

DELEGATED WATER SUPPLY MANAGEMENT

Case studies from Lilongwe and Blantyre

by

Klaus Sattler

A research project report submitted in partial fulfilment
of the requirements for the award of the degree of
Master of Science
of Loughborough University

AUGUST 2011

Supervisor: Kevin Sansom, BSc, MSc, CEng, MICE

Water, Engineering and Development Centre
Department of Civil and Building Engineering

Acknowledgements

First, I would like to thank my supervisor Kevin Sansom for support in the preparation of the field study and for guidance and relevant advices throughout the whole project.

My special thanks go to all people in Malawi who provided valuable information for this research. I particularly want to thank Wellington Mitole from WaterAid Malawi, Edward Kwezani from the Lilongwe Water Board and Ephrone Mwenitete and Joseph Magoy from Water for People Malawi, who in addition to sharing their knowledge provided essential support in the identification of key stakeholders and facilitated the field research. I am very grateful for the contributions of all people involved in kiosk management, all kiosk attendants and every single kiosk customer.

Finally, I want to thank my family and friends for all their support throughout the whole scholastic year.

Table of Contents

1	INTRODUCTION	1
1.1	BACKGROUND TO THE RESEARCH	1
1.2	RESEARCH TOPIC	2
1.2.1	<i>Focus on Malawi</i>	2
1.2.2	<i>Focus on delegated water management</i>	3
1.3	RESEARCH AIM AND OBJECTIVES	4
1.4	LIMITATIONS OF THE STUDY	5
1.5	REPORT STRUCTURE	6
2	LITERATURE REVIEW	8
2.1	INTRODUCTION	8
2.2	LITERATURE REVIEW METHODOLOGY	8
2.3	DEFINITION OF KEY TERMS	10
2.3.1	<i>Beneficiaries of water supply regarded in this study</i>	11
2.3.2	<i>Service providers regarded in this study</i>	12
2.4	THE DELEGATED MANAGEMENT APPROACH	14
2.5	MANAGEMENT MODELS FOR WATER SERVICES IN POOR URBAN AREAS	16
2.6	SUPPORT AND REGULATION OF ALTERNATIVE PROVIDERS	22
2.6.1	<i>Engagement with alternative providers</i>	22
2.6.2	<i>Regulation</i>	24
2.6.3	<i>Support</i>	29
2.7	SERVICE DELIVERY OPTIONS	30
2.8	EXPERIENCES WITH DIFFERENT DELEGATED MANAGEMENT MODELS	34
2.8.1	<i>Outline of existing delegated management models</i>	36
2.8.2	<i>Performance of different delegated management models</i>	42
2.8.3	<i>Lessons learned</i>	46
2.9	CONCLUDING COMMENTS	50
3	METHODOLOGY	53
3.1	BACKGROUND OF THE STUDY	53
3.2	THE CHOICE OF LILONGWE AND BLANTYRE	53
3.3	RESEARCH STRATEGY	54
3.4	DATA COLLECTION METHODS	56
3.4.1	<i>Documentation</i>	57
3.4.2	<i>Observation</i>	57
3.4.3	<i>Semi-structured interviews</i>	57

3.4.4	<i>Focus group discussions</i>	58
3.5	SAMPLING	59
3.6	DATA ANALYSIS	61
3.7	MAJOR CHALLENGES AND LIMITATIONS	62
3.8	ETHICS	64
3.9	VALIDITY OF THE STUDY	64
4	FINDINGS FROM THE FIELD WORK	66
4.1	PRESENTATION OF THE CASE STUDY	66
4.1.1	<i>Local context</i>	66
4.1.2	<i>Situation of water supply</i>	67
4.1.3	<i>The background of delegated kiosk management</i>	70
4.2	RESULTS FROM THE CASE STUDY	71
4.2.1	<i>Stakeholders and responsibilities</i>	71
4.2.2	<i>Service delivery options</i>	74
4.2.3	<i>Kiosk management models</i>	75
4.2.4	<i>Tariffs and prices</i>	80
4.2.5	<i>Support and regulation of service providers</i>	84
4.2.6	<i>Performance of alternative service providers</i>	87
4.3	PERSPECTIVES ON STRENGTHS AND WEAKNESSES OF DIFFERENT DMMS	94
4.4	CHAPTER SUMMARY	96
5	ANALYSIS AND DISCUSSION	98
5.1	MANAGEMENT ASPECTS	100
5.1.1	<i>The delegated management model in Lilongwe and Blantyre</i>	100
5.1.2	<i>Relevance of appropriate management models</i>	102
5.1.3	<i>Review of management models</i>	102
5.2	TECHNICAL AND FINANCIAL ASPECTS	106
5.3	SUPPORT AND REGULATION FOR ALTERNATIVE PROVIDERS	109
5.3.1	<i>Support</i>	109
5.3.2	<i>Regulation</i>	111
5.4	CHAPTER SUMMARY	115
6	CONCLUSIONS AND RECOMMENDATIONS	116
	LIST OF REFERENCES	120
	LIST OF APPENDICES	125

List of figures

FIGURE 1.1: MAP OF RESEARCH LOCATION.....	3
FIGURE 2.1: LINEAR FASHION IN INCREASING FOCUS AND DETAIL	10
FIGURE 2.2: LINEAR ANALYSIS OF RESEARCH TOPIC IN INCREASING FOCUS AND DETAIL.....	10
FIGURE 2.3: RELATIONSHIP BETWEEN THE UTILITY, SERVICE PROVIDER AND CONSUMERS	17
FIGURE 2.4: DELEGATED MANAGEMENT WITH AND WITHOUT A SUPPORT INSTITUTION	21
FIGURE 2.5: POSSIBLE REGULATORY INTERVENTIONS FOR ALTERNATIVE PROVIDERS	25
FIGURE 2.6: RISKS AND CHALLENGES IN REGULATORY INVOLVEMENT WITH ALTERNATIVE PROVIDERS.....	29
FIGURE 2.7: KIOSK WITH STORAGE TANK	31
FIGURE 2.8: WATER PRICES BY TYPE OF SERVICE PROVISION.....	34
FIGURE 2.9: THE BOUNDARIES OF SERVICE EXTENSION	35
FIGURE 2.10: LEVELS OF DELEGATED WATER SUPPLY MANAGEMENT	37
FIGURE 2.11: NETWORK DESIGN AND FINANCIAL FLOWS IN NYALENDA, KISUMU, KENYA	40
FIGURE 2.12: NETWORK DESIGN IN IN INFORMAL SETTLEMENTS OF OUAGADOUGOU.....	41
FIGURE 2.13: WATER METER CHAMBER, MUKURU, NAIROBI	41
FIGURE 2.14: COMPARATIVE WATER PRICE FROM HOUSEHOLD CONNECTION VS. FROM STANDPIPE	43
FIGURE 2.15: FORMAL AND INFORMAL STANDPIPE PRICES	44
FIGURE 2.16: MAIN FACTORS FOR SUCCESSFUL DELEGATED MANAGEMENT MODELS.....	49
FIGURE 3.1: SNOWBALL SAMPLING IN LILONGWE AND BLANTYRE	60
FIGURE 4.1: POPULATION GROWTH IN LILONGWE AND BLANTYRE	67
FIGURE 4.2: WATER SUPPLY AREAS OF LILONGWE AND BLANTYRE	68
FIGURE 4.3: SOURCES OF WATER IN LILONGWE AND BLANTYRE LOW-INCOME AREAS	68
FIGURE 4.4: STRUCTURE OF THE KIOSK MANAGEMENT UNIT	72
FIGURE 4.5: NDIRANDE LOW-INCOME AREA, BLANTYRE	78
FIGURE 4.6: ORGANISATIONAL STRUCTURE OF WATER USERS' ASSOCIATIONS	80
FIGURE 4.7: AVERAGE WATER TARIFFS PER CUSTOMER CATEGORY	81
FIGURE 4.8: SALES REVENUE PER CUSTOMER CATEGORY	81
FIGURE 4.9: WATER PRICES AND TARIFFS FROM KIOSK OPERATORS AND HOUSEHOLD RESELLERS.....	83
FIGURE 5.1: MAIN FACTORS FOR SUCCESSFUL DELEGATED MANAGEMENT MODELS	98
FIGURE 5.2: LEVELS OF DELEGATED WATER SUPPLY MANAGEMENT.....	99
FIGURE 5.3: RELATIONSHIP BETWEEN UTILITY, PROVIDER, SUPPORT INSTITUTIONS AND CONSUMERS	101
FIGURE 5.4: KIOSK MANAGEMENT MODELS IN LILONGWE AND BLANTYRE	101
FIGURE 5.5: ORGANISATIONAL STRUCTURE OF WUAS	104

List of tables

TABLE 1.1: RESEARCH QUESTIONS AND CORRESPONDING SECTIONS	5
TABLE 2.1: TYPES AND LEVELS OF GOVERNMENT ENGAGEMENT WITH WATER AND SANITATION NSPS.....	23
TABLE 2.2: REGULATION RESPONSIBILITIES OF DIFFERENT STAKEHOLDERS IN MAPUTO	28
TABLE 2.3: MAIN ADVANTAGES AND DISADVANTAGES OF DIFFERENT SERVICE OPTIONS	33
TABLE 3.1: RELEVANT SITUATIONS FOR DIFFERENT RESEARCH STRATEGIES.....	55
TABLE 3.2: CHALLENGES ENCOUNTERED DURING THE RESEARCH AND LIMITATIONS OF THE STUDY.....	63
TABLE 4.1: LIST OF WUAs AND RESPECTIVE KIOSK NUMBERS IN LILONGWE.....	76
TABLE 4.2: LIST OF WUAs AND RESPECTIVE KIOSK NUMBERS IN BLANTYRE.....	77

List of boxes

BOX 2.1: REGULATORY FRAMEWORK IN MAPUTO.....	28
BOX 2.2: PRE-PAID SYSTEMS AND STORAGE TANKS	31
BOX 4.1: REQUIREMENTS TO IMPROVE THE OPERATION OF WUAs.....	90
BOX 4.2: CONSIDERATIONS IN CHOOSING MANAGEMENT OPTIONS	97

List of pictures

PICTURE 2.1: PRE-PAID STANDPOST WITH TOKENS	31
PICTURE 3.1: INTERVIEWED MEMBERS OF WUA KAUMA, LILONGWE	58
PICTURE 3.2: INTERVIEWED KIOSK ATTENDANT, WUA KAUMA, LILONGWE	58
PICTURE 3.3: PARTICIPANTS OF FOCUS GROUP DISCUSSION, LILONGWE	59
PICTURE 4.1: KIOSK (OLD STANDARD) WITH METER	72
PICTURE 4.2: NEW KIOSK WITH SUPERSTRUCTURE, NKOLOKOTI WUA, BLANTYRE	92
PICTURE 4.3: KIOSK WITH STORAGE TANK, KDA, BLANTYRE.....	93

List of abbreviations

BWB	Blantyre Water Board
CBO	Community Based Organisation
CICOD	Circle for Integrated Community Development
DMM	Delegated Management Model
HDI	Human Development Index
HVP	Hygiene Village Project
KDA	Kabula Development Association
KMU	Kiosk Management Unit
LWB	Lilongwe Water Board
MP	Member of Parliament
MWK	Malawian Kwacha
NGO	Non Governmental Organisation
NRW	Non-Revenue Water
NSPs	Non-State Providers
NWDP II	Second National Water Development Project
PPPs	Public Private Partnerships
SSIPs	Small-scale Independent Providers
SWEs	Small Water Enterprises
TSP	Training Support for Partners
UNICEF	United Nations Children's Fund
WFP	Water for People
WUA	Water User's Association
WSP	Water and Sanitation Program

Glossary of terms used¹

Alternative provider: A service that is alternative to the main one provided by the utility.

Delegated management models: This term is used to describe the organisational set-up of the respective delegated management system, i.e. water supply through a CBO, private individual, private agency, etc.

Delegated water supply management: The approach of water utilities to hand over water supply management to alternative providers. These providers might be given the responsibility to manage kiosks-only or sub-networks in an assigned area.

Delegates: Alternative providers who are given responsibility for water supply management.

Independent providers: Alternative providers that are not connected to the utility network.

Intermediate providers: Alternative providers that 'mediate' between the utility and the users. They purchase water in bulk from the utility and retail to their own customers.

Kiosk-only delegated management models: Water kiosks not owned or managed by the utility but by a private or civil society actor. The utility remains responsible for the network management up to the kiosks.

Service delivery options: This term is used to describe technical options of water delivery regardless of the management type, e.g. household connection, standpost, etc.

Sub-network delegated management models: A local network not owned or managed by the utility but by a private or civil society actor. The sub-network providers usually provide water via household connections and/or kiosks.

Types or levels of delegated management: This term refers to the general options of sub-network or kiosk-only management delegation.

¹ There is no definitive usage of the described terms in the water sector. It was thus tried to use them in accordance with the general literature and particularly with WUP (2003).

1 Introduction

1.1 Background to the research

Despite the general improvements in urban water supply in many developing cities of the world, the achievements of the last fifteen years are under pressure by an enormous and on-going urban population growth. It is especially the low-income areas, the so-called 'slums', that expand at the outskirts of many cities and metropolises. An overall improvement in water supply coverage can often mask the generally poor provision of public services found in these areas. Political reasons, illegal or unclear land tenure status, lack of motivation and skills, little financial incentives and technical difficulties due to topography or housing density all contribute to the difficulties utilities experience in bringing services to the urban poor. With an estimated increase in urban population in developing regions by 1.9 billion between 2000 and 2025 (WHO/UNICEF, 2000), improvements in peri-urban water supply are essential.

In many developing cities, the disparity in water provision to low-income areas has been filled by alternative providers, who often have a substantial share of the water market. Besides their importance in water supply in these areas, problems such as increased prices, unreliable services or unknown water quality are often experienced. Recently, utilities in several developing cities have endeavoured to establish formal relationships with alternative providers, in an attempt to extend improved water services to the low-income and hard-to-reach areas. The existing approaches involve many different management models and range from simple recognition of such providers, the handover transfer of kiosk management and more recently to delegating management for sub-networks.

Although there have been some promising achievements, delegated water supply management is a relatively new approach and more needs to be learned and understood to ensure improvement and sustain progress. The information available so far is based on individual cases, and little is known about how such partnerships can work effectively to become an alternative model for service provision in peri-urban areas. Thus, in-depth and differentiated cross-country research is needed to draw more definitive conclusions

on the effectiveness of different management models under different conditions and different management responsibilities. (Keener *et al.*, 2010, p.16; Schwartz, 2010, p.766)

Based on this gap in knowledge, it was the author's intention to extend the understanding of this relatively new but increasingly important topic. In the near future, the number of utilities setting up delegated management models (DMMs) is likely to increase, and existing models develop further to more complex arrangements. To increase the potential for success of such models, decisions on their set-up must be based on sound information of what works. Therefore, it was the aim of the author to provide a comprehensive and differentiated study on the requirements of delegated management models, effective under different arrangements and circumstances. Due to the early stage of development of this broad topic, it may be beyond the scope of this study to give definite answers, but, at the very least, it can initiate and lead the direction of future research.

1.2 Research topic

1.2.1 Focus on Malawi

Malawi is a landlocked country in South-eastern Africa (Figure 1.1) and one of the 20 poorest countries in the world, with over 40 per cent of the population living on less than a dollar a day. (US AID, 2010). It currently ranks at number 153 out of 169 countries in the HDI index (UNDP, 2010). 80% of the 13.1 million inhabitants live in rural areas and depend largely on rain-fed agriculture. However, it is also one of the most urbanising countries in Africa with an urban growth rate of 6.3% per annum. The result of this development is a rapid increase in urban poverty and the expansion of slums around the biggest cities. In 2005, 1.86 million people or close to 90% of Malawians in urban areas lived in slum conditions, a number which continues to rise with a slum growth rate of about 3.9 per cent. The vast majority of the urban population live in the two biggest cities of Lilongwe and Blantyre with more than one million inhabitants each (UN Malawi, 2011). The challenges the water utilities face in both cities to provide adequate services to the low-income areas and the increased importance for improvements due to the rapidly growing poor population were major reasons to focus this study on the Malawian cities Lilongwe and Blantyre.



Figure 1.1: Map of research location

Source: adapted from Mapcruzing, 2008

1.2.2 Focus on delegated water management

The motivation to conduct this research can be traced back to the PhD thesis of Ndezi (2007), which recommends further studies “to determine drives that are necessary to achieve sustainability of partnerships”. He also states that there is need to investigate community management in partnership approaches as well as “relations between water utilities and ... water vendors that operate for profit”.

The field research in Malawi provided the opportunity to investigate delegated management models in two cities, Lilongwe and Blantyre, in both of which the utilities delegate responsibility to serve low-income areas to alternative providers. In addition, several different management models exist in both cities, allowing comparative studies in performance and methods used to achieve the desired results. In addition, the system in Lilongwe has been in place for several years, allowing the analysis of longer-term outcomes of the local partnerships. Finally, the delegated management approaches in

both cities are still in a process of on-going change, thus giving the researcher the chance to contribute to future improvements in the Lilongwe and Blantyre water supply.

1.3 Research aim and objectives

The overall aim of this research is:

To investigate the strengths and weaknesses of different management models of delegated water supply through alternative providers in order to consider improvements to the management, support and regulation of water supply for the urban poor in Lilongwe and Blantyre.

Following this aim, the purpose of this study is to assess the performance of different management models, as well as reasons for their potential variations and resulting differences in effective management, support and regulation for different types of providers. To provide answers to this aim, four key objectives need to be addressed, each of which is investigated through several research questions.

The objectives and related research questions of the study are:

Objective 1: To investigate lessons from international experiences to supply the urban poor through delegated water management.

- a) What delegated management models for water services do exist in other cities?
- b) How is support and regulation for alternative providers organised in these?
- c) What are the international experiences and lessons learned with DMMs?

Objective 2: To examine the current approaches for water supply for the urban poor in Lilongwe and Blantyre.

- a) What are the main stakeholders' roles in delegated water management?
- b) Which management models are currently under operation?
- c) What is the current level of support and regulation between the utility and different types of alternative service providers?

Objective 3: To compare the performance of alternative providers under different management schemes in Lilongwe and Blantyre.

- a) How does the level of service differ between different management models?
- b) What are the major challenges for the respective service providers?
- c) Why do the different management models vary in their performance?

Objective 4: To investigate how services under the delegated management models in Lilongwe and Blantyre can be improved.

- a) What are the key elements for effective management, support and regulation for different types of providers and different types of delegated management?
- b) How do different management models affect the level of services provided and what elements make an effective management model?
- c) How can technical and financial aspects improve delegated water services?
- d) What enabling conditions make an effective relationship and how can support and regulation contribute to improved services?

The respective research questions are predominantly discussed in the sections as shown below in Table 1.1. However, it has to be noted that due to the interrelation between the discussed aspects, many of these are referred to in several chapters. In addition, the findings from all chapters go into the analysis done in chapter 5.

Table 1.1: Research questions and corresponding sections

Research question	Section	Research question	Section
1a	2.5	3a	4.2.6 +5
1b	2.6	3b	4.2.6 +4.3 + 5
1c	2.8	3c	4.3
2a	4.2.1	4a	5
2b	4.2.3	4b	5.1
2c	4.2.5	4c	5.2
		4d	5.3

1.4 Limitations of the study

This research limits itself to the boundaries of formal partnerships between water utilities and alternative suppliers. Informal water provision also plays a big role in many urban low-income areas, and influencing the informal sector might be a practicable option for improvements in many cases. The lack of distinction between more formal and informal alternative providers also provided difficulties especially in the literature review of this report, as many authors do not clearly distinguish them.

Another limitation of the research is the focus on big cities' low-income areas. These regional boundaries prevent the investigation of the suitability of similar approaches for smaller towns and more rural areas within this study.

The relatively short time that most delegated management models have been in existence make it impossible at this stage to study the long-term outcomes of such approaches. As a consequence, under the presumption that in the long term one utility shall provide individual connections to all households, it cannot be analysed how delegated water management can later be withdrawn from the providers.

In the cities analysed through the field study, water management is only delegated to kiosk providers. Despite general differences in the local context, this aspect should be regarded when trying to replicate findings from this study to other locations.

Time and financial resources also set clear boundaries to this study. In the literature review, delegated management models from very different countries, most of them African, are covered whereas the field study was conducted in two cities in Malawi only. Also, the methods used to collect data had to be chosen and adjusted to the financial capacities of the author.

With these limitations in mind, the author hopes that stakeholders involved in water supply for the urban poor can use this study as a basis for the consideration of important aspects that need to be regarded in their own projects.

1.5 Report structure

The Literature Review (chapter 2) provides a general overview delegated water management and summary of different management models, options for support and regulation and methods of service provision. It concludes with a presentation of experiences regarding this topic. The gaps identified in the literature review provide a justification for this study and the field work of the author. Following these shortfalls, the research methods chosen to answer the identified objectives and research questions are presented in chapter 3, Methodology. The results of the field study are presented in detail in chapter 4. The similarities and differences between the two analysed cases are analysed and discussed in this chapter. In Chapter 5 (Analysis and discussion) the

findings from the field work are discussed and challenged against the background of the existing knowledge presented in the Literature Review. The conclusion (chapter 6) refers back to the initial problem statement and gives answer to the main research question. The study concludes by leading researchers and sector professionals in the direction for future investigations to expand the findings of this study.

2 Literature review

2.1 Introduction

Given the increasing importance of delegated water supply in the developing world, it should be noted that the literature regarding experiences, lessons learned, important considerations or effective support and regulation is rather limited. The majority of reports focus on less formal relationships between utilities and alternative providers and discuss strategies to improve the informal water market. However, in practice, relations are more advanced with many utilities having established contractual relationships with professional small-scale service providers. The majority of available information is contained in reports and documentation of NGOs, international agencies or in conference papers. These are not only difficult to access for key stakeholders in the sector but their content is left isolated and without in-depth analyses under consideration of the wider context and other existing knowledge.

In accordance with Odhiambo (n.d.), this literature review has two purposes: to summarise what is already known and to identify areas where further investigation is required. Thus, it shall provide both the author and readers of the study with background information and show awareness of key issues in the subject area. Throughout this review, gaps in the literature are mentioned and potential areas for further investigation highlighted. These unsought areas provided the starting point for the research conducted by the author and which is based on the information presented in this Literature Review.

2.2 Literature review methodology

First of all, the topic and its' broad boundaries were defined and keywords, which later were supplemented, written down. Due to the interchangeably use of many different terms in the literature it was important to include all of them into the search process. These keywords were ordered from broad to the narrow in the direction they are mentioned below²:

Water supply for the urban poor/informal settlements/peri-urban areas → delegated water management → partnership approaches in water supply → ..+support and regulation → ...+experiences/lessons learned → ...+Malawi → ...Lilongwe/Blantyre

² Only the main keywords are mentioned here due to the high number used in practice

Afterwards, the main sources of information were identified and the keywords used to search through all of them. The main sources used are:

- Google/Google scholar
- WEDC Resource center
- Library catalogue
- MetaLib
- Websites of NGOs and international agencies
- Bibliographies

From these sources, three turned out to be especially useful: Google/Google scholar, MetaLib and Bibliographies. In general, a snowball approach was followed in the collection of relevant literature. After the identification of several key documents, particular attention was given to their lists of references to expand the literature. Thus, each bibliography provided a source for new material, which itself became a source in turn. This method also allowed identification of the most relevant studies regarding this topic, as they are cited frequently by several authors. As a consequence of the snowball method, a high amount of literature was collected and reviewed and afterwards narrowed down. In accordance with Odhiambo (n.d.), priority was first given to the key texts which regard several of the analysed issues (e.g. WUP 2003, Keener *et al.*, 2010). The importance of Google and Metalib was mainly due to the topicality of the chosen subject. As most of the information is not yet published in books, many journal articles, documents of NGOs, reports of international agencies and conference papers, both published and unpublished, were used and accessed through these two online sources.

The use of documentation provided by stakeholders involved in the subject is also one of the major limitations of the literature review. Due to the possible bias of the authors, the validity and accuracy of some documents might be questioned. (Denscombe, 2007, p.232)

One other limitation is that in some areas there is several literature but published by only a few authors. One example is the topic of support and regulation of alternative providers (section 2.6), where most of the literature is derived from the authors Franceys and Gerlach.

To overcome these two limitations, information was obtained from different sources whenever possible and information provided by involved stakeholders was cross-checked against that from more independent sources.

In the presentation of experiences with different management models (section 2.8), priority was given to cases from Africa. Due to the limited amount of examples, a more narrow geographical selection was impractical. Instead, to cover all relevant aspects some cases from other regions had to be included.

For the analysis of information, a linear approach moving from the general to the specific was chosen as described by Odhiambo (n.d.) and shown in Figure 2.1.

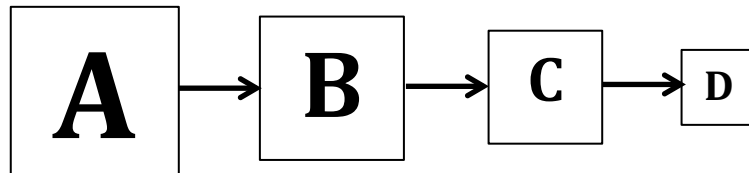


Figure 2.1: Linear fashion in increasing focus and detail

Source: Odhiambo n.d.

By applying this method on the research topic, the analysis of information was conducted in the following order:

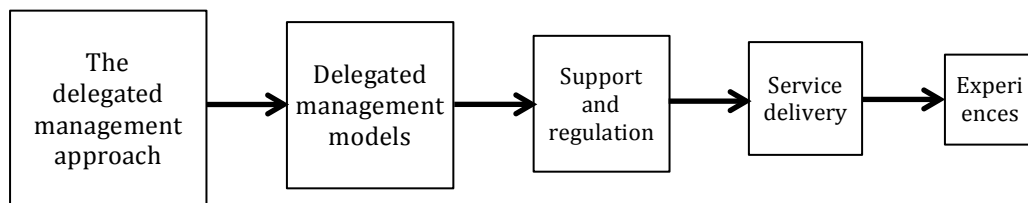


Figure 2.2: Linear analysis of research topic in increasing focus and detail

After a description of the main terms used in this study (section 2.3), this is also the structure in which the information provided in the literature review is presented. Thus, the five topics listed in Figure 2.2 are discussed from section 2.4 to 2.8 respectively. Their main findings are then summarised in section 2.9, which ends by guiding the way forward to the research conducted by the author.

2.3 Definition of key terms

In the literature, various synonymous terms are used when assessing alternative water service provision for the urban poor. For the beneficiaries of water supply, terms as peri-urban areas, informal settlements or the urban poor are commonly used. Regarding the supply side, descriptions such as alternative providers, small-scale providers or non-

state providers are used interchangeably. To get a better understanding of their meaning, the most important terms found in the literature are described below and the terms used in this study selected.

2.3.1 Beneficiaries of water supply regarded in this study

Peri-urban areas, informal settlements and the urban poor are used by different authors to mean the same thing: people with low income living in poor urban neighbourhoods at the edge of cities who do not have adequate access to water. However, in principal these terms do not describe the same things so this study will try to use them in the way they are defined.

According to Torres (2008, p.5-6), there is no precise definition of **peri-urban areas**, but a common understanding of what they are. This is that they are located in-between consolidated urban and rural areas. They usually are characterised by a lower demographic density, poor infrastructure and environmental problems. Also, they are located distant from the main employment centres and are often a home for minorities and low-income families.

Informal settlements are defined by the UN-HABITAT (2006, p.4) as “*i), residential areas where a group of housing units has been constructed on land to which the occupant have no legal claim, or which they occupy illegally; ii), unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing).*”

Slums, although usually not stated by authors used in this literature review, is a term which is often used to refer to areas which are regarded in this study and is regularly used interchangeably with ‘informal settlements’. Although there is no precise definition of what a slum is, the UN-HABITAT (2006, p.4) describes a slum as “*an area that combines, to various extents, the following characteristics (restricted to the physical and legal characteristics of the settlements, and excluding the more difficult social dimensions):*

- *inadequate access to safe water;*
- *inadequate access to sanitation and other infrastructure;*
- *poor structural quality of housing;*
- *overcrowding;*
- *insecure residential status.*”

Whereas the term ‘peri-urban’ describes a location, informal settlements thus refer to the legal status of a housing area. Two additional terms used to describe the beneficiaries of water supply are **low-income settlements** and the **urban poor**. Also, low-income

settlements again describe a certain area in which customers live, the term 'urban poor' is not related to any specific location but focuses mainly on the economic capacities of the customers. Franceys and Gerlach (2008, p.12) conducted a further breakdown of poverty levels within the urban poor population, ranging from 'lower middle-income' at the top over 'developing poor', 'coping poor', 'very poor' and finishing with 'destitute' at the bottom.

In this study, a wide range of areas is regarded both the literature review and the case studies, many of which are informal, located in peri-urban areas and contain a low-income population. Although the specific terms will be used whenever appropriate, beneficiaries of water supply regarded in this study are best summarised by the term urban poor, which consequently is used in the title and will be used further whenever speaking of wider and more general aspects of this topic.

2.3.2 Service providers regarded in this study

The terms most often used in the literature for water service providers analysed in this study are alternative providers, non-state providers (NPSs), small-scale (independent) providers (SSIPs) or small water enterprises (SWEs).

In the literature, the term 'alternative service providers' is not clearly defined. WUP (2003, p.53) states that **alternative providers** provide a service that is alternative to the main one provided by the utility. According to Scott (2010) and Sansom *et al.* (2004a, p.102f.), these can be contractors, SWEs, NGOs, CBOs or (informal) private operators. **Non-state providers** are described by Scott (2010) as all providers that are not public institutions. Sansom and Scott (n.d.) divide them into three broad categories:

- Informal private providers
- Civil society organisations supporting community-based management (e.g. CBOs and NGOs)
- Public Private Partnerships (PPP) operators

According to Sansom and Scott (n.d.), (informal) private providers are often referred to as **small water enterprises** or **small-scale independent providers**. Another term found in the literature is that of **small-scale providers**, which according to WUP (2003, p.53) is a broader term, that includes intermediate and independent providers (see below) as well as domestic resellers. This is not related by any author to a certain management type, e.g. private or community based. A more specific term is that of small

water enterprises, which McGranahan *et al.* (2006, p.2) define as private enterprises which are usually operated by small-scale entrepreneurs (with a maximum of 50, and usually far fewer employees) and earn money from the sale of water. No clear definition could be found for the term 'small-scale independent providers'. However, Keener *et al.* (2010, p.3) describes SSIPs as part of non-network water sources and people that sell water from sources they have developed or found, such as boreholes, wells or rivers. Parker (n.d., p.11) agrees that SSIPs typically consist of borehole operators who can supply groundwater to unserved areas by the utility. In contrast to the description given by Sansom and Scott (n.d.) and unlike SWEs, according to Keener *et al.* (2010, p.3) and Parker (n.d., p.11) SSIPs may be private operators but can also be community based.

One important distinction of alternative or non-state providers is that of 'independent' and 'intermediate' providers by WUP (2003, p.53):

Independent service providers are not connected to the utility network and may be regarded as competitors. They usually derive water from alternative sources, such as private boreholes. As they compete with the utility, they often operate illegally and are unregulated.

Intermediate service providers are commonly characterised as suppliers who purchase water in bulk from the utility and retail it to their own customers. They typically include private providers or community-based organisations delivering water in unserved areas. Providers can either install and manage network extensions in unserved areas, or buy and deliver water directly to the customers, e.g. through water carriers. Moran and Batley (2004, p.48) add that as long as the providers legally receive the water from the utility, there is good potential for collaboration between them and the utility.

In this study, the terms 'alternative providers' and 'non-state providers' are used interchangeably as they both cover the wide variety of service providers existing in different locations. The more specific terms of SWEs or SSIPs are used whenever appropriate according to the definitions stated above. The use of SSIPs follows the description given by Keener *et al.* (2010) and Parker (n.d.).

As this study examines partnership approaches between the utility and alternative providers, it concentrates on intermediate service providers as defined by WUP (2003).

Thus, in the literature review and case studies only such circumstances will be considered where non-state providers collaborate with the utility.

2.4 The delegated management approach

In this chapter it shall be explained why utilities might engage with alternative providers and how the collaborations can benefit the utility, the providers and the consumers.

Over the last decades, many public water utilities in developing countries have failed to provide adequate water supply to low-income areas. According to WUP (2003, p.53) and Keener (2010, p.1,10), amongst the reasons for this failure are that inhabitants of these areas often live on marginal land, live at considerable distance from the network, or live in settlements formed in unstable areas. In addition, lack of secure land tenure makes investments by the utility very risky, as residents might be forced to move out in future. Another aspect is that private house connections, which usually mean higher revenues for the utility, are often not affordable to the users. Sansom and Bos (2008, p.2) summarise the problems for utilities by stating that *“serving the urban poor with water requires the ability of a formal utility to deliver an inflexible, expensive, asset based service to a rapidly growing urban population of whom up to half are living at or below the poverty line, often in informal, ‘illegal’ housing areas.”* The authors add that utilities lack the resource, obligations or incentives for service expansion to these areas.

To improve service provision for the urban poor, according to Sansom and Bos (2008, p.1,6) in the 1990s it became increasingly popular in developing countries to use long-term public private partnership contracts (PPPs) with large private operators who thus became responsible for the management of urban water services. The main hope was that these operators would bring enough capital to extend services to all users. However, results of these partnerships are very mixed, so that today governments and companies have less interest in this approach.

Although private house connections by a formal utility is probably still the most desired option in the long run, this is unlikely to be achieved by many utilities in developing countries in the near future. According to WSP (2009a, p.3) commercial-type reforms of utilities may lead to increased efficiency in service delivery, but this does not necessarily lead to improved services for all users. Due to high capital costs and perceived low

returns in serving LIAs utilities keep prioritising areas where returns are more secure and there is less need for time-consuming community outreach. In the absence of piped water supply, according to McGranahan *et al.* (2006, p.6) the local, often informal private sector has become a central part of the local reality and plays an important role in water supply in many cities of low-income countries. However, Sansom and Bos (2008, p.7) add that high water prices or low water quality are some of the negative aspects that often arise if water provision is through unrecognised informal providers.

Over the last years, governments and utilities have increasingly recognised the important role of non-state providers in water service provision to the urban poor and started to engage with them. For example, Keener *et al.* (2010, p.37) mention that several utilities delegated the management of standpipes or water supply for whole low-income areas to private operators, communities or other organisations or individuals. Although Sansom (2006b, p.207) states that challenges remain, especially when looking at the institutional compatibility of bureaucratic agencies and alternative providers, positive examples are emerging in many countries where utilities work effectively with non-state providers. Ndezi (2007, p.32f.) and Colin and Lockwood (2002, p.28-30) summarise several possible advantages of partnerships between the utility and alternative providers, such as:

- Combine the skills, experience and resources of different organisations and thus enhance greater capacity to undertake more tasks.
- Augment strengths and overcome weaknesses by taking advantages of other partners' strengths.
- Share knowledge and enhance flow of knowledge, finally leading to more effective service delivery.
- Achieve cost reduction for operation and implementation.
- Facilitation of market-led and demand-driven approach.

WSP (2009a, p.2) and McGranahan *et al.* (2006, p.4) highlight another major benefit for the utility, which is that outsourcing distribution and customer care to small-scale providers allowing the utility to focus on their core business of supplying high quality potable water to private households. Improvements in its' technical and financial performance, e.g. through less non-revenue water (NRW) and higher utility revenues, can be expected consequences. Legal recognition also benefits the alternative providers, who are able to plan further in the future and thus are more likely to make higher

investments. For the consumers, according to WSP (2009a, p.2) the key advantage is that water is brought closer to their homes and often made more affordable. McGranahan *et al.* (2006, p.4) also mentions the potential for lower water prices and adds the advantage of greater customer convenience, as the providers become more reliable and accountable.

Caplan *et al.* (2001, p.25) summarise that several case studies have shown that partnerships are more successful than any single operator can be alone in the same circumstances. The combination of skills, abilities, experience and relationships that the partnerships bring together enable partners to be more effective. However, due to the complexity and difficulty of the partnerships the study adds that the combination of social development, technical skills, financing and regulation is critical to achieve success. In a study comparing water supply through partnership and non-partnership schemes in Dar-es Salaam and Blantyre, Ndezi (2007, p.239) finds that the partnership schemes predominantly achieve better results in terms of service reliability, efficiency in addressing pipeline and technical problems, affordability of services and water payment procedures. As a consequence of the positive aspect of partnership approaches, WSP (2009a, p.3) concludes that the delegated management model can *“reduce the proportion of non-revenue water, while increasing revenue for water utilities, and providing higher quality service at more affordable prices.”* (WSP 2009a, p.3)

The fact that many studies highlight the large number of benefits of collaborations between utilities and alternative providers provides a strong incentive to continue with what is often referred to as ‘partnership approaches’ or ‘delegated management models’ and to further increase their number. However, there is little evidence on how the strengths of the various stakeholders are best combined in practice and to what extent regulation and support of alternative providers is required to improve services. Whereas many studies have answered the question **why** to engage with alternative providers, this study takes a step forward by looking at **how** utilities and providers can work more effectively together. The following chapters in both the literature review and case studies are meant to increase the knowledge on this question.

2.5 Management models for water services in poor urban areas

According to Keener *et al.* (2010, p.16), management models of water supply can generally be divided into two broad categories. One, where the utility remains control,

and the other where the utility delegates various functions to third parties and serves primarily as a bulk water supplier. As this research focuses on cooperation between utilities and alternative providers, only the second described model, which is further referred to as the delegated management model, will be analysed in this study. The study of Keener *et al.* (2010) underlines the increasing popularity of this model, as it finds that in only one quarter of the 24 surveyed cities the utility remained responsible for managing standpipes or kiosks, whereas in about three quarters of the cases utilities had entered into a contract with a third party.

Under the delegated management model, the utility signs a contract with an agent to which the utility sells bulk water. The agent is then responsible for operating and managing part of the network, usually consisting of assigned standposts or the whole network in an assigned area Figure 2.3 shows the general outlook of a delegated management model. (WSP 2009a, p.4)

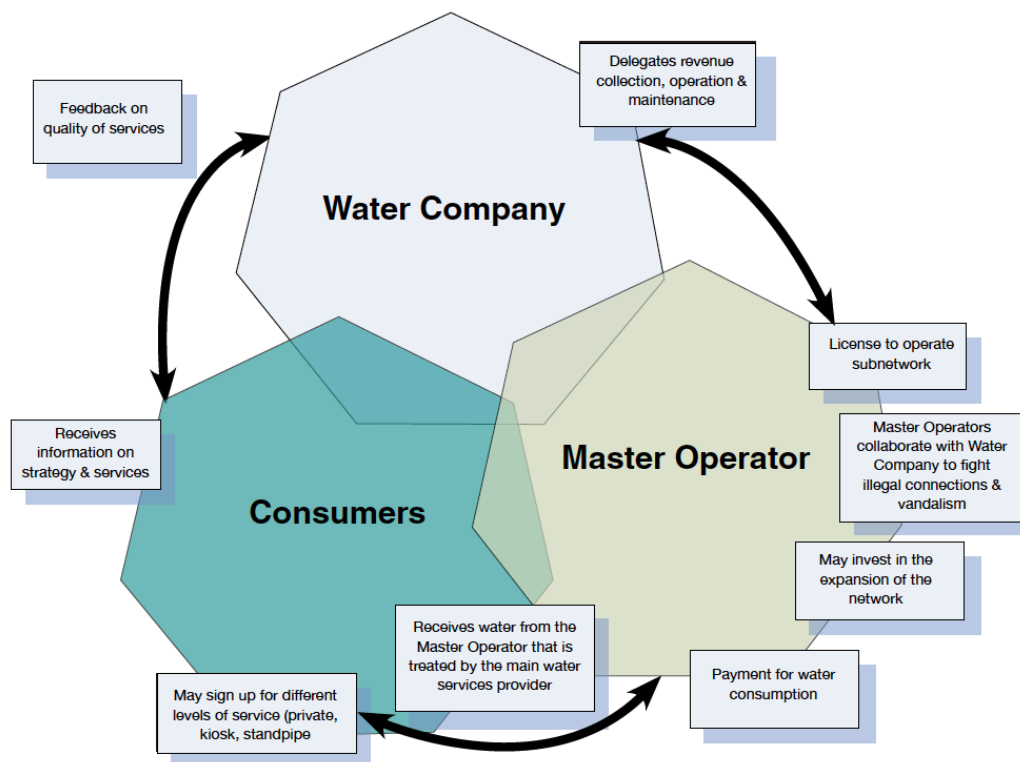


Figure 2.3: Relationship between the utility, service provider and consumers

Source: WSP, 2009a, p.5

Comment: the term master operator used in this figure is synonymous with intermediate service providers

According to Keener *et al.* (2010, p.16) and Brocklehurst (2004), around the developing world a wide range of delegated management models have been implemented, including different options of who retains responsibility for payment, supervision and

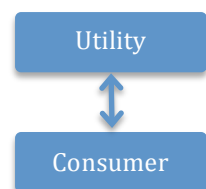
maintenance. Different models exist between as well as within cities, showing different levels of success and needs for support or regulation. However, it remains unclear how the different management arrangements affect the final retail price, the quality of service, payment to the utility and functioning of the system. Keener *et al.* (2010), Brocklehurst (2004) and WUP (2003) describe the most common management models currently under operation and state several common advantages and disadvantages, which are presented below.

However, the existing delegated management models are often very complex, so that their exact outline can differ from the general models described below. For example, providers, whether private or community based, might be single individuals as well as established large institutions. The set up of community based organisations (CBOs) especially can vary a lot and may consist of local leaders, elected community members. It might also be a local NGO or operate similar to a private company, which might then be referred to as a community based enterprise. Whereas here general management types are described, more detailed variations of these will appear under section 2.8 and section 4.

Management by the utility

As mentioned earlier, due to its high level of service, equity and efficiency this model is often regarded as the ideal solution which all utilities should aim for. Another major advantage is that due to the direct relationