeholders, including through consultation with communities, to achieve sector objectives (NWASCO, 2004a, pp.4-5). The *National Water Policy* (1994), the *Water Supply & Sanitation Act* (No. 28 of 1997), and *The Peri-Urban Water Supply and Sanitation Strategy* (2001) have stemmed from this reform process.

The National Water Policy (1994)

The *National Water Policy* (1994) seeks to promote “sustainable resources development in order to facilitate equitable provision of adequate quantity and quality of water for all competing user groups at acceptable costs and ensur[e] security of supply under varying conditions” (Government of the Republic of Zambia, 2001, p.5). Seven principles stemming from the Policy have underpinned the reforms:

- the separation of water resource management from water supply services;
- the separation of the regulatory and executive duties within the WSS sector (through the establishment of the national regulator);
- the devolution of authority to Local Authorities and private partners;
- full cost recovery in the long-run;
- human resource capacity building to contribute to more effective institutions;
- the use of appropriate technologies for local conditions; and,
- increased funding from the Government of the Republic of Zambia (NWASCO, 2004a, p. 4).

Water Supply and Sanitation Act No. 28 of 1997

The *Water Supply and Sanitation Act* provides for the establishment of, and provides direction to, the national regulator – the National Water Supply and Sanitation

Council (NWASCO) – and permits Local Authorities to establish water and sanitation companies (Government of the Republic of Zambia, 1997, p.1). The Devolution Trust Fund, a basket funding mechanism established to assist the extension of water supply and sanitation services in peri-urban areas, was also created through Statutory Instrument No. 65 (2001) under the administration of NWASCO, as provided for in the *Water Supply and Sanitation Act No. 28 of 1997* (First Schedule, Part II, Section 10(2)) (Devolution Trust Fund website, 2009).

The Peri-Urban Water Supply and Sanitation Strategy (2001)

In conjunction with the reform of the water supply sector, and to supplement the *National Water Policy* and the *Act*, the Government of Zambia released the Peri-urban Water Supply and Sanitation Strategy in 2001. The overall development goal of the Strategy is to ensure that “adequate, accessible, sustainable and safe Water Supply, and improved Sanitation services, are available and effectively used in all peri-urban areas in Zambia” (Government of the Republic of Zambia, 2001, p.v). The Strategy defines a water service goal of 30 litres per capita per day within a walking distance of at most 200m (Government of the Republic of Zambia, p.v).

The Strategy proposes three measures and statements: a “Demand Responsive Approach” to peri-urban areas, whereby services will be provided via a partnership between communities and the Government of the Republic of Zambia or Local Authorities (with assistance from external organisations); the integration of sanitation in water supply projects (including health and hygiene education); and, a system whereby Commercial Utilities (CUs) have overall responsibility for water supply and sanitation in

peri-urban communities in their service area (Government of the Republic of Zambia, 2001, p.vi).

To achieve these goals, the Strategy proposes strategies of: community selection criteria, based on “expressed demand for better services and demonstrable willingness and ability to make contributions (cash or in kind) towards investment and shall bear full running costs”; community partnerships in the provision of peri-urban water supply and sanitation; and, the consideration and protection of the interests of women, children, and “the vulnerable” in the design and operation of these schemes (Government of the Republic of Zambia, 2001, p.vi).

Underpinning this Strategy and development in peri-urban areas is the principle of cost recovery; with the Government of Zambia providing grants for supporting investment in basic service, communities contributing to capital costs, and service providers recovering operational and maintenance costs, and replacement costs from users (Government of the Republic of Zambia, 2001, p.ix). Tariffs are to be set so that they “cover all costs the community has committed itself to fulfill as part of their contribution to the sustainability of the services” (Government of the Republic of Zambia, p.ix). The Strategy further recognizes that residents will continue to use “traditional or alternative sources” such as shallow wells “until [they] have access to affordable and convenient safe water sources, [and it is therefore] impractical to assume that all traditional sources will be abandoned or be destroyed”. Thus, the strategy commits to making minimum improvements to those sources and providing health and

hygiene education to improve their use of “these facilities”¹² (Government of the Republic of Zambia, 2001, p.ix).

Responsibilities within the Water Supply & Sanitation Sector

There are a number of actors within the Water Supply and Sanitation sector in Zambia. Three key actors are outlined below. Please refer to Figure 4.1 for a full list of actors involved in the water supply and sanitation sector.

The Ministry of Local Government and Housing

Reforms have included the separation of the functions of water supply and sanitation, and water resource management; with the Ministry of Local Government and Housing responsible for water supply and sanitation, and the Ministry of Energy and Water Development (MEWD) responsible for water resource management (including water treatment) (Beekman, 2003, p.6).

As the ministry responsible for the provision of water supply and sanitation, the Ministry of Local Government and Housing is responsible for the national planning for services, and policy guidance and resource mobilization in the sector (Personal Communication, MLGH Representative, 2008). The Ministry also monitors to ensure that resources are being properly utilized, and to ensure that utilities are responding to government policies - including with respect to service provision and utility management (Personal Communication, MLGH Representative, 2008).

¹² It is unclear whether “these facilities” refer to traditional sources or new treated supply options.

The Ministry encourages the utilities to consider peri-urban areas when defining investment priorities, and ensures that the CUs are extending into peri-urban areas by reminding them that they are responsible for service delivery to all people in their service areas, and by reviewing their budgets and plans to ensure they provide for extension into these areas (Personal Communication, MLGH Representative, 2008). There are currently no sanctions or punishment for not extending into peri-urban areas “because all the utilities are still very young, so they do not have sufficient resources to direct towards peri-urban...”. Thus the current role of the ministry is one of encouragement (Personal Communication, MLGH Representative, 2008).

The Regulator

The regulator, the National Water Supply and Sanitation Council (NWASCO), was established in 1997 under the *Water Supply and Sanitation Act No. 28* and had the effect of separating policymaking and regulation in water service provision (NWASCO, 2004a, p.10). NWASCO was established to “ensure professional management of regulation without any hidden interests or bias...” (NWASCO, p.28), and is mandated “to balance social and commercial interest, protect the consumers from exploitation and providers from undue political interference” (NWASCO, p.15).

NWASCO is responsible for regulating providers to ensure sustainability and efficiency of service provision in urban areas (Beekman, 2003, p.7). It is also responsible for licensing; developing guidelines and standards for tariff setting, service standards, investment, and business planning; and, producing annual performance benchmarking reports on the Commercial Utilities (Beekman, p.7). A social tariff for water services provided in peri-urban areas has been established to ensure that the poor are not

exploited. This tariff has been set to allow for the recovery of costs on a per unit basis, when drawing on the economies of scale achieved by the overarching utilities. CUs are not permitted to charge tariffs higher than the regulated social tariff. (Personal Communications, NWASCO Representative, 2008).

The primary tools of the regulator are the monitoring system, benchmarking of sector performance, and a viable information system (NWASCO, 2004, p.28). The regulator currently has full time inspectors at NWASCO headquarters and part-time inspectors in communities across the country who conduct both planned and unplanned inspections (Personal Communication, NWASCO Representative, 2008). And, as water supply and sanitation services tend to be a natural monopoly and not subject to competition, the regulator has instituted a benchmarking system among water utilities to encourage competition among providers, in order to increase efficiency and improve performance (NWASCO, 2008, p.32). To this end, NWASCO publishes a sector performance report each year to compare the activities of the providers. These reports are also made publicly available for consumers to compare the services they receive with that provided by utilities in other service areas. This is suggested to incite consumers to demand better services (NWASCO, p.32).

NWASCO receives its funding through grants from Parliament through the Ministry of Energy and Water Development, licence fees, and external agencies (Beekman, 2003, p.7).

Residents Development Committees

In legalized peri-urban communities, Residents Development Committees (RDCs) have been established by the Local Authorities. These committees are elected, non-partisan committees established to identify and facilitate development projects within peri-urban areas (Personal Communication, Council Representative, 2008).

RDCs may be involved, in varying capacities, in the provision of water services in peri-urban communities. The Committees may assist in the mobilization of communities for sensitization activities and identification of kiosk locations prior to construction. RDCs may also assist CUs in selecting vendors for the kiosks and accepting complaints from the residents and vendors on behalf of the utilities (Personal Communication, Peri-Urban Unit Representative, 2008).

Figure 4.1 Roles & Responsibilities within Water Supply and Sanitation

Actor	Roles
Ministry of Energy and Water Development, Water Board	<ul style="list-style-type: none"> a). National water policy b). IWRM policy and international water c). Management and development of water resources d). Regulating water resources
Ministry of Local Government and Housing, Department of Infrastructure and Support Services	<ul style="list-style-type: none"> a). Water supply and sanitation (WSS) sub-sector policy and strategy elaboration and overseeing service provision to urban and rural areas by local authorities and the commercial water utilities b). Resource mobilization
Ministry of Agriculture and Cooperatives, Ministry of Environment and Natural Resources, Ministry of Health	Strategy elaboration (i.e. irrigation policy), sanitation, and hygiene promotion
Statutory Bodies: National Water Supply and Sanitation Council, Water Development Board, Environmental Council of Zambia (ECZ)	<ul style="list-style-type: none"> a). Advisory and regulatory roles b). Pollution Control (ECZ)
Commercial Utilities	Service provision
Local Authorities	Service provision in rural and urban areas, in urban areas service provision is delegated in most urban areas to Commercial Utilities.
Training and research institutions	<ul style="list-style-type: none"> a). Human resource training b). Research
Cooperating Partners and NGOs	<ul style="list-style-type: none"> a). Provision of capital funds b). Executive of WSS programmes and projects by NGOs
Private Sector	<ul style="list-style-type: none"> a). Participation in financing and management of WSS b). Consulting services c). Construction of WSS facilities
Community and Community-based Organisations	<ul style="list-style-type: none"> a). Beneficiary of WSS services b). Maintenance of sources.

Adapted from the Fifth National Development Plan (Government of Zambia, 2006, p.194)

4.3 Water Commercialisation in Zambia: The Commercial Utilities

Reform Options

In 1994, the responsibility for water supply and sanitation service provision was devolved to the Local Authorities (under the supervision of the MLGH)¹³ (NWASCO 2004a, p.ii). Through the *Water Supply and Sanitation Act* (No. 28 of 1997), municipal governments were given the options to provide services as they previously had, through a section or department within the Local Authority (or “Council”); to establish Commercial Utilities (whereby municipalities would retain ownership, but would establish a utility as a separate private company and act as shareholders); to outsource services to another private partner, with private sector participation ranging from management contracts to concessions; or, to involve the private sector as an equity partner by selling 49 percent of assets to an outside water company or other interested investor, and then forming a commercial entity (NWASCO, p.12).

The LAs have generally lacked the budgetary and staffing capacity to effectively assume or continue the responsibility of service provision (NWASCO, 2004a, p.11); and, where LAs have retained direct provision of water services, the services have continued to deteriorate (NWASCO, p.11). Over time, most Local Authorities have chosen to pursue the establishment of Commercial Utilities (CUs) (NWASCO, p.13), thereby separating the policymaker and provider. In 2005, more than 90 percent of urban and

¹³ The Local Authorities include City Councils, Municipal Councils, and District Councils (Beekman, 2003, p.3).

peri-urban residents lived within the service areas of the 10 Commercial Utilities (NWASCO, 2005, p.2).

The Commercial Utilities

The Commercial Utilities are private companies under Zambian law, operating under private sector principles (NWASCO, 2004a, p.36), established by a Local Authority, or by several LAs, through the incorporation of their assets (NWASCO, p.12). Where Commercial Utilities have been established to act on behalf of the LA, the Local Authority's mandate to provide water supply and sanitation services is carried out by the CU (Personal Communication, KWSC Representative, 2008). Local Authorities function as the sole shareholders of the CUs, and each company has a Board of Directors appointed by those shareholders (NWASCO, p.20).

Commercialisation/corporatisation has been undertaken to ensure financial viability of water services through cost recovery, and to attract external financing through greater promise of sustainability (NWASCO, 2004a, p.12). In the medium to long term, CUs are expected to be able to cover more than their operational and maintenance costs (NWASCO, 2008, p.3); and, in the long-run, they are expected to be able to achieve full cost recovery, including capital costs, through tariff increases and increased efficiency (NWASCO, 2004a, p.12).

The commercialisation process has been considered a success by the national regulator (NWASCO, 2004, p.14), and by GTZ (who has been heavily involved in the reform process in Zambia) (GTZ, 2008, p.10). Reported achievements made through reforms have included: the successful transfer of responsibility for service provision from

central government to municipal governments, the establishment of ten Commercial Utilities and the ‘constant rising’ of performance indicators in water supply and sanitation sub-sector, the implementation of an effective regulatory regime, and the establishment of the Devolution Trust Fund to provide services to peri-urban areas (Government of the Republic of Zambia, 2006, p.192). The capacity of the utilities to provide water services and the level of service provided (Chitonge, 2006, p.9), including that to peri-urban areas, is also reported to have improved over that previously provided by the Local Authorities (Personal Communications, NWASCO Representative, KfW Representative, 2008).

The commercialisation process has been suggested, however, to have resulted in “the subtle disappearance of the state from being the guarantor and protector of people’s right of access to water”, as the responsibility for water services has been delegated almost entirely to the CUs (Chitonge, 2006, p.15). Instead, the government is said to have taken on the role of mobilizing resources, and not engaged in ensuring access for the vulnerable of society (Chitonge, p.16; see also Dagdeviren, 2008).

Challenges for Commercial Utilities

While Commercial Utilities are stated to have made improvements in service delivery, challenges remain for these entities.

Financial Challenges

Utilities are expected to gradually increase tariffs to cover the cost of producing water, with subsidisation to come from government in the short-run as tariffs adjust (NWASCO, 2007, p.3). However, the government does not provide subsidisation to the providers (Personal Communication, MLGH Representative, 2008), and revenue gains

from tariff increases are consumed by deteriorating infrastructure and unaccounted-for-water (Dagdeviren, 2008, p.118). UFW resulting from low maintenance -and deteriorated infrastructure, and water wastage resulting from unmetered consumption and fixed payments, vandalism, and poor accounting and database management – and poor collections are suggested to be contributing to difficulties in achieving cost recovery (Dagdeviren, p.107). In 2007-2008, UFW resulted in an estimated loss of more than CDN\$51,000,000¹⁴ for the sector (NWASCO, 2008, p.37).

While commercialisation was expected to attract private investment, most CUs have been unable to gain private investment funding or have been unable to raise the funding from operations to expand the system (Chitonge, 2006, p.5).

Further, the Government had agreed to pay off outstanding debts and to provide working capital to the new utilities to allow them to begin operations without liabilities, but such agreements were generally not adhered to. This has resulted in liquidity problems for the utilities (NWASCO, 2004a, p.14). Traditionally there have also been problems with the government failing to pay for water. In the 2007-2008 annual sector report (p.40), the regulator indicated that the “Government liquidat[ed] most of its outstanding debts”, contributing to an increase in collections across the sector. It is unclear, however, how much debt has been cleared. There are still reports of government institutions failing to pay on time. In these cases, debt is not written off, but paid in large sums at varying intervals in the year (Personal Communications, 2008).

¹⁴ Based on exchange rates on January 1, 2009 (CDN \$1 = ZMK 3925.68).

Low payment for services by other clients is also inhibiting cost recovery and is attributed to irregular income patterns of consumers and an unwillingness to pay on the part of some consumers (NWASCO, 2008, p.13).

Despite these challenges, CUs are reported to have been making progress toward recovering operations and maintenance costs (NWASCO, 2008, p.13).

Staffing: Low motivation, Skills, and Retention

Further, utilities remain overstaffed with high operating costs as a result of a lack of funds for retrenchment at the time of CU establishment (NWASCO, p.14).

Commercial Utilities also continue to experience difficulty in recruiting and retaining qualified personnel due to an inability to pay competitive salaries and qualified staff has been attracted to private organisations (NWASCO, 2009).

“Weak Commercial Orientation”

A lack of commercial orientation, attributed to the socialist history of Zambia and a resulting “limited business mindset”, was noted as an impediment to cost recovery in most of the CUs in 2008, as CUs did not yet view water supply and sanitation services as a viable business. Such perceptions were reported to make CUs reluctant to provide services in new development and peri-urban areas (NWASCO, 2008, p.12). Chitonge (2006, p.13) similarly found that “peri-urban areas are still perceived as unprofitable investment destinations and therefore receive little attention”. Where Local Authorities provided water because it was their responsibility, CUs must consider profitability when

making investments (Chitonge, p.21). Therefore, Chitonge (p.21) states that the CUs must be given incentive to provide services to peri-urban communities.

4.4 CU Presence in Peri-Urban Areas & the Devolution Trust Fund

The Devolution Trust Fund (DTF) is a basket funding mechanism under the administration of NWASCO (Devolution Trust Fund website, 2009). Currently, the Fund focuses specifically on assisting the CUs in extending and improving access to water and sanitation to low income areas (peri-urban and low-cost settlements) (Personal Communications, Devolution Trust Fund Representative, 2008).

To improve access to water supply, the DTF funds the construction and initial implementation costs of pay-at-the-tap public standposts and water kiosks in peri-urban communities. DTF funding is also available for metering and efforts to decrease energy costs (NWASCO, 2008, p.16). The DTF and several utilities are also currently piloting projects to extend access to sanitation to peri-urban areas (NWASCO, p.18). The DTF also seeks to assist the CUs in attaining commercial viability (Personal Communication, Devolution Trust Fund Representative, 2008).

Currently the largest funding partner of the DTF is KfW, a German Development Bank. DANIDA and the European Union are also key partners of the DTF (Personal Communication, KfW Representative, 2008). In addition to funding project construction and start-up costs, these partners provide funding for the administrative costs of the DTF, consultancy assistance for the Commercial Utilities, and evaluations of water kiosk projects (Personal Communication, KfW Representative, 2008). Funding is channelled through the Ministry of Local Government, which then disburses to the Devolution Trust Fund (Personal Communication, DANIDA Representative, 2008).

The DTF also receives 5-20 percent of the capital cost of a kiosk project from the Department of Water and Energy Development, depending on the agreement negotiated with the cooperating partners that contribute to the DTF (Personal Communication, 2008). The Commercial Utilities do not contribute a fixed amount for the implementation of the project, but may contribute cash-in-kind or use their own vehicles and resources during the initial implementation phase (Personal Communication, 2008). The Commercial Utilities are responsible for the operating costs associated with the kiosks.

Since 2006, almost CDN\$16 million (ZMK 62.5billion)¹⁵ has been committed to the Devolution Trust Fund, with the Government of Zambia committing approximately CDN\$860,000 (ZMK3.4billion)¹⁶ of that total (NWASCO, 2008, p.17). DTF projects implemented in communities during the reporting year 2007-2008 have the potential to reach 106,900 people (NWASCO, p.17). Ten more projects were approved for 2008-2009 (NWASCO, p.17). The Devolution Trust Fund is seeking to assist the Commercial Utilities in extending access to 2.85 million people by 2015 (NWASCO, p.18). To date, the Fund has helped to extend access to a potential 402,600 people across Zambia (NWASCO, p.18), primarily through the use of pay-at-the-tap water kiosks.

4.5 The Devolution Trust Fund Water Kiosk System

Water kiosks currently funded by the DTF are covered structures that allow vendors to serve the customers over the counter from inside. The kiosk has shelves for

¹⁵ Based on exchange rates for January 1, 2008 (CDN \$1 = ZMK 3838.83)

¹⁶ Based on exchange rates for January 1, 2008

vendors to store goods for sale. A standard kiosk has three taps outside and ledges to assist users in lifting containers of water (Observation, 2008). Most of the CU-managed kiosks are connected to the main water network; however, some kiosks may distribute water from boreholes (Personal Communication, DANIDA Representative, 2008).

DTF water kiosks are operated daily by a “vendor” (usually a person from the community) who is contracted and monitored by the Commercial Utility. The vendor is not considered an employee of the utility. Instead, they are viewed as operating the kiosk as their own business (DTF/GTZ/NWASCO/GKW, 2006, Module 4 (1c.), p.5), and as such are considered to represent a form of private sector participation (NWASCO, 2004b, p.175). Kiosks are metered, and vendors are charged according to the consumption at the kiosk (DTF/GTZ/NWASCO/GKW, Module 4(1c.), p.4). Vendors receive a commission of sales, paid after the collection of all water sales. The current price of water at the CU-managed kiosks is between 25kw-50kw/20 litres (CDN \$.007-\$.014/20 litres)¹⁷, depending on the location¹⁸. To supplement their income from water sales, vendors are provided space to sell groceries from the kiosk (NWASCO, 2005, p.13).

Vendors are responsible for selling water; keeping the kiosk and its surroundings clean; keeping the kiosk in good technical condition; reporting maintenance, supply interruptions, quality issues, and vandalism; and, providing good service to clients (Water Kiosk Management Contract: NWSC-Water Vendor, 2008). Vendors must respect the agreed upon operating hours set by the utility for the first two months, at which point

¹⁷ Based on exchange rates on May 1, 2008 (CDN \$1 = ZMK 3401.12).

¹⁸ For example, the regulated price of water at CU-managed kiosks is 50kw/20 litres in Lusaka and 25kw/20 litres in Kitwe.

they may be given the opportunity to consult with residents and their RDC to adjust the schedule in consideration of peak demand hours, customer preferences, and other business interests of the vendor (DTF/GTZ/NWASCO/GKW, 2006, Module 4 (1c.), p.9). If the stipulations within the contract are not followed, the Utility may terminate the contract (Personal Communication, NWSC Representative, 2008).

The current cost to extend kiosks to a community averages between \$17-20/person, with costs varying according to the complexity of the system required (Personal Communication, DANIDA Representative, 2008), and the amount of repair required to such things as the treatment system or pumps (Personal Communication, DTF Representative, 2008). Daily operating costs of the kiosks include payment of the vendor, treatment and electricity, and maintenance costs (Personal Communication, DTF Representative, 2008). Additional costs to operate the kiosk systems include personnel, transportation, office space, and supplies for the vendors.

NWASCO contends that these systems should be affordable, but also provide revenue for the coverage of operation, maintenance, and basic replacement costs, as well as a reasonable income for the operators of the systems. NWASCO (2005, p.12) states that sustainability is “crucial”, as community systems that depend on subsidised services from professionals, such as repairs or management of water quality, are not a permanent or sustainable option. To assist in achieving sustainability, the placement of the kiosks considers the preferences of vendors and future users, technical constraints (such as unorganised development that prevents the laying of pipes in certain areas), and commercial constraints and objectives identified by the utility (NWASCO, p.13).

Each kiosk is to serve between 1200-1800 people, or 600 people per tap (Personal Communication, NWASCO, 2008), within a maximum distance of 200m (Personal Communication, DTF Representative, 2008), for at least 12 hours per day. Water kiosks are argued to be the “most appropriate” technology for meeting the needs of peri-urban and low-cost areas in Zambia (NWASCO, 2005, p.13).

Commercial Utilities have been extending water access to peri-urban communities within their service areas through DTF-funded water kiosks since 2004. Mulenga and Itimpi compounds in the Copperbelt Province of Zambia are two such communities that have received network water services through DTF-funded kiosks. These communities provide the case studies for evaluating the performance of the DTF-funded kiosk system and the fundamental underpinnings of World Bank’s Framework for Service Provision.

5.0 CHAPTER 5: THE DTF-FUNDED KIOSKS: A STUDY OF KIOSK SYSTEMS IN KITWE, COPPERBELT PROVINCE, ZAMBIA

The Copperbelt province is located in the northern region of the country, bordering the Democratic Republic of Congo. The city of Kitwe is the third largest in Zambia, with a population of approximately 400,000 people. The city has 28 peri-urban communities (Personal Communication, 2008). Research was undertaken in two of these “compounds”: Mulenga and Itimpi.

5.1 Case Study Compounds: Mulenga & Itimpi

Mulenga Compound

Mulenga compound, informally established in 1969, is a high density peri-urban area located 5km southeast of Kitwe city centre. The settlement arose when a former mine owner gave the farmland to a worker, who then allowed others to settle on the land (Personal Communication, RDC Representative, 2008). The compound grew as an informal settlement, but was legally recognized by Council in 1998 and is currently being upgraded (AQUATIS, Area Profile Sheet, 2005).

In 2005, the population of Mulenga was estimated at 21,480 people, and was increasing due to immigration (AQUATIS, Area Profile Sheet, 2005). The average household size in the compound was 6.0 people per household (AQUATIS, Area Profile Sheet, 2005). Maximum monthly income was estimated by the Residents Development Committee in 2008 to be ZMK200,000 (approximately CDN\$57¹⁹). Primary sources of income for residents include piecework and/or house help, brick-making, farming,

¹⁹ Based on exchange rate for May 1, 2008

building, selling products at market, and acting as security guards (Personal Communication, RDC Mulenga, 2008). Only five out of the 30 households that participated in the longer interviews were found to have a household member who receives a pay cheque. All were located in Mulenga (Personal Communications, Residents, 2008).

As an unplanned area, roads and houses are laid out in a haphazard manner. Roads are in relatively poor condition (Observation, 2008), and most of the homes are made of mud with iron roofing sheets (AQUATIS, Area Profile Sheet, 2005); though increasingly, cement homes are being built, particularly in the overspill area as the compound expands (Observation, 2008). In 2005, an estimated 20 percent of households did not have their own sanitation facilities, and most households used traditional pit latrines in poor condition (AQUATIS Area Sheet). The compound has a clinic, two schools, several churches, a crime prevention office, several grinding mills, two general market areas, and several small shops and taverns (Personal Communications, RDC Mulenga, 2008).

Water Access in Mulenga

Mulenga used to receive piped water “a long time ago” (AQUATIS Area Sheet, 2005). However, the network is old and rusty and taps have been broken (AQUATIS Area Sheet, 2005). Mulenga also has nine boreholes; however only one working borehole was observed in May 2008. The water from this borehole was yellow, and reportedly tasted like rust (Personal Communication, Resident, 2008). Water from this borehole is free. Before the kiosks were set up, current kiosk users in Mulenga got water

from unprotected shallow wells, from a river “far away”, or from kiosks in another compound (Personal Communications, Residents, 2008).

Unprotected shallow wells remain a key source of water for residents, particularly in the rainy season (AQUATIS Area Sheet, 2005; Personal Communications, 2008). During the dry season, many wells dry up, and residents will get water from neighbours who still have water in their wells and/or from the kiosks (Personal Communications, Residents, 2008). Others may contribute money to deepen wells that do not completely dry (Personal Communication, Resident, 2008). Not all residents pay for the well water they use; however, some can pay between 500-1,000 kwacha (kw) (or CDN \$.15-.29) for three 20 litre containers (Personal Communication, Resident, 2008). The compound is subject to flooding in the rainy season, which can result in pit latrines and garbage pits flooding into wells (Personal Communication, RDC Mulenga, 2008). Animals and other contaminants may also enter the wells at any time during the year (Personal Communications, Residents, 2008). The Residents Development Committee (RDC) is concerned that wells are unsafe (Personal Communication, RDC Mulenga, 2008).

In 2006, the RDC complained to a local MP about the lack of improved water supply in the compound. Nkana Water and Sewerage Company was subsequently dispatched to the community (Personal Communications, RDC Mulenga, 2008). At that time, the community was seeking household connections; however, they were told that the mainline was not sufficient to support household connections (Personal Communications, RDC Mulenga, 2008).

Nine DTF-funded kiosks were opened in Mulenga in July 2007 and had been in operation for nine months when this study began. The location of the kiosks was determined by the utility, taking into consideration distance and population. However, the road conditions and the unorganised positioning of existing houses prevented the laying of pipes for the kiosks in some areas and resulted in longer distances between kiosks in certain parts of the compound (Personal Communications, RDC Mulenga, 2008).

Itimpi Compound

Itimpi compound is located approximately 11km north of Kitwe city centre. This compound was originally farmland. When the farmer left the land in 1970, chairmen within the community began allocating lots (NWSC, 2003b, p.4). This informal settlement was legally recognized in 1983 (AQUATIS Area Sheet, 2005) and chosen for upgrading in 1994 (NWSC, p.4). It is currently being upgraded by Kitwe City Council (Personal Communication, 2008). Although the settlement is not expanding geographically because it is surrounded by private land, it is becoming denser as additional structures are being built on existing lots (NWSC, p.4).

In 2005, the population of Itimpi was estimated at 10,143, with an average household size of 6.8 people (AQUATIS Area Sheet, 2005). Monthly income in 2008 was estimated by the Residents Development Committee to be generally less than ZMK200,000 (approximately CDN\$57), with a maximum of ZMK350,000 (CDN\$100). The large majority of the population does not have formal employment (Personal Communication, RDC Itimpi, 2008). Sources of income for residents in the community include farming, charcoal burning, piecework, vegetable selling (Personal

Communication, RDC Itimpi, 2008), small-scale trading, carpentry, bricklaying, and plumbing (DTF/GTZ, 2005, pp.7-8).

Roads in Itimpi are in better condition than in Mulenga and are passable with a higher vehicle. Houses are primarily made out of mud (or mud with a cement shell), with metal sheeting or grass thatched roofing. There are also a number of houses made of cement blocks. In 2005, an estimated 21 percent of households did not have their own sanitation facilities; and, as in Mulenga, most households used traditional pit latrines in poor condition (AQUATIS Area Sheet, 2005). Few houses have electricity; and, there are few, but an increasing number of, household water connections (Personal Communication, 2008). The compound has two schools, several churches, a grinding mill, a general informal market area, and several small shops and taverns (Personal Communications, RDC Itimpi, 2008).

Water Access in Itimpi

Itimpi received piped water through yard taps and Council taps for a number of years. At one time, there were approximately 65 yard connections in the compound; however, all of these have been disconnected due to non-payment (DTF/GTZ, 2005, p.8). Council taps were disconnected when four African Development Bank-funded kiosks were built in the community in 2003 (Personal Communication, RDC Itimpi, 2008). These kiosks, however, were poorly designed and never began operations (DTF/GTZ, 2005, p.8). Prior to the commissioning of the DTF-funded kiosks, current kiosk users fetched their water from unprotected shallow wells, a stream on the west side of the community, Council taps, and yard taps (Personal Communications, Residents, 2008). Several illegal connections to the network were also found during the study period

(Observation, 2008). The stream, located on private property, was fenced off in July 2008 and is no longer accessible by residents (Personal Communication, 2008).

Unprotected shallow wells remain a key source of water for residents in Itimpi (Personal Communications, Residents, RDC Itimpi, 2008). In 2005 there were 129 shallow wells in Itimpi, in generally poor condition. These wells are feared by some residents to be contaminated by nearby pit latrines (AQUATIS Area Profile Sheet, 2005). Most of these dry up during the dry season (AQUATIS Area Profile Sheet, 2005). While many do not pay for water from wells (Personal Communications, Residents, 2008), past reports suggest that some residents may pay up to 500kw/day, or CDN\$.14/day, for water from these wells (DTF/GTZ, 2005, p.8).

Itimpi was chosen under a call for proposals to be a pilot site for DTF-funded kiosks, and in 2003-2004 the four African Development Bank kiosks were redesigned and refurbished with DTF funding. A fifth kiosk was added, as the Taskforce for the project found that five kiosks would be required in order for the kiosk system to be “sustainable from a social, commercial, and public health point of view” (DTF/GTZ, 2005, p.9). These DTF-funded kiosks were opened in July and August 2004.

5.2 The Managing Commercial Utility: Nkana Water & Sewerage Company

Mulenga and Itimpi compounds fall within the service area of Nkana Water and Sewerage Company (NWSC) in Kitwe, which is one of three Commercial Utilities operating in the Copperbelt province of Zambia. NWSC was established in 2000, and currently services the towns of Kitwe, Kalalushi, and Chambishi. The company is wholly owned by government and is a joint venture between Kitwe City Council and Kalalushi

Municipal Council, with shares currently divided 70/30 respectively, between the two Councils (Personal Communication, NWSC representative, May, 2008). A Board of Directors comprised of members representing private banking institutions, learning institutions, professional associations, private companies, and a representative from each of the Councils, is mandated to ensure that the company operates in a way that allows it to deliver on its responsibility to supply water to all customers in the service areas, and in a way that allows for cost recovery and a positive return on investment (Personal Communication, NWSC Representative, 2008).

Nkana Water and Sewerage Company has experienced variation in its performance in the national benchmarking system in the last few years (see NWASCO, 2006, p.10; NWASCO, 2007, p.8; NWASCO, 2008, p.6). This variation is partially the result of institutional changes as more CUs are established and/or service areas change (see NWASCO, 2006, p.10; NWASCO, 2008, p.6). In 2007-08, NWSC met the benchmarks for water service coverage (82 percent), hours of supply (16 hours), collection efficiency (88 percent); and operation and maintenance cost coverage collection (105 percent). NWSC did not, however, meet the benchmarks for water quality (measured in terms of percent compliance to the number of samples) (81 percent), the metering ratio (47 percent), or sanitation coverage (47 percent) (NWASCO, 2008, p.5). Further, infrastructure in the service area has been ranked as in “fair” condition by the regulator (NWASCO, 2008, p.3); and, in 2007-2008, the company did not meet the benchmark of ≤ 25 percent for UFW, with 40 percent unaccounted-for-water (NWASCO,

2008, p.5). The company lost an estimated CDN\$10,480,000²⁰ to unaccounted-for-water in 2007-2008 (NWASCO, 2008, p.37).

In 2007-2008, the company was considered to be operating in an area of high economic activity, and was receiving external support from the Chinese government (NWASCO, 2008, p.3). The company, which began operations at cost recovery levels of between 50-60 percent, is currently able to recover up to 85 percent of its costs after eight years of operation (Personal Communication, NWSC Representative, 2008). In 2008, it increased its domestic tariffs by 20 percent, and commercial tariffs by 60 percent. This followed a restructuring that reduced the service area and therefore, economies of scale (Personal Communication, NWSC Representative, 2008). The company is currently following a five-year strategic plan that would allow it to recover all costs by 2013, including accounting for depreciation and a certain level of investment. The strategic plan has also slated the refurbishment of *all* deteriorated infrastructure by 2013 (Personal Communication, NWSC Representative, 2008). NWSC is currently unable to recapitalise its infrastructure and has been borrowing externally for this upgrading (Personal Communication, NWSC Representative, 2008).

The government does not provide funding for extension into peri-urban communities as it has indicated that as a private company the utility should source for funding itself (Personal Communication, NWSC Representative, 2008). The government does, however, facilitate funding by, for example, providing backing for loans (Personal Communication, NWSC Representative, 2008). Commercial Utilities may be subject to

²⁰ Based on exchange rates on January 1, 2009.

cash flow problems (Personal Communication, KWSC, 2008), which may be compounded by delinquent payment by government institutions (Personal Communications, 2008). The level of debt carried by the company is unknown.

Commercial Utilities in Zambia have continued to experience difficulty in recruiting and retaining qualified personnel due to an inability to pay competitive salaries (NWASCO website, 2009). Qualified staff has been attracted to private organisations; this is most noted in North-Western, Copperbelt, and Lusaka provinces (NWASCO website, 2009). At NWSC, at the time of the study, the utility had recently lost a senior member to a large NGO. The turnover rate at NWSC, however, was reported to be stabilising (Personal Communication, NWSC Representative, 2008). In August 2008, the utility was experiencing a manpower shortage, but had recently received authorisation from the Board of Directors to begin recruitment (Personal Communication, NWSC Representative, 2008). The company has also experienced a loss of personnel due to illness (Personal Communication, NWSC Representative, 2008).

NWSC Peri-Urban Unit

NWSC services ten peri-urban communities in Kitwe, using water standpipes in illegal settlements, and water kiosks (both DTF-funded and older World Bank and AfDB kiosks) in legalized communities. In August 2008, the utility was in the process of implementing its fifth round of DTF-funded kiosks, and has been building 15-20 kiosks per year with the assistance of the Devolution Trust Fund for the last several years (Personal Communication, NWSC Representative, 2008). As of April 2008, the Utility was responsible for 117 kiosks and standpipes in nine communities, including both DTF- and AfDB-funded kiosks and standpipes, of which 73 were operational at that time

(Personal Communication, Peri-Urban Unit, 2008; see Figure 9.1). Since then, a tenth community, Kamatipa, has been serviced with eight kiosks (NWASCO, 2008, p.17).

Peri-urban services are overseen by the NWSC Peri-Urban Unit (PUU). The PUU officially has five permanent positions, including the Community Development Officer (the manager), two Assistant Community Development Officers, and two plumbers. The Development Officers are responsible for facilitating the implementation of the kiosks and the ongoing management of kiosks. This includes data collection and preparation of proposals for submission to the Devolution Trust Fund, conducting sensitisation/education and community meetings prior to kiosk construction, hiring and training vendors, weekly monitoring of the 125 kiosks and standpipes, addressing complaints of customers, and revenue collection from vendors (Personal Communication, Peri-Urban Unit Representative, 2008).

The annual budget for the Peri-Urban Unit for expenditures outside of project implementation²¹ is ZMK51million²² (CDN\$1200/month). This budget covers the replacement of such items as fittings, locks, taps, and pipes; sensitisation events that fall outside of the DTF-project timeline; paper and supplies; and, small office equipment, such as a printer or a fan. The Peri-Urban Unit employee salaries, PUU vehicle, and the fuel are cross-subsidised from another general account of the company (Personal Communication, Peri-Urban Unit Representative, 2008).

²¹ The majority of expenditures relating to implementation are funded by the Devolution Trust Fund, as discussed above.

²² Based on exchange rate on April 1, 2008 (CDN \$1 = ZMK 3543.46); assuming a fiscal year-end of March 31.

The Peri-Urban Unit does have a number of challenges. In February 2008, one of the two plumbers was transferred to another area of the utility and had not been replaced by August 2008 (Personal Communications, Peri-Urban Unit Representative, 2008). While, the Unit *is* able to ask for assistance from other plumbers in the company while this position remains vacant, it was taking more time to respond to complaints (Personal Communication, Peri-Urban Representative, 2008). Further, while the Unit has one vehicle and a bike for the plumber to travel in communities (Personal Communication, NWSC Representative, 2008), and is able to request a minibus from another section if needed for workshops (Personal Communication, Peri-Urban Unit Representative, 2008), the Unit is still reported to have inadequate transportation (Personal Communication, Peri-Urban Unit Representative, 2008). Responses to complaints in areas outside of Kitwe were reported to take up to 3-4 days (Personal Communication, Peri-Urban Unit Representative, 2008). The time required to conduct monitoring of individual kiosks in communities can also vary. In a community with relatively passable roads and few kiosks, like Itimpi, Development Officers may be able to reach almost all of the kiosks with a truck, and monitoring could take relatively little time. In a community where some kiosks would be unreachable by truck and that have a larger number of kiosks, monitoring could take several hours (Observation). All three Development Officers travel in one vehicle. When Development Officers are conducting sensitisation activities, they are unable to maintain the monitoring schedules in communities (Personal Communication, Peri-Urban Unit Representative, 2008).

Additionally, while upper management considers the PUU budget adequate (Personal Communication, NWSC Representative, 2008), Unit staff has indicated that the

monthly budget should be increased to ZMK10million (Personal Communication, Peri-Urban Unit Representative, 2008). Peri-Urban Unit staff suggests that the budget remains at ZMK4million because “the company is constrained, it cannot give us more amounts” (Personal Communication, Peri-Urban Unit Representative, 2008). The representative from the Peri-Urban Unit suggested that the additional money would be used for maintenance and to keep spare parts on hand to avoid long waits for supply orders (Personal Communication, Peri-Urban Unit Representative, 2008). The price of an average tap ranges from 45000-60000kw, a padlock would cost at least 50000kw, and a drama performance for a sensitization program is ZMK350,000 per site²³ (Personal Communication, Peri-Urban Unit Representative, 2008).

Residents Development Committees

The Residents Development Committees in Mulenga and Itimpi also assist in the provision of water services. Specifically, the RDCs assist in the mobilization of communities for sensitization activities and the identification of kiosk locations prior to construction. These RDCs also assist the PUU in selecting vendors for the kiosks and accept complaints from the residents and vendors (Personal Communication, Peri-Urban Unit Representative, 2008). In both communities, individual members have been given the responsibility for monitoring the kiosks periodically (Personal Communications, RDCs Itimpi and Mulenga, 2008). In the case of Mulenga, an RDC member collects

²³ Depending on the phase of implementation, sensitisation may be undertaken at each kiosk or per two kiosks; making the cost of sensitisation over ZMK 1million per community per visit, depending on the number of kiosks. While this cost is covered by the DTF during implementation, responsibility for ongoing sensitisation rests with the utility.

revenue from each of the kiosks on behalf of the utility, which then collects the money from the member (Personal Communication, RDC Mulenga, 2008).

The RDCs are provided a five percent commission from water sales, as a token of appreciation for their assistance in the operations of the kiosks, which they are able to use for other development projects within the community as they choose. This is considered a form of social responsibility on the part of the utility (Personal Communication, Peri-Urban Unit Representative, 2008).

5.3 Evaluation of the Service Quality Provided by Kiosks in Mulenga and Itimpi

“The goal of the kiosk system is to ensure that they provide sustainable and reliable water supply that is of good quality at an affordable price to the poor communities” (DTF Representative, 2008).

As discussed, each kiosk is to serve between 1200-1800 people, within a maximum distance of 200m. The water kiosks must provide good quality water for at least 12 hours per day at a price of 25kw/20l (Personal Communication, NWASCO Representative, 2008). Additional indicators that can be used to consider water service quality include wait times (World Bank, 2003, p.160) and distance to the source (Allen, Davila, & Hofmann, 2006, p.343; Tynan, 2000, p.10)²⁴.

The study has found that the DTF-funded water kiosks have provided a number of benefits to the case study communities, including providing a source of treated water; an additional source of water in the dry season; a source from which, for some, takes less effort to draw water than shallow wells; jobs for the community; and, water price

²⁴ See also World Health Organization (2006) *Guidelines for Drinking-water Quality* (First Addendum to 3rd Edition: Volume 1

protection for the poor. Further, the DTF-funded kiosk system allows the Commercial Utility to extend network water access to low-income communities in their service area without investing significant amounts in piping and household connections (Personal Communications, 2008), and has reportedly reduced unaccounted-for-water by using this system (Personal Communication, NWASCO Representative, 2008).

However, despite these reported benefits, many of the water kiosks in the case study compounds have not provided consistent, quality water service to peri-urban residents.

Water Quality

Network water quality is frequently tested and the quality of water provided to peri-urban communities is assured (Personal Communication, NWASCO Representative, 2008). During the 2007-2008 reporting year, water quality at Nkana Water and Sewerage Company was considered acceptable (NWASCO, 2008, p.8). While water quality (as indicated by taste, odour, or colour) may be affected by shut-off periods at the kiosk or fluctuation in chlorine concentrations (Personal Communications, Residents, 2008), data suggest that overall the quality of water provided by the kiosks in these communities is likely acceptable²⁵.

Water Quantity

While several users in both Mulenga and Itimpi indicated that they do purchase more than 20 l/p/d, the average per capita consumption was less than 10 l/p/d in Mulenga

²⁵ Further testing would be required to confirm whether kiosk water quality is within water quality guidelines.

and approximately 16 l/p/d in Itimpi, suggesting that these standards may not be being met with the kiosks. However, it should be noted that this may or may not be an indication or result of service failure. In some cases, for example, users have indicated that they are able to get all of the water they “need” from the kiosk even if they do not access 20-30 l/p/d (Personal Communications, Residents, 2008). Alternatively, however, kiosk closure may prevent some from accessing some or all of the 20-30 l/p/d, and/or financial constraints may also prevent users from buying these quantities (Personal Communications, Residents, 2008).

It should be noted that with the presence of shallow wells for uses that do not pose health risks, low per capita consumption of kiosk water may not represent a “failure” of the system (see Seur, 2005). Aspects of the service that prevent users from accessing the quantities they need or want - such as closure - do represent a failure, however.

Affordability

To be “affordable”, water expenditures should not exceed five percent of income (World Health Organization, as referenced by Estache, 2005, p.59). However, even where the price of water is within the universal five percent range, pricing may remain too high to meet the “needs” of the user, causing them to make trade-offs between sufficient water use and other essential needs (Personal communication, D. McDonald, 2008; Watkins, 2001, p.246; Grusky, 2001).

Water purchased from the kiosk, however, is not found to exceed five percent of income. Further, considering the relative price of water to other necessities and the

presence of free shallow wells²⁶, it not expected to cause residents to make trade-offs with other essential services in order to purchase water from the kiosk. More than half of residents interviewed indicated that they were able to afford to meet their needs with the kiosk water at this tariff level and/or did not mention financial impediments to using the kiosk during their interview (Personal Communications, Residents, 2008). While some residents indicated that they may experience difficulty in purchasing water from the kiosk, the majority of residents with financial constraints indicated that they were constrained in terms of frequency of purchase or amount purchased, not absolute use (Personal Communications, Residents, 2008).

Distance to source and wait times

The RDCs in both Mulenga and Itimpi, however, have indicated that distance to the kiosk is a problem (Personal Communications, RDCs, 2008), and the relative distance to an accessible shallow well and to the kiosk has also led at least some users to choose wells over the kiosk for some or all of their water uses²⁷ (Personal Communications, Residents, 2008). While it is difficult to assess the distance to the kiosk when closer

²⁶ The presence of free shallow wells prevents a true assessment of the “affordability” of the kiosk system and user usage patterns associated with financial constraints; however, it is expected that the kiosk water would be affordable for a majority of residents.

²⁷ All residents interviewed were asked how they felt about the distance to the kiosk. While the majority of users stated that the kiosk is “near” and/or “ok”, it should be noted that while such answers were given, one user that did indicate that the kiosk distance was near and ok, stated that distance to the kiosk became a problem for her and she returned to using only her well. This suggests the need for researchers seeking to understand the perceptions of distance to the kiosk to pay attention to the wording of interview responses.

shallow wells are present, the distance to the kiosk may be a particular problem for the elderly (Personal Communications, RDCs, 2008).

Further, it is unlikely that the kiosks are able to meet the goals of a supply of 30 l/p/d within a distance of 200m put forth by the *Peri-Urban Water Supply and Sanitation*, particularly as the responsibility for fetching water often rests with one person in the household. For example, assuming the average household size of six in Mulenga, one person fetching water, no lines at the kiosk, a maximum distance of 200 metres, five minutes to the kiosk each way (DTF/GTZ, 2005, p.2), and a standard pressure of 7l/minute (3 minutes/container), collection would be done in 2.4 km in 78 minutes. Fetching time would increase, potentially substantially, with the presence of queues at the kiosk. Long wait times can cause residents to give up and look for another source (Personal Communications, Residents, 2008), or to draw less to reduce the wait times of others (Personal Communication, Resident, 2008).

Reliability

Further, the reliability of service at kiosks has been compromised by power outages, pressure losses, maintenance issues, and vendor absence, and it is unlikely that many of the kiosks in the communities studied are consistently meeting the 12 hour/day service standard.

In Itimpi, power outages have resulted in a loss of water service several times per week. Pressure was also reported to be acceptable, but may be low in the dry season leading to long interruptions in supply several times per week at certain kiosks (Personal Communications, Residents, 2008). In Mulenga, power outages were not an issue for

kiosk water supply and pressure was reported to be acceptable (Personal Communications, Vendors, 2008). Pressure, however, may be lower during periods of high system usage (Personal Communications, Vendors, 2008). Kiosks in both compounds were also prone to low pressure in the dry season (Personal Communications, Residents, 2008).

Kiosks may also close (Personal Communication, Peri-Urban Unit Representative, 2008), or service may be slowed as a result of maintenance problems, such as leaks and broken taps (Personal Communications, Residents, Vendors, 2008). Broken taps, for example, can significantly slow service when only one tap is available to be drawn on and long queues form to draw on one tap. As noted, long queues can lead people to decide not to buy from the kiosks and, instead, use alternative sources (Personal Communications, Residents, 2008). At the time of the study, five out of the nine kiosks in the study required some form of maintenance work (Personal Communications, Vendors, 2008).

The greatest impediment to reliable, quality service at kiosks, however, has been vendor absence during the set hours of operation. Kiosk closure was the most common complaint received by the Peri-Urban Unit (Personal Communication, Peri-Urban Unit Representative, 2008), and was noted by 21/30 participants at some point in the interview as affecting their use in some way (Personal Communications, Residents, 2008). For half of these participants, vendor absence was the main reason for non-use of the kiosks. Observation revealed that seven out of nine kiosks in Mulenga, and four out of five kiosks in Itimpi were “opening” relatively regularly. Two kiosks in Mulenga and one in Itimpi were closed for the entire study period. One of these kiosks in Mulenga was

opened by a school-aged child for a brief period on two days in the five weeks of the study period (Observation, 2008).

Vendor absence may manifest as complete closure for a period of time (day(s), weeks, or months) or as sporadic and/or limited operating hours during the day. Limited hours of operation or complete kiosk closure may prevent people from accessing treated water when they need or want it. One resident in Itimpi, for example, stated that she uses a well five days per week because of kiosk closure; stating that she would prefer to get more from the kiosk, but could not because the kiosk is usually closed. A resident in Mulenga indicated that she had been unable to fetch all of her water because the vendor had only been opening for 1-4 hours (Personal Communication, Resident, 2008). Others may stop using the kiosk completely if it is found to be closed too often. For example, one resident in Mulenga chose to chlorinate her well instead of continuing to walk the distance to the kiosk, only to find it closed again (Personal Communication, Resident, 2008).

Vendor absence can also extend fetching time when residents choose to wait for vendors to open a kiosk and queues form (Personal Communications, Residents, 2008). One resident indicated that she did not have problems with daily vendor absence, but sometimes had to wait for the vendor to open the kiosk (within operating hours) (Personal Communication, Resident, 2008).

Reasons for vendor absence are explored in the next chapter.

6.0 CHAPTER 6: VENDOR ABSENCE: A FAILURE OF ACCOUNTABILITY

“The complaint is only just that...they [vendors] have got no proper time for working. That’s the most important. You can go there you find the kiosk is closed when you want water. That’s the only complaint we can have” (Resident, Mulenga Compound, 2008).

“People are really suffering because the kiosk is closed all of the time, I know it’s treated, but it’s closed” (Resident, Itimpi Compound, 2008).

All eleven vendors (present and former) interviewed indicated that they did not make enough money to pay for necessities through the sale of water (Personal Communications, Vendors, 2008). A review of sales figures and vendor income figures has indicated low sales and, as a result, low incomes (See Appendix C). For example, sales figures for one year were examined for one kiosk observed to be relatively regular in opening, and selling a few groceries. Sales for this kiosk ranged between CDN\$17.31 in May and CDN\$64.13 in October, with corresponding monthly commissions of CDN\$6.92 and CDN\$25.65, respectively. Average daily commissions for these two months were CDN\$.56 and CDN\$2.07, respectively. Overall average monthly sales for the year were CDN\$30.39; overall average monthly commissions were CDN\$12.16; and, overall average daily commissions were CDN\$.99²⁸ (Vendor Sales Records, July 2007-

²⁸ Range figures are based on exchange rates as at October 31, 2007 (CDN \$1 = ZMK 3995.73) and May 31, 2008 (ZMK 3420.10), as vendors would be paid after the end of the month.

Overall average monthly sales, monthly commissions, and daily commissions were calculated based on the average exchange rate for the period July 1, 2007 through July 31, 2008 (CDN \$1 = ZMK 3721.85).

Note: Sales and commission figures are based only on the full months that the kiosks were operating; partial months were not included in the calculations.

July 2008). Incomes tended to improve between August and December, when shallow wells dry (Personal Communications, Vendors, 2008). However, for a kiosk in an area where wells do not dry, water sales remained low throughout the year (between CDN\$5.88 – 8.82/month²⁹) (Personal Communication, Vendor, 2008).

Vendors may close the kiosk for extended or short periods of time, as a result of being unable to generate adequate incomes, because it is not worth their while to open the kiosks in the face of other things to do with their time, and/or to pursue income generating opportunities elsewhere (Personal Communications, Vendors, 2008). Low income is the result of low commissions hindered by a low social tariff and low effective demand, and problematic grocery businesses that fail to generate income expected to supplement that derived from water sales.

6.1 Vendor Income Failure: Commission Scheme

A study, cited in the Guidelines on Water Supply for Peri-Urban Areas, that analysed a series of payment/service schemes for peri-urban water supply concluded that a commission scheme for kiosk vendors represented the best option when evaluated on financial, commercial, social, and institutional aspects. This scheme is suggested to avoid wastage, allow for a high collection rate, and provide a vendor incentive to extend hours to reflect consumer demand (NWASCO, 2004b, p.176). It has been suggested that vendors are not paid a salary because it would add to the overhead of the CUs and “would be too much for the CUs to take” (Personal Communication, 2008); thus, the commission scheme also adjusts for the resourcing challenges that CUs face by requiring labour costs to be borne by residents through user fees.

²⁹ Based on exchange rates on May 1, 2008.

However, as a result of low tariffs (Seur, 2005, p.60; Personal Communication, Peri-Urban Unit Representative, 2008) and low usage levels (Observation, 2008; Kiosk Sales Reports, 2007, 2008) the commission scheme is failing to generate an adequate income for vendors.

Low Commissions: Regulated Social Tariff

The primary reason stated by the utility for complete kiosk closure is vendor turnover due to inadequate income as a result of a *low tariff* (Personal Communications, Peri-Urban Unit Representative, 2008).³⁰

This social tariff has been established by the regulator to make treated water economically accessible to the poor. The tariff is set to provide for 30-35 l/p/d per household of 6-7 people (NWASCO, 2004b, p.38) and to allow for the recovery of costs on a per unit basis, when drawing on the economies of scale achieved by the overarching utilities (Personal Communications, NWASCO Representative, 2008).

The price charged for water is closely watched by the regulator, which has issued warnings to utilities for not adhering to the regulated price for peri-urban service. In one instance, a utility was ordered to reduce the price it was charging for kiosk water after it took over a scheme from an organisation that had been charging more than the regulated tariff (Personal Communication, NWASCO Representative, 2008).

Currently the tariff charged at kiosks in the Copperbelt Province is 25kw/20 litres, or CDN\$.007/20 litres³¹. As a point of comparison, individually wrapped candies sold at

³¹ Based on exchange rates on May 1, 2008.

a kiosk cost 50kw each, and denominations of Zambian currency small enough to make change for 25kw do not exist (Observation, 2008). Vendors operating under Nkana Water and Sewerage Company receive 40 percent of 25kw per 20 litre container sold, or approximately CDN\$.003 per container sold³².

Financial Capacity of Residents in Mulenga and Itimpi

Financial constraints in peri-urban communities precipitate the need for a social tariff. In Mulenga and Itimpi, they also result in variability of purchase amounts or frequency of purchase from the kiosks, impeding kiosk sales and the achievement of a sufficient income.

In Mulenga, the maximum monthly income was estimated at ZMK200,000; and, monthly incomes in Itimpi were estimated to be generally less than ZMK200,000 with a maximum of ZMK350,000 (Personal Communications, RDCs, 2008). At the social tariff of 25kw/20l, monthly water expenditures for household of six using 30 l/p/d would be 6750 kwacha and would account for 3.38 percent of income in Mulenga, and between 1.9-3.38 percent³³ of income in Itimpi. Although water prices are below the universal heuristic of 5 percent in both communities and it does not appear that residents are required to make trade-offs with other necessities to purchase water from the kiosk at the current price (Personal Communications, Residents, 2008), resource constraints do exist in these communities.

³² Based on exchange rates on May 1, 2008.

³³ Assumes also that there is only one member of the household generating income; otherwise, the percentage of household income would be lower.

Almost half of participants indicated that they had at some point been unable to afford to take someone to the clinic and three residents interviewed in Mulenga indicated that they had had to take their children out of school because of insufficient funds (Personal Communications, Residents, 2008). Further, several residents interviewed had difficulty purchasing water from the kiosk on a regular basis due to financial constraints. One resident in Mulenga indicated that he would prefer to get more from the kiosk, but he often could not because of financial difficulties. This resident, who purchases between one and three containers from the kiosk a couple of times per week if he has money available, indicated that the kiosk “is close enough, it’s affordable; I just don’t buy because of money” (Personal Communication, Resident, 2008). One elderly woman interviewed in Itimpi was also only able to purchase water from the kiosk “when [she] ha[s] money”, but did so irregularly, offering no estimate of quantity or frequency of purchase (Personal Communication, Resident, 2008). The elderly in particular were most identified as a group that may not be able to afford water from the kiosk (Personal Communications, Residents & Vendors, 2008).

While the occurrence of absolute unaffordability was generally not found³⁴, a variability of available finances was found to prevent a number of residents from using the kiosk as they wished. A number of participants indicated that they would like to get more water from the kiosk, but were constrained by finances; sometimes preventing them from purchasing from the kiosk when they wanted to, not allowing them to meet all of their needs or wants from the kiosk, and/or capping the quantity that they buy from the kiosk (Personal Communication, Residents, 2008). In addition to the irregular use of the

³⁴ Results may have been different had more non-users been interviewed.

kiosk discussed above, financial challenges manifest for regular users in these communities by affecting the *frequency* of use and the *amount* of water purchased by day/week (Personal Communications, Residents, 2008).

In some cases, residents have jobs that pay them on a monthly basis. In such cases, although the job provides a predictable flow of income, users may have difficulty budgeting money over the course of the month. One resident in Mulenga, for example, stated that he receives pay once per month, but must use his well for a week at the end of the month when his money runs out (Personal Communication, Resident, 2008).

Unpredictable income flows on a *daily* basis in an informal economy may prevent people from accessing water at the kiosks on certain days or during certain periods. Some residents indicated that their use/non-use of the kiosk varied daily with their income or availability of money to spend (Personal Communications, Residents, 2008).

In addition to “inhibiting” daily use at the kiosk, financial variability and/or income levels may also place a cap on the amount of water purchased at the kiosk at a given time (Personal Communications, Residents, 2008). Residents indicated that finances dictate the amount of water that they can buy at the kiosk on a given day or generally (Personal Communications, Residents, 2008). Users further indicated that financial constraints prevent them from purchasing as much as they want/need, either consistently or periodically (Personal Communications, Residents, 2008).

As noted, participants of the study often preferred to use a combination of kiosk water and water from shallow wells to meet their needs. It should be noted that this may be in response to the limited financial resources available to households, and may also reflect spending priorities. Seur (2005, p.8) found that using this combination of sources

allowed residents in peri-urban communities to control water expenditures, as residents may pay for treated water for health-related uses only.

Low Effective Demand

As the payment scheme of vendors is based on unit sales, a certain effective demand is required to achieve an adequate income. Demand, however, has not been sufficient at many of the kiosks in the case study communities³⁵. In addition to the financial constraints discussed above as limiting sales at the kiosks, alternative sources of water that provide perceived benefits over the service offered by the kiosks are also hindering effective demand for the service. This is partially the result of service attributes or perceived benefits of other sources, relative to the service provided by the kiosk, being considered superior; leading residents to choose to use other sources that better suit their preferences.

Although the research undertaken was qualitative in nature and does not allow for a quantitative analysis of usage levels, there is indication that a significant number of residents in both communities have not adopted the kiosk year-round or during the dry season, even just for drinking and cooking. This is evidenced most concretely by vendor sales and commission figures, and utility reports (See Appendix C)³⁶. A review of one

³⁵ It should be noted that although studies are conducted prior to the construction of kiosks to assess whether adequate effective demand exists, actual effective demand tends to be low in many communities after implementation (Personal Communication, 2008).

³⁶ Another indication of low usage was the difficulty experienced in finding potential participants for the longer, semi-structured interviews for this study using the criterion of *daily use of kiosks*. Shortly after beginning this study, this use criterion was reevaluated and adjusted to include any residents that “used” the

kiosk's sales figures for a year in Mulenga suggested that not all households in that kiosk's service area are using the kiosks year-round, as household estimates suggest less than one container per day for much of the year; if all households in that area *are* using the kiosk, they are using little water per person per day (See Appendix D). Average container sales did exceed one container per household in October, November, and December only (Appendix D). An evaluation conducted by the Devolution Trust Fund in 2008 found that only 49 percent of households in Mulenga were using the kiosks (Devolution Trust Fund, 2008, p.41). Itimpi was not studied during the DTF evaluation.

The presence of nearby shallow wells, specifically, was overwhelmingly stated by organisational representatives, vendors, and community leaders to represent the greatest impediment to sourcing water from the kiosks (Personal Communications, 2008).

Interviews with users of the kiosks revealed a preference for using a combination of shallow wells and kiosk water (at least in the rainy season). Only one participant in Mulenga and two in Itimpi indicated that they use only kiosk water (Personal

kiosk - this may include use several times per week, weekly, periodically, or even seasonally. Care, however, was taken to speak with those who use the kiosk at least once per week; all but a few users interviewed were at least weekly users of the kiosk. It should be noted that in a few cases, a couple of users indicated at the outset of the interview that they were "users", but later revealed they only use the kiosk in the dry season.

Additionally, some users indicated that they used the kiosk for drinking, cooking, washing, and bathing; however, the frequency for each use was not assessed, and indicated quantities used suggested that kiosk water was not used for all of these purposes on a regular basis. For example, a user could say that they used the kiosk for "washing", but this may only imply once in a while, or during the dry season, if not drawn out by the interviewer. Notably, this study took place just after the rainy season when more alternative sources were available. However, conducting the study at this time of year did provide insight into the actual adoption levels of the system and into seasonal challenges associated with the operations of the kiosk, which otherwise would not have been revealed in the dry season when use of the kiosk appears to be higher.

Communications, Residents, 2008). The data indicate that these wells provide “benefits” relative to the kiosks for some residents including: better tasting water, a closer source, a free source, and a reliable alternative source when the kiosk is closed (Personal Communications, Residents, 2008).

Some participants indicated that they prefer the taste of well water to the taste of treated kiosk water. One absolute non-user interviewed would not use the kiosk at all because she did not like the taste of the water. Instead, she was willing to pay relatively more per container of well water (500-1000kw or CDN \$.15-.29 for three containers) when payment was necessary, from wells further away than the kiosk (Personal Communications, Residents, 2008).

The relative distance to an accessible shallow well and to a kiosk has also led at least some users to choose wells over the kiosk for some or all of their water uses (Personal Communications, Residents, 2008; see also Seur, 2005, p.8). For example, one participant stated that she uses the well “because it is convenient in our yard”. Two residents also stopped using the kiosk because it was easier to chlorinate their well water than walking to the kiosk (Personal Communications, Residents, 2008).

Wells may also offer a *free* alternative to the kiosk water when residents do not have money or do not wish to spend money to buy some or all of their water from the kiosk (Personal Communications, Residents, 2008). As noted, some people do pay for well water, however all users asked indicated that they do not pay for their well water (Personal Communications, Residents, 2008). It should be noted that although shallow wells provide a free source of water for users, it has been found that even where treated

water has been made available for free, consumption of that water remained low (see Seur, 2005, p.30) suggesting that it is not just an issue of finances.

Wells also offer reliability when the kiosk is closed, as most users affected by kiosk closure will opt to use a shallow well (Personal Communications, Residents, 2008). In one case, a resident stopped using a kiosk completely because she continually found the kiosk closed and found it too far to walk only to be turned away (Personal Communication, Resident, 2008).

Wells may also provide other advantages over kiosks including being better for cooking beans, requiring less laundry detergent when doing laundry, or getting clothes cleaner (Personal Communications, Residents, 2008). Beliefs that the kiosk water could make women barren also existed, leading residents to use wells instead of kiosks (Personal Communication, Peri-Urban Unit Representative, 2008).

The Use of Shallow Wells: Not a Case of Ignorance

It should be noted that although several organisational participants and both Residents Development Committees called for more health and hygiene education - suggesting that residents may lack the understanding about the health benefits of drinking treated water -, an overwhelming majority (26/27) of community participants asked indicated, in some way, that they should drink and cook with “clean” or “treated” water because it is better for their health (Personal Communications, Residents, 2008).

While the kiosks are considered a superior source of water by those promoting the system because the water is treated, data has revealed that the majority of users perceive their wells to be “clean” and almost all users indicated that they used some form of

household level treatment for their drinking water (i.e. self-chlorination products, boiling). The use of the chlorine-based solution in their wells and/or well water appears to make *all* of these users comfortable with drinking water from the well. Those users who were not always able to buy chlorine or ran out of chlorine stated elsewhere that they felt that their wells were “clean”; suggesting that many believe that they are drinking “clean” water, in contradiction to other earlier studies in these compounds that found people were drinking well water in spite of concerns about poor quality (see Aquatis Area Profiles Mulenga and Itimpi, 2006). Several users indicated that they avoided drinking water from their wells altogether (Personal Communications, Residents, 2008), while another used two different wells: one for drinking and one that was “not clean” for other uses (Personal Communication, Resident, 2008). Users that indicated that animals had been found in their well did not drink from those wells – drinking from other “cleaner” wells or the kiosk only (Personal Communications, Residents, 2008).

Others, however, *were* found to be drinking water from their well without regular/sporadic home treatment. One user and one non-user did not know why it was important to drink treated water; however, the two others were aware of the health outcomes associated with drinking potentially “dirty” well water (Personal Communications, Residents, 2008). These residents, however, felt that their drinking water was clean.

These findings suggest that residents likely do not necessarily perceive a risk associated with using wells over kiosk water, which further influences the relative attractiveness of kiosk water. As one representative from the utility stated: “But they [residents in peri-urban communities of Zambia] would argue to say ‘long time ago we

never had this actual supply and in the village you would not see this connected water. So I never died from it, so what makes you think we'll die this day?'".

6.2 Vendor Income Failure: Grocery Business

One of the features of the Devolution Trust Fund kiosks is the availability of space for vendors to sell other items in their kiosks (Personal Communication, Peri-Urban Representative, 2008). Where water sales have not reached a level required to make an adequate living, the ability to sell other goods at the kiosk allows vendors to supplement their income (NWASCO, 2005, p.13). The ability to earn an adequate income was stated in an evaluation of the pilot kiosk projects done for the Devolution Trust Fund in 2004, to be necessary for the sustainability of the kiosks, as an adequate income was deemed required to motivate vendors to take care of the kiosk and ensure consistent good service (DTF/GTZ, 2005, p.19). Because water sales were expected to be low, the opportunity to sell other goods at the kiosk was considered "crucial" for the vending job to be attractive (DTF/GTZ, p.24). In 2008, vendors continued to be encouraged by the utility to sell groceries in their kiosk, as they were not expected to make enough income selling water (Personal Communication, Peri-Urban Unit Representative, 2008).

Grocery businesses, however, have been subject to a number of challenges, including investment requirements, too much competition, seasonal fluctuations in sales, and thefts; preventing vendors from fully reaping the benefits of that option (Personal Communications, Vendors, 2008). Only one vendor that sold groceries at the time of this study indicated that he felt he was making enough money from his business (Personal Communication, Vendor, 2008), and one former vendor indicated that he did very well

with his grocery business until others in the area set up stands next to his kiosk (Personal Communication, Former Vendor, 2008). Grocery sales have also been reported to be much less in the rainy season (Personal Communication, Vendor, 2008), which would presumably magnify the effects of low water sales and commissions during that time, as well.

The nature of the goods sold in the kiosk and/or the requirement for inventory appear to represent a challenge to vendors that otherwise would not be experienced by those selling vegetables in a market, as vendors need “capital” to run a successful business (Personal Communication, RDC, 2008). Inventory is not of the nature that it can be replaced little by little on a daily basis like vegetables. It requires an investment in stock, which has presented difficulties to a number of vendors. While some vendors are able to save or borrow money to purchase their inventory, others are not able to generate or save the money required to purchase wares to sell, preventing them from gaining additional income from the grocery business (Personal Communications, Vendors, 2008).

In other cases, the grocery business simply fails as a result of too much competition, despite having inventory (Personal Communication, Former Vendor, 2008). A former vendor interviewed in Itimpi stated that he had been able to make a reasonable amount of money at his kiosk, particularly in October, but that others set up stands in the same area when they saw that he was doing well, and he subsequently went out of business (Personal Communication, Former Vendor, 2008). Similarly, another vendor in Mulenga selling groceries speculated that the low grocery sales at their kiosk was the result of too many others selling in the area (Personal Communication, Vendor, 2008).

Moreover, several vendors in both communities had experienced break-ins, leaving them without groceries (and the initial investment made), and requiring them to start again or to rely solely on water sales to provide an income where they lacked the resources to purchase more stock (Personal Communications, Vendors, 2008). Two of these vendors estimated their losses to be CDN\$188 and \$228, respectively³⁷. Another theft occurred during this study period, whereby a new vendor who had recently replaced a vendor who had not been respecting kiosk hours, lost all of his groceries. In an interview conducted with the replacement vendor prior to the break-in, the vendor indicated that he was happy to have the opportunity to work at the kiosk because it provided him a place to sell groceries while helping the RDC sell water (though grocery sales were not generating an adequate income by that time) (Personal Communication, Replacement Vendor, 2008). Upon return several weeks after that interview, the kiosk was closed and only opening sporadically because, according to residents in the area, his groceries had been stolen and he was unable to generate enough revenue from water sales (Personal Communications, Residents, 2008).

Thus, when the grocery business fails and water sales produce low commissions, the vendor can lack incentive to open the kiosk during all required operating hours, or at all.

Vendor Service Contracts: Limited Ability to Hold Vendors Accountable

It should be noted that contracts used by the utility management to hold vendors accountable for service provision are likely ineffective. Representatives from the Peri-

³⁷ Based on the exchange rate on May 1, 2008.

Urban Unit and/or the RDC will speak to the vendors if they are not respecting opening and closing times, and if their behaviour does not change, their contract can be cancelled (Personal Communication, Peri-Urban Unit Representative, RDCs, 2008).

The use of contracts and the threat of job loss, however, have limited effect on continued vendor presence. The cancellation of a contract for a position that could be preventing vendors from generating a sufficient income elsewhere or that prevents them from undertaking other activities during the day, could fail to represent a clear threat (Observation). One RDC member further indicated that finding vendors to replace poor performing vendors is difficult because residents did not think that vendors were paid and therefore did not want to take the position. Additionally, one RDC has turned down other prospective vendors because they lacked the capital to finance a grocery business (Personal Communication, RDC, 2008). Where vendors *are* replaced or assisted with an alternate “helper”, kiosks can continue to open sporadically, as income challenges plaguing previous vendors remain (Observation).

7.0 CHAPTER 7: THE ZAMBIAN WATER KIOSKS AND THE WORLD BANK FRAMEWORK

As discussed in Chapter 2, in its 2004 World Development Report, the World Bank presented a framework for analyzing the institutional arrangement most appropriate for improving service provision to the poor, of which accountability is the central concept. The Bank contends that without accountability between actors involved in service provision – the client, provider, and policymaker- service delivery will fail as a result of “inadequate institutional arrangements” (World Bank, 2003, p.58). The Bank contends that weakness in any of the client-policymaker, policymaker-provider, and/or client-provider accountability relationships can result in service failure (World Bank, p.47).

The Bank divides these three relationships into two “routes” of accountability – a “long route” and a “short route” (World Bank, 2003, p.6). The long route links the client-policymaker and the policymaker-provider accountability relationships, and relies on political processes, regulation, incentives and enforcement to maintain accountability. The Bank (p.6) states, however, that “given the weaknesses in the long route, service outcomes can be improved by strengthening the short route...”. This route, eliminates the policymaker as an intermediary and provides clients a direct role in holding providers accountable, as *they* choose to spend their money with the providers that best suit their needs (World Bank, p.58) and make provider revenue contingent on client satisfaction with services (World Bank, p.66).

Despite the use of a service arrangement that relies almost entirely on the short route of accountability for providing quality water services to residents in Mulenga and Itimpi, many of the kiosks are failing to provide reliable services. The institution of user

fees and the use of a vendor payment scheme completely reliant on client satisfaction (with the exception of the grocery business), have failed to generate the accountability expected from a market approach to service provision.

7.1 The Zambian Water Kiosks and the World Bank Framework for Service Provision: A Failure of the Short Route of Accountability

The Failure of the Short Route of Accountability

As discussed in the previous chapter, the primary cause of kiosk service failure – vendor absence – is largely the result of low incomes. As a result, users (clients) of the water kiosks in the case study communities have been unable to hold the vendors (providers) accountable for quality service provision via the short route of accountability, as low tariffs and low effective demand have contributed to incomes insufficient to generate the pressure needed to make vendors responsive to residents seeking service from the kiosk. In the communities of Mulenga and Itimpi, it can be said that the short route of accountability is failing as a result of three factors: regulation, poverty, and low effective demand.

Regulation & Poverty

As discussed, the social tariff has been established by the regulator in response to poverty conditions in the country; to make treated water economically accessible to the poor. This regulation is a contributing factor to the failure of the short route of accountability in rendering better services to the poor.

However, this “failure” of regulation, or quasi-government involvement, in the operation of the schemes is not just another example of a failure that can be attributed to

state interference in service provision, as the Bank's Framework might suggest. It can be argued that this regulation is necessary in a market or short-route approach to service provision, as residents in the peri-urban communities serviced by the kiosks typically have limited financial resources. Removing tariff regulations *would* allow for higher per unit vendor commissions; however, as increases in user fees often result in a decrease in demand (see World Bank, 2003, p.4), it is likely that people would buy less water from the kiosks, resulting in more closures. This is particularly relevant in light of responses on the part of a number of kiosk users interviewed for this study indicating financial constraints that inhibit the frequency of purchase or the quantity purchased at the *existing* low tariff. One utility representative indicated that while it would be desirable to have a higher tariff, residents need to have time to adopt the kiosk, get used to using the kiosk, and to develop a sense of responsibility for paying for water before raising the tariff (Personal Communication, KWSC Representative, 2008).

Low Effective Demand

As discussed in the preceding chapter, the payment scheme of vendors is based on unit sales and requires a certain effective demand to achieve an income high enough to put pressure on vendors to provide reliable service. However demand, as discussed, has not been sufficient at many of the kiosks in the case study communities. This demand has been affected by the financial constraints of residents and also by alternative sources of water that provide perceived benefits over the service provided by the kiosks.

Evidence suggests that residents make purchase decisions based on priorities, and where unprotected wells provide service attributes more attractive than those of the kiosk

and are perceived as clean, residents continue to use these sources to meet their water needs. Limited interest in the treated water of the kiosk limits demand for the kiosks, further reducing client pressure on providers via the short route of accountability.

The short route of accountability is failing in part because many potential clients do not yet want the service and are therefore not holding the vendors accountable. Fundamental assumptions about the desire for treated water should be questioned in the context of limited user resources and alternative sources. It should not be assumed that kiosks will be perceived as the better source of water automatically. Users seek many different service attributes that may vary by individual and by day, and the kiosks are unlikely to be able to deliver on all of them. Research further suggests that kiosks actually are unable to match many relative benefits of shallow wells. Residents are “voting with their feet”, and they are voting for sources that best meet their needs, but these may offer water of lesser quality. The data indicate that this is not an issue of ignorance about the benefits of treated water, but it does suggest a need to convince residents that it is the “better³⁸” source. As noted, it has been suggested that even if kiosks provided water for free, that some people would not use them (Personal Communication, 2008). Further, it has been suggested that the burying of wells is not a sustainable option, as residents would re-open the wells (Personal Communication, 2007). This indicates that greater efforts would be required to create the behaviour change needed to shift residents to using kiosks, and to mitigate the failures of the short route of accountability or market.

³⁸ Assumes that the kiosks are a better source and that shallow wells are not appropriate.

Behaviour change needed for residents to switch to treated water requires sensitisation to convince residents to use the services provided by the utility. This, however, also requires *additional resources* - including much more frequent education sessions to facilitate behaviour change, which require more utility staff, vehicles, and funding -, as well as *time* for behaviour to change to generate increased effective demand and therefore, higher incomes.

Utilities, however, are still reported to be too “constrained” to increase the budget for the Peri-Urban Unit, which already lacks adequate transportation and has insufficient staff to fulfill both monitoring duties and sensitization/education activities at the same time. Indeed, the vendor payment scheme, which relies solely on user fees, has been established to adjust for the resourcing constraints of utilities. Utilities are also already assisted with donor funding to ensure the capital costs of extension are available to communities because of their resourcing challenges. As resource constraints already exist for the utility, it can be suggested that funding requirements to finance sensitization and vendor incomes required to keep kiosks open while demand is generated are unlikely to come from the provider.

In light of the extent of poverty in communities to be served and the resource constraints of utilities still in the process of working toward cost recovery, it can be concluded that government intervention (through subsidisation) via the long route of accountability is required to improve service provision to the poor in these communities. It may also be required to create the conditions for a shift to the short route at some later time. The use of the short route of accountability, or market approach, has failed to adequately service the water needs in these communities. The study thus stands as a

counter example to the outcomes predicted by the World Bank's Framework for Service Provision.

7.2 The Application of the Framework for Service Provision in Zambia

The Bank maintains that inadequate institutional arrangements for service provision result in accountability failures between actors. To address such failures, the Eight Sizes Fit All model is provided to assist in prescribing one of eight possible institutional arrangements for service delivery that can improve accountability and thus, the services that reach the poor. According to the model, three variables can influence the accountability relationships in service delivery: state orientation, preference heterogeneity, and ease of monitoring.

For urban water network services, the Bank also recommends that policymakers and providers be separated to improve accountability. To separate the policymakers and providers, the Bank recommends measures to improve the long route (decentralization and private participation) and the short route (user fees and the use of independent providers) in the Framework for Service Provision.

While the adherence of the Zambian water sector reform process to the recommendations of the Framework and the use of an appropriate arrangement as prescribed by the model for improving accountability in service delivery would suggest that services for the poor would be improved, the preceding chapter indicates that Commercial Utilities through the water kiosks have generally not succeeded in extending reliable quality services to the poor in the peri-urban communities of Mulenga and Itimpi in Kitwe, Zambia. The discussion that follows analyses the outcomes of the Zambian

case relative to the World Bank Framework and assesses whether it appears to be a case of inappropriate use of the model or suggests that the model itself is inadequate.

Zambia: The Eight Sizes Fit All Model

Government Orientation: Pro-poor

To determine whether a service environment is pro-poor or clientelist, the Bank proposes four indicators (World Bank, 2003, p.80). These include politicians' incentives, service delivery expenditure design, inclusion and exclusion, and systemic service capture. In a pro-poor environment, the Bank states that there will be "no strong incentives to cater to special interests, preferring instead to address general interests"; the design will "promote universal provision of broad basic services that benefit large segments of society, including poor people and the non-poor"; "most people enjoy the same access and service quality as non-poor due to network, political, social, and altruistic reasons" (World Bank, p.80); and, there is no systemic service capture (World Bank, p.81).

While these indicators are subject to problems and are generally quite difficult to measure, there is evidence that the orientation of the state is **pro-poor** in this case. The Zambian case appears to represent an instance where it is the government pressure (with the assistance of donor funding) that is leading the Commercial Utilities to extend access to these areas.

There has been an indication that politicians will put pressure on the Utilities to extend into peri-urban areas (Personal Communication, KWSC Representative, DANIDA Representative, 2008). One participant indicated that the Minister of Local Government

and Housing had been “forceful” in her statements about access in peri-urban areas, suggesting that the minister is “really trying to get something done about it” and has made it clear that water supply in these areas is the responsibility of the government (Personal Communication, 2008). Representatives from both Kafubu and Nkana Water and Sewerage Companies indicated that the force behind the mandate is so strong that even though kiosks are not attractive from a business perspective, they *must* continue to provide services to these areas (Personal Communications, KWSC Representative, NWSC Representative, 2008).

Further, Mulenga represents one example of a low income community that has received kiosks as a result of a complaint to a local MP, who subsequently sent the utility to the community (Personal Communications, RDC Mulenga, 2008). One representative from Kafubu Water and Sewerage Company indicated that complaints that come from the Local Authority concern the poor, not the rich (Personal Communication, KWSC Representative, 2008).

Additionally, the government is considered to have taken a “pro-poor approach” to serving the poor by establishing the Devolution Trust Fund to mobilize resources for extending access to low income communities, and by regulating and enforcing a social tariff (Personal Communication, NWASCO Representative, 2008).

Heterogeneity of Preferences: Heterogeneous

The Bank fails to adequately define what heterogeneous preferences would encompass, but states that user preferences are heterogeneous when they vary by region, community, user groups, or individuals (World Bank, 2003, p.13). It is difficult in the

case of water services to determine whether user preferences are homogeneous or heterogeneous, as water services would provide a uniform product (water) in a uniform manner.

However, it could be suggested that urban water network services in the Zambian case are heterogeneous in that residents vary in the frequency of purchase, the quantity purchased (depending on effective demand and available financial resources), the timing of purchase (which may alter hours of operation and/or require purchase from communal stands with defined and potentially differing limited operating hours) (Observation).

Ease of Monitoring: Easy

Monitoring of the peri-urban kiosks and related water supply is undertaken by a number of entities in Zambia. The Peri-Urban Unit and the RDCs are most closely linked with monitoring of the kiosks, with residents playing a small role.

As with the previous two variables, categorizing these services as “easy” or “difficult” to monitor is a challenge. According to participants asked, water supply may be difficult or easy depending on the aspect of the service being monitored. “Access” is suggested to be easy to monitor because it can be assessed visually, while water quality for end-users may be difficult to assess (Personal Communication, MLGH Representative, 2008). Alternatively, a representative from a CU indicated that it is “easy” to monitor water services if you understand the challenges and complexities involved in providing the service (Personal Communication, KWSC Representative, 2008).

Research suggests that monitoring of the kiosk system may be “easy” because there are relatively few kiosks in each community. However, in this case, it appears to be difficult to monitor due to challenges with transportation, the costs associated with traveling to place complaints or calling in complaints, and challenges within the monitoring system, such as a lack of understanding on the part of residents as to how place a complaint and whom to complain to. In the World Development Report for 2004, the World Bank explicitly refers to water services as “easily monitored” (p.14) and as a discretionary and transaction-intensive service, which would make it difficult to monitor (p.52).

Considering the opportunities present for misinterpretation as a result of poorly defined variables, which also do not emerge as dichotomies in reality, there is some fundamental ambiguity on how this sector should be interpreted within the Eight Sizes Fit All model. This limits the use of the model in prescribing institutional arrangements that could improve access to the poor. For the purposes of this analysis, however, it is understood that the variables considered in the Zambian case emerge as a service operating with a *pro-poor state orientation*, with *heterogeneous preferences*, and that is “*easily*” monitored.

7.3 The Zambian Case: Compatibility with the Framework for Service Provision

The assessment of the Zambian service environment as pro-poor, subject to heterogeneous preferences, and “easy” to monitor, indicates that it is amenable to a *Size 3* arrangement on the Eight Sizes Fit All model. In practice, Zambia *has* implemented a variation on the *Size 3* arrangement. In this case it emerges as a corporatised utility

wholly owned by two municipal governments. To service peri-urban areas, it has contracted private operators (vendors) to provide service through water kiosks.

In addition to this use of a *Size 3* arrangement, water sector reforms have included the implementation of three of the four measures recommended in the Framework for improving the long and short routes of accountability in urban water network services. Service provision has been *decentralized* to the Local Authorities and separate *corporatised utilities* (private participation) have been established. These utilities are regulated by a third-party regulator (NWASCO) with a mandate to ensure that consumers are protected from exploitation and providers are protected from undue political interference. The establishment of the national regulator has been specifically identified as having made a difference in the sector, as the annual reporting system for the sector has kept stakeholders informed and the regulator has been able to increase tariffs during election years without political interference (GTZ, 2008, p.10). The establishment of the regulator has also ensured that the social interests are considered, particularly through the regulation of tariffs (NWASCO, 2004a, p.25).

A measure to strengthen the short route of accountability, *user fees* have also been instituted in peri-urban water kiosk schemes. The fourth measure prescribed by the Bank – independent providers – has not been instituted; however, in this context, independent providers would need to get their water from the kiosks, as they are the only source of treated water in the communities studied. It is expected, as a result of limited resources and effective demand in the market, competition created by such providers would not generate the accountability predicted.

In addition to the prescriptions of the Framework and the Eight Sizes Fit All model to expedite improved access to network water in and extend services to low-income peri-urban areas, a donor-driven basket funding mechanism - the Devolution Trust Fund (DTF) - has also been established to assist Commercial Utilities. This, as discussed, has included the use of a water kiosk system whose success is almost entirely dependent on the short route of accountability.

In Zambian water service provision, the role of the government is relatively minimal, to the extent that it has been criticized as “disappearing” from its role in protecting the interests of the vulnerable of society (Chitonge, 2006, p.16). This role is more one of policymaking and “encouragement”. Government does not provide subsidisation to water utilities. It appears, however, that government pressure HAS contributed to the extension of services into peri-urban areas via water kiosks; however, resources and demand required to ensure revenue for continued access and to maintain accountability via the market are inadequate.

7.4 Conclusion

“Given the weaknesses in the long route of accountability, service outcomes can be improved by strengthening the short route – by increasing the client’s power over providers”

(World Bank, 2003, p.6)

Much of the foundation of the Framework for Service Provision and recommendations for urban water network services is based on the “understanding” that services have failed to reach the poor as a result of an inefficient, corrupt state lacking accountability, and that strengthening the short-route to service provision will result in improved services to the poor – in other words, the market will overcome resourcing

challenges and provide the resources required for services. However, attempting to avoid the state and the argued weaknesses of long route of accountability by using the market to maintain accountability may not be successful in improving service delivery. In Zambia, the use of measures to achieve accountability via the short route – user fees, provider viability completely reliant on client demand - has not been successful in providing reliable services to residents in the compounds of Mulenga and Itimpi.

The Zambian case, as a strong example of adherence to the recommendations outlined in the Framework for Service Provision, indicates that it is not only state orientation, understanding user preferences, and the degree of difficulty involved in monitoring that can influence “accountability relationships” and therefore successful service provision. Of key importance to maintaining accountability in this case is the extent of poverty (limited individual financial resources to consistently purchase water and the need for a low social tariff) in the marketplace and the level of effective demand (desire for the service) present in the face of alternative traditional sources, as residents have been unable to hold vendors accountable for service provision with an adequate income and/or have failed to see a need for a service for which to hold vendors accountable. Further, financial and human resources, unlikely to be found in the managing institution, required to create behaviour change toward the use of treated water services are also of key importance in the development of demand and therefore accountability in a market context. Thus, the conditions of poverty, limited effective demand, and limited resourcing available to create behaviour change that would increase demand, have resulted in the under-consumption of this merit good (water services) and thus, market failure.

It is further expected that a prescription of any of the institutional arrangements indicated in the Eight Sizes Fit All model implemented under conditions of widespread poverty, cultural elements (including beliefs and perceived needs for such a service) that are not conducive or receptive to the “product” or service being introduced, and limited institutional resources, such arrangements will fail to improve services to the poor. In the midst of these conditions, institutional arrangements may indeed represent a relatively minor consideration for improving service provision to the poor.

This thesis concludes that the World Bank’s Framework for Service Provision fails to capture the importance of resources and culture in determining the success of service provision to the poor in Zambia, and in instituting market or short route accountability, in particular. As a result of these key omissions, the Framework is limited in its usefulness for providing guidance to Zambian planners in solving the problems associated with urban water network service provision to the poor. This conclusion is based on data collected from one country, but it appears reasonable to generalize to peri-urban areas in many other developing countries.

Final Thoughts

While the kiosks are subject to challenges and have not fully delivered reliable service, I am encouraged that the kiosks could in the future represent a viable option for extending access to peri-urban communities, as donors and the regulator, with the involvement of CUs and other stakeholders, have been undertaking projects to improve the functioning of the kiosk schemes throughout Zambia. For example, the Toolkit for Peri-Urban Water Supply has been developed to assist providers in data collection; proposal development; kiosk system design and implementation; community involvement; and, the management, monitoring, and evaluation of kiosk systems (DTF/GTZ/NWASCO/GKW, 2006). Kiosk designs continue to evolve over time as ergonomic challenges and user preferences have been identified; and, studies to assist in better understanding the perspective of utilities and/or users continue to be undertaken. An evaluation of kiosks constructed under the first call for proposals was completed in 2008 (Personal Communication, DTF Representative, 2008). Further, donors continue to meet to discuss the progress of the kiosk system and challenges confronted (Personal Communications, KfW Representative, DANIDA Representative, 2008). This combination of state and donor support holds out the promise for continuing improvement of water services in Zambia via the long route of accountability.

8.0 APPENDIX A: INTERVIEWS & FOCUS GROUPS

METHOD OF DATA COLLECTION	PARTICIPANTS	NUMBER OF INTERVIEWS
COMMUNITY REPRESENTATIVES		
Long, semi-structured interviews		
	Residents, Kiosk Users	Mulenga - 20 Itimpi - 10
	Kiosk Vendors	Mulenga - 7 Itimpi - 4
	Community Leadership (RDC and Zone Leaders)	Mulenga - 1 Itimpi - 4
Short, semi-structured interviews		
	Residents, Kiosk Non-users	Mulenga - 3 Itimpi - 1
	Residents, Kiosk Users and Non-users (with expenditure survey)	Mulenga - 18
	Residents, Kiosk Users and Non-users	Mulenga - 8 Itimpi - 8
Focus Groups		
	Community Leadership (RDC)	Mulenga - 2 Itimpi - 2
	Mulenga Health Clinic	1
ORGANISATIONAL REPRESENTATIVES		
Long, semi-structured Interviews		
	<ul style="list-style-type: none"> • Nkana Water and Sewerage Company • The Peri-Urban Unit of the 	16

	<p>Nkana Water and Sewerage Company</p> <ul style="list-style-type: none"> • Kafubu Water and Sewerage Company • The Devolution Trust Fund • The National Water Supply and Sanitation Council (NWASCO) • The Ministry of Local Government and Housing • The Ministry of Energy and Water Development • The Environmental Council of Zambia • Kitwe City Council • DANIDA • KfW (a German development bank) • UNICEF-WASHE • Copperbelt University 	
Focus Groups		
	Kitwe District Health Office	1

9.0 APPENDIX B: NWSC PERI-URBAN SERVICE

Figure 9.1: Nkana Water and Sewerage Company: Operational/Non-operational Kiosks and Standpipes (April 2008)

Community (Population Served: 98,300)	Revenue (ZMK)	Operational	Non-Operational	Total Kiosks
Racecourse (Est. Pop.: 25,000)	1,516,000	19	16	35
Itimpi (Est. Pop.: 7,500)	58840	3	2	5
Ipusukilo/Musonda Est. Pop.: 30,000*	323,000	21	15	36
Mulenga (Est. Pop.: 16,000)	252,800	9	0	9
Kawama (Est. Pop: 7,800)	202,000	4	1	5
Musakashi (Est. Pop.: 12,000)	123,750	6	4	10
Total Kiosk Revenue	2476390Kw***	62	38	100
Illegal Settlements (Standpipes)				
St. Anthony	970, 800	3	1	4
Ndabwe	232,000	2	1	3
Chipata	604,500			Unknown
Marasime	656,000	6	4	10
Total Revenue from Illegal Settlements	2,462,500Kw***			
Total Revenue	4938890			

This table includes kiosks that were not established with DTF funding. Kiosks listed as non-operational may be closed as a result of maintenance issues (Personal Communication, Peri-Urban Unit Representative, 2008), or as a result of being commercially unviable (Personal Communication, NWASCO Representative, 2008). In those communities that may have received “too many” non-DTF kiosks to be commercially viable and profitable for vendors, some kiosks have been closed. The regulator has agreed to close kiosks in those areas, provided discussions are had with communities about which kiosks to keep open. Companies wanting to close DTF-funded kiosks, the number of which were determined considering commercial objectives as well as social objectives (i.e. population density requirements and distance requirements), must present a strong argument (Personal Communication, NWASCO Representative, 2008).

The kiosks in Ipusukilo/Musonda have been closed due to low vendor incomes and the presence of shallow wells that do not dry up (Personal Communication, Peri-Urban Unit Representative, 2008). It is unclear whether this closure was undertaken according to the procedure discussed above.

*** A brief comparison of the revenues provided by kiosks and by standpipes indicates that standpipes appear to be more profitable than the kiosks. Notably, the figures for the kiosks represent gross revenue and do not include vendor and RDC deductions. It is unknown what conditions exist in the illegal settlements that may contribute to greater use of standpipes. This requires further investigation.

10.0 APPENDIX C: SALES & COMMISSIONS

Community Figures:

Mulenga

Figure: 10.1

Mulenga: Commissions Paid: Sales, December 2007

Kiosk #	Commissions (ZMK)
1	63220
2	22800
3	12000
4	87400
5	26000
6	96480 (\$24.88)
7	56600
8	9200 (\$2.37)
9	50800
Total Commissions	424500 (\$109.48)
RDC (5%)	53063 (\$13.68)
Total Sales	1061250 (\$273.70)

Figure 10.2

Mulenga: Commissions Paid: Sales, February 2008

Kiosk #	Commissions (ZMK)
1	8400
2	7600
3	4000 (\$1.03)
4	60320 (\$15.61)
5	20020
6	36400
7	8000
8	12000
9	10000
Total Commissions	166740 (\$43.15)
RDC (5%)	20842 (\$5.39)
Total Sales	416850 (\$107.88)

Figure 10.3

Mulenga: Sales: April 2008

Kiosk #	Commissions (ZMK)
1	8000
2	12600
3	8000
4	69800 (\$20.33)
5	7000 (\$2.04)
6	0
7	0
8	20650
9	0
Total Sales	126050 (\$36.72)
RDC (5%)	6302 (\$1.84)
Total Commissions	50420 (\$14.68)

Itimpi

Figure 10.4

Itimpi: Sales & Commission: November 2007

Kiosk #	Commissions (ZMK)
1	8600 (\$2.28)
2	91000
3	294000 (\$77.82)
4	237000
5	37000
Total Sales	667600 (\$176.70)
Kiosk #	Commissions (ZMK)
1	3440 (\$.91)
2	36400
3	117600 (\$31.13)
4	94800
5	14800
Total Commissions	267040 (\$70.68)
RDC (5%)	33380 (\$8.83)
	Source: NWSC

Figure 10.5

Itimpi: Sales & Commissions: February 2008

Kiosk #	Commissions (ZMK)
1	0
2	0
3	23840 (\$6.17)
4	35000 (\$9.06)
5	0
Total Sales	58840 (\$15.23)
Kiosk #	Commissions (ZMK)
1	0
2	0
3	9536 (\$2.47)
4	14000 (\$3.62)
5	0
Total Commissions	23536 (\$6.09)
RDC (5%)	3092 (\$.80)
	Source: NWSC

Kiosk Figures

Figure 10.6

Mulenga: Sales at Kiosk A: December 3, 2007 - January 3, 2008

Date	Sales (ZMK)
December	
3	2050
4	3000
5	3050
6	3000
7	2200
8	1400
9	1200
10	2000
11	2350
12	3100
13	4050
14	2600
15	2200
16	3250
17	1250
18	2200
19	1250
20	2200
21	3150
22	2250
23	0 (No water in system 23 rd -26 th)
24	0
25	0
26	0

27	3100
28	1150
29	2000
30	1250
31	2600
January	
1	0 (Closed)
2	150
3	300
Total Sales	58300 (\$15.10)
Total Commissions	23320 (\$6.04)
	(Source: Vendor Records)

Figure 10.7

Mulenga: Vendor Sales at Kiosk B: January 17 – February 17, 2008

Date	Sales (ZMK)
January	
17	600
18	1000
19	300
20	550
21	400
22	700
23	250
24	900
25	600
26	500
27	450
28	300

29	800
30	900
31	550
February	
1	350
2	150
3	1200
4	250
5	450
6	350
7	500
8	350
9	250
10	300
11	450
12	500
13	250
14	150
15	350
16	850
17	650
Total Sales	16150 (\$4.33)
Total Commissions	6460 (\$1.73)
	(Source: Vendor Records)

Figure 10.8

Mulenga: Sales at Kiosk C: March 11-April 11, 2008

Date	Sales (ZMK)
March	
11	50
12	500
13	250
14	300
15	200
16	0
17	400
18	200
19	200
20	300
21	550
22	250
23	0
24	950
25	250
26	350
27	350
28	100
29	500
30	0
31	2250
April	
1	100
2	0
3	0

4	0
5	350
6	350
7	400
8	500
9	550
10	450
11	750
Total Sales	11400 (\$3.31)
Total Commissions	4560 (\$1.32)
	(Source: Vendor Records)

Figure 10.9

Mulenga: Sales at Kiosk D: March 16 – April 16, 2008

Date	Sales (ZMK)
March	
16	0
17	250
18	100
19	150
20	100
21	50
22	150
23	150
24	50
25	100
26	0
27	150
28	100

29	50
30	50
31	450
April	
1	250
2	400
3	350
4	200
5	150
6	300
7	150
8	250
9	200
10	250
11	700
12	250
13	300
14	150
15	200
16	250
Total Sales	6250 (\$1.83)
Total Commissions	2500 (\$.73)
	(Source: Vendor Records)

Figure 10.10

Mulenga: Monthly Sales & Commissions for Kiosk D: December, 2007-August, 2008

Commissions			
Date	Sales	(ZMK)	(CDN\$)
April 15*	71000	28400	7.68
September 24	67200	26880	7.26
October 7	23000	9200	2.49
November 12	37600	15040	4.06
December 7	158050	63220	17.09
February 29	21000	8400	2.27
April 7	14500	5800	1.57
August 15	20450	8180	2.21
August 30	30700	12280	3.32

*Dates are unreliable.

11.0 APPENDIX D: KIOSK CONSUMPTION

Figure 11.1: Average Daily Container Consumption* (One Kiosk, Mulenga)

Month	Per Household (# of Containers)	Per Person (# of Containers)
July	.69	.12
August	.89	.15
September	1.3	.22
October	1.7	.28
November	1.3	.22
December	.77	.13
January	.48	.08
February	.47	.08
March	.41	.07
April	.41	.07
May	.38	.06
June	.39	.06
July	.43	.07

* Based on an assumption of 1200 people per kiosk and 6.0 people per household.

12.0 APPENDIX E: INTERVIEW GUIDE: KIOSK USERS

Background information on participant/household

Do you buy water from the Water and Sewerage Company kiosks? (NOTE: may not be every day, but at least sometimes – assistants may need to clarify it does not have to be every day).

Why or why not? (Let them answer; keep in mind: clean taps, organised collection, shorter collection time/distance, cheaper than other sources, affordability/price, quality (clean) water, quantity available, social aspects of collection at the kiosk or at other sources).

How often do you buy water from the kiosk (every day, several times per week?) Why or why not every day? (May include reliability, hours of operation, affordability, vendor absence, distance from home, other).

How many containers do you buy from the kiosk?

Where else do you get water? (Does this change with season?)

Do you get more water from the kiosk in the dry season? Why/why not? How does the kiosk affect you in the dry season?

Before the kiosks were set up, where did you get your drinking/cooking water? Do people still use these sources? Why did you change sources?

How many people live in your home/dwelling?

What are their ages? (Seeking # children under 5)

Have they all lived here for more than 15 days out of the last 30 days?

Are you employed? (i.e. receive a paycheque). How many people work in your household? What are their jobs? (Are there any that cannot work such as a sick or elderly person)?

General Questions about Water Access and Use

(See the table attached for recording answers)

Do you use water to make things to sell? (I.e. production – brick-making, tanning, growing vegetables)

If so, do you use kiosk water for this?

Do you have a garden? (Do you sell vegetables from your garden?)

Kiosks

What do you use kiosk water for? *Why not for other uses?*

What do you think of the water kiosk service/water?

Why don't you use kiosk water for everything? (Let them answer; keep in mind: is affordability the only reason? Or, are there other reasons – i.e. don't worry about health impacts of using well water for other uses).

Do you have any complaints about the kiosk service/water/"experience"?

What do you like about the kiosk? (Let them answer; keep in mind: clean taps, organised collection, shorter collection time/distance, cheaper than other sources, affordability/price, quality (clean) water, quantity available, social aspects of collection at the kiosk or at other sources).

Is there anything you would change about the kiosk service/water/"experience"? If this were changed - i.e. if more kiosks were put in - would you use it more? Why/why not?

Quality of service:

Quality:

How would you describe the water service from the kiosk:

Water quality: (i.e. taste, colour, "dirty", odour?)

Quantity:

Water quantity: How much do you get from the kiosk each day?

Would you like to get more water from the kiosk? If so, why don't you? (Let them answer; keep in mind: distance from source, time to collect, affordability). Does this change with season? Why?

Are you able to meet all of your needs with the kiosk water? Why or why not?

If you don't get all of your water from the kiosk, why?

Distance:

Distance to source: How far is the kiosk from your home? Is this a good distance? Why or why not? Would you like it to be closer?

Reliability:

Reliability of source: Outages? How often? How does this affect you?

: Low pressure? How often? How does this affect you?

: Vendor absence

: If you go to the kiosk and the doors are open and the vendor isn't there, do you ever leave and not buy water? Is it often that the vendor is not there?

: Does this change in rainy/dry season?

Hours of operation:

When is the kiosk open/closed? Is this convenient for your lifestyle? Would you prefer to have access at other times of the day (i.e. later or earlier than 18 or 6)?

Queues:

Is there ever a queue? Of how many people? How long does it take to get through the queue?

How much time do you spend getting water from the kiosk? (Consider wait times in kiosk lines, distance from home).

Can you tell me what the operating standards are for the kiosks?

Other Sources

Do you get all of the water you need from the kiosk or do you get it from other sources (water company, alternative providers, boreholes, shallow wells, neighbours, other sources).

Why do you use other sources?

Can you tell me how many containers you get from each source every day?

How much does water cost at each source? (I.e. what do your neighbours charge?). Is this per container, per day, per month?

* Why do you use each source? (Let them answer; keep in mind: lack of other sources, perceived quality (i.e. “clean”, taste, odour, colour, dirty), time to collect, effort needed for collection, affordability/price, the route to the source, distance to source, reliability, or other people who use the source).

How would you describe the water from each source:

Water quality: (i.e. taste, colour, odour?)

Water quantity:

How much water do you get from this source?

Are you able to meet all of your needs with these sources and the kiosk water?

How much water do you need? (I.e. in terms of the number of containers they use).
Would you like to use more water, or is this enough?

Distance to source:

How far is this source from your home? Is this a good distance? Why or why not?

Reliability:

Reliability of source: Outages? How often? How does this affect you?

: Can you get water whenever you want from this source?

: Low pressure? How often? How does this affect you?

: Vendor absence

: Does this change in rainy/dry season?

Hours of operation:

What are the hours of operation? Is this convenient for your lifestyle? Would you prefer to have access at other times of the day?

Queues:

Are there ever queues at this source? How long do you wait in line? Does this change at different times of the day? With different seasons?

Do you have any complaints about this source?

What is most important to you when deciding which source to use?

Social :

Do you meet your friends when you go to get water? Is this part of your daily routine?

Does this influence whether you go to the well or to the kiosk?

Kiosk: Affordability

Do you buy water from the kiosk every day? Why/why not?

Are you able to buy **all** of your drinking and cooking water from the kiosk? **Why/why not?** (Let them answer; keep in mind: reliability of supply (i.e. frequency of outage, hours of operations), affordability, distance to kiosk, etc.).

How much do you pay for water at the kiosk?

Do you think the price at the kiosk is good? Why/why not?

Does the price at the kiosk ever change?

Are you able to afford all of the water you want from the kiosk at this price?

How much does the water at the kiosk cost? Does this price ever change? Are you able to afford as much water from the kiosk as you need? (I.e. for all uses).

Does your main job allow you to buy the all of the water you want from the kiosk?

If you didn't have a well, could you buy all of the water you need? (Would you like to buy more at the kiosk? If so, why don't you?).

Would you prefer to pay for water all at once (per month if the option is available) or buy it by the container? Why or why not?

Do you know of anyone who is not buying their water at the kiosk?

Why do you think these people are not using the kiosks? (Let them answer, then ask: unaffordable, awareness of the kiosk, health/water link, belief).

Do you know of anyone who is unable to afford the water at the kiosk?

Monitoring

Utility

Have you ever seen an inspector from the utility?

Have they ever asked your opinion about the service at the kiosk?

Have you ever complained to the utility? Why/why not?

Have you ever seen reports from the utility about the kiosk system?

Vendor

Has the vendor ever asked your opinion about the kiosk service/water?

Have you ever placed a complaint with the vendor?

Have you heard others complain to the vendor? What did they complain about? Did the problem get fixed?

RDC

Have you ever complained to the RDC about the kiosk? (When?) Why/why not?

Why don't you complain?

Do you know how to place a complaint?

Do you know who the RDC members are in your community? Do you know how to contact them?

Would you feel comfortable complaining to the Utility or the RDC? Why/why not?

Do you have opportunities to complain?

If you did would you?

Do you vote? How do you decide who to vote for? (I.e. on the basis of public service provision). Did your candidate win last time? Did you see changes you were looking for?

"Trade-offs?"

Health

Has anyone been sick with diarrhoea or malaria in the last two weeks? If so, did you take them for medical treatment? Why or why not? Where? What clinic do you usually use?

How much did you pay at your last visit to the clinic?

How often have you taken someone to the clinic in the last six months/year?

Has there been a time when someone in your household has been sick and you have been unable to take them to the clinic? Why?

Education

Do your children go to school? Why/why not? How much do you pay for school?

Food

How often do you eat in a day? Why? Would you prefer to eat three meals per day or is two enough?

What do you eat? How much do you spend on food each day?

Education/Health Issues

Do you boil your drinking water?

Do you add chlorine to your water?

Has anyone added chlorine to your water? Who? When? How often?

Do you know why you should drink and cook with clean/treated water? Please tell me why. How do you know this?

Has the utility ever taught people about the importance of drinking and cooking with clean water? When? How often have you seen this?

Is your well water clean? How do you know? Does anyone add chlorine to your well?

Do you wash your hands? When? How often?

Are you able to bath every day?

How often do you wash your clothes?

Where do you keep your drinking/cooking water at home? Is it covered? How do you get water out of the container? Do you wash your hands before you do?

Do you clean your storage containers? With what? How many times in a week? Do you clean them at the kiosk? Can you buy/get a cup of water at the kiosk to clean your container?

“Attitude”

Do you know why you pay for water?

Do you think you *should* pay for water? Why or why not? (Let them answer; keep in mind: water from God, human right, government responsibility, need to collect money for the company, water service costs money, free water = poor service, other).

Does paying for water bother you and affect your use of the kiosk?

Do you know where the money that you pay for water goes?

Would you be willing to pay more for water at the kiosk? If so, how much?

Do you drink Coke or Fanta? Why? How often?

Why are you willing to pay more for Coke/Fanta than for water?

I have heard that some people have been paying 50-100kw/20litres because they think the price is too low? Would you be willing to pay more for the water at the kiosk? Why or why not? If so, how much?

Is there anything you would change about the kiosk service/water/”experience”? If so, have you told anyone?

Community Participation

Do you remember when the kiosks were built?

Before and during the operation of the kiosks, do you know of anyone in your community that had a chance to provide input on how to get water to the community or on the kiosks themselves? How did this happen?

Did you provide input?

Did you say you would use the kiosk? Did you say how much?

Does anyone from the utility come now?

Do you feel that you would have had the chance to express your opinion had you wanted to? Why or why not?

Would you have done something different than what was done?

Does this affect why you use/don't use the kiosk?

Do you feel that the kiosk you use is “your” kiosk? (I.e. Sense of ownership)

Do you know of anyone in your community that had a chance to provide input on how to get water to the community or on the kiosks themselves? Do you remember the opinions that people expressed at the initial meetings?

When the kiosks were brought, did you think you would buy more containers than you do now? Did you buy more when they were first built? Why did this change? For what uses did you think at that time?

Vendors

Do you always pay the vendor when you buy water? Why/why not?

Do you buy items other than water at the kiosk? How often (i.e. in a week)? Do you know of people who do?

Conclusion

Do you have anything else you would like to say about your current access to/sources of drinking water or the water kiosks?

Are you happy with the water kiosk service/water? Why/why not?

13.0 APPENDIX F: INTERVIEW GUIDE: KIOSK VENDORS

Background information

Age range, gender, and code V#

Do you have another job?

Length of service in the kiosk (and with NWSC kiosks in general)?

Why did you become a vendor?

Are you happy with your job at the kiosk? Why or why not?

How did you get chosen for the job? (I.e. recruitment for trainees).

Did you receive training for your job? If so, when and what did you learn about?

How long has this kiosk been here?

Are you the contractor?

How often do you turn in your sales?

Are you always able to turn the money collected from the kiosk in to the NWSC on time? Why or why not? What happens if you do not turn the revenue in?

Do you ever have to leave the kiosk during hours? If you do, does the kiosk close or does someone replace you? Who?

What is your job here at the kiosk? (Let them answer; keep in mind: selling water, cleaning of the kiosk – ask how often they clean the kiosk after they respond).

Is there someone from the Utility stationed here in the compound every day?

Kiosk Business

Can you tell me how your income is determined at the kiosk?

Do you know exactly how much your pay will be when you turn in your meter readings if it is 40% of sales? Why or why not?

When do you get paid? Are you paid on time, every time?

Why do you sell additional items here? (Let them answer; keep in mind: entrepreneurial spirit, recommended by a friend, requirement of the Utility)

How do you decide what items to sell?

Did you have to buy the inventory/items to sell with your own money? How did you manage to do this?

How many items do you sell from the kiosk each day?

How do you set your prices?

How much extra revenue do you earn from sales of other items?

How much money do you make here? (From water; from goods).

Kiosk water services and alternative sources

Where do people get their water? (Seek also locations if the vendor or someone is willing to show you the alternative sources so that testing may be done).

Does everyone buy water from the kiosk? Why or why not? (i.e. vendor absence, lack of other sources, perceived quality (i.e. “clean”, taste), time to collect, effort needed for collection, affordability/price, the route to the source, distance to source, reliability or other people who use the source (social aspects of water collection)).

What do people use the water at the kiosk for?

Can you estimate how many containers of water you sell each day? Do you record these numbers? Can I see them? (copy them if given permission)

Have any wells been buried in the compound? If so, why?

What are the hours of operation of the kiosk? How long are you open in the day? Do these hours sometimes change? If so, why?

How often has water been unavailable at the kiosk in the past 2 weeks (i.e. due to system failure)? Why? Is this usual? Why has it been unavailable? (I.e. water system outage, power outage, etc.).

Have you had to take another job to make up for the losses due to water outages?

Costs/Affordability

How much does it cost for a bucket of water at the kiosk? Is the same for all container sizes (i.e. 12 l, 20 l, 30 l, or 200 l)? How much do the other sizes cost?

Does the price ever change?

Has anyone ever paid you more for a 20l container of water?

Do people always pay you immediately?

Do children and the elderly buy water from the kiosk?

Do you know of people who cannot afford to buy water from the kiosk?

Do you think they would be willing to talk to me?

Do you know of anyone who is not buying their water at the kiosk for other reasons?

Why do you think these people are not using the kiosks? (Let them answer; then ask: unaffordable, awareness of the kiosk, health/water link, quality of service (what aspects?), beliefs (human right/government service)).

Do you sometimes give water to people for free? (i.e. elderly and children, if someone has died).

Do you give people free water to drink at the kiosk?

How do you know how much water per month is okay to give away (i.e. how is the wastage allowance determined)? How do you minimize wastage?

Do they bring their own cups?

Do they use the cup here at the kiosk? How many people use it per day? Do you rinse the cup after each person? (Take note of people drinking from the cup and any rinsing while the interviews are conducted).

Do you know how to give water to people who cannot afford it? (Let them answer; keep in mind: wastage allowance; Ministry of Social Welfare process). Are there elderly people who get all of their water needs for free from the kiosk? Is so, how does this happen (i.e. the process)?

Do children buy water? Or can they get it for free? (i.e. orphaned children, or someone indicated children under 12 cannot buy water from the kiosk because of their physical size – is this the case for this kiosk vendor?).

Attitude

(Related to suggestion that people able to afford but unwilling to pay)

Do you think your customers are happy with the service from the kiosk? Why do they like/dislike the service? Do they have any complaints?

Do you think you should pay for water? Why or why not? (Let them answer; keep in mind: beliefs, human rights, government service, need to collect money for the company, water service costs money, free water = poor service, and/or other).

Do you think the price of kiosk water is good? Why or why not?

Do people ever complain about price? If so, what do they say and when do they complain?

Would you change the price? Why/why not?

Do other people mind paying for water? Why or why not? (Let them answer; keep in mind: government is responsible, affordability, water as a human right, other beliefs, see above)

Do you have change for people? Where do you get it?

Do you ever hear that water should be free because it is a government responsibility? Often?

Do you ever hear that water should be free because it comes from God? Often?

Would you be willing to pay more for the water at the kiosk? Why or why not?

Do you think all of your customers would be willing to pay more for the water at the kiosk? Why or why not?

What is the process for customers to make complaints if they have a problem with the kiosk service or water?

Education/Health

Do you know why you should drink clean/treated water? Please tell me why.

Do you ever teach people about the benefits of clean water from the kiosk? If so, how often?

How often does someone teach residents about the need to drink clean water? Who does this? How do they do this? How often?

Are people allowed to clean their storage containers at the kiosk? Do you give or sell them a cup of water to clean their containers? If so, do you use the same cup used for drinking at the kiosk?

Do you sell supplies for cleaning containers?

Do you ever report illegal connections or other practices that might interfere with sales at the kiosk?

Monitoring

Is there a kiosk supervisor that visits? Name?

Was there ever a supervisor?

Who monitors the kiosk? What is their job? Do they visit regularly? (I.e. NWSC or RDC).

Does someone inspect your kiosk? What do they look for?

Does someone test the water at the kiosk? How often? Do you know what they test for?

Have there been repairs to the kiosk since it was set up? Does it need any work now?

What is the process for making complaints about broken pipes or interrupted service (i.e. as a result of broken pipes or outages not related to ZESCO?)

Have you ever made a complaint? If so, did the Utility send someone to fix it? How long did it take for them to come and/or fix the problem?

While monitoring, have you ever seen the monitor ask people about the service?

Are you ever asked by the Utility for your opinion about the service? Do you have to complete reports? Can you provide feedback to the Utility?

Are you happy with the utility?

Community Participation

Before and during the operation of the kiosks, do you know of anyone in your community that had a chance to provide input on how to get water to the community or on the kiosks themselves? How did this happen?

Income

Do you make enough money at the kiosk to pay for rent, food, etc.?

Do you ever have to borrow money from the kiosk to pay for food, rent, etc.?

How much money did you expect to make when you started working here?

Are you happy with your job at the kiosk? Why or why not?

Vendor purchases from the kiosk & quality of service

Do you purchase water from the kiosk? Why or why not? If so, how much? What do you use it for?

How would you describe the water service from the kiosk:

Water quality: (I.e. taste, colour, odour?)

Water quantity: How much do you get from the kiosk each day? Would you like to get more water from the kiosk? If so, why don't you? Does this change with season? Why? Are you able to meet all of your needs with the kiosk water? Why or why not?

Distance to source: How far is the kiosk from your home? Is this a good distance? Why or why not? Would you like it to be closer?

Reliability of source: Outages? How often? How does this affect you?
: Low pressure? How often? How does this affect you?

Hours of operation: Convenient for your lifestyle? Would you prefer to have access at other times of the day?

How much time do you spend fetching water each day? (Consider wait times in kiosk lines, distance from home).

How much water do you need? (I.e. in terms of the number of containers they use).
Would you like to use more water or is this enough?

Can you purchase water from the kiosk everyday? If not everyday, why not? (i.e. reliability, hours of operation, affordability).

Are you able to buy **all** of your drinking and cooking water from the kiosk **every day**?
Why/why not? (Let them answer; keep in mind: reliability of supply (i.e. frequency of outage, hours of operation), affordability, other reasons for non-use).

Would you like to get more water from the kiosk? If so, why don't you? Does this change with season?

Are you able to afford as much water from the kiosk as you want? Need? (I.e. for all uses).

Do you have any complaints about the kiosk service/water/"experience"?

What do you like about the kiosk? (Let them answer; keep in mind: clean taps, organised collection, shorter collection time/distance, cheaper than other sources, affordability/price, quality (clean) water, quantity available, social aspects of collection at the kiosk or at other sources, other).

Is there anything you would change about the kiosk service/water/"experience"?

Why do you think people are not using the kiosk more?

Final questions about vendor presence

What is the incentive to stay at your kiosk at all times?

Are there penalties for not being at your kiosk or closing during operating hours?

Do you ever receive reports, notices, or feedback from the utility?

Do you know how to contact the Utility?

Do you know how to contact the RDC?

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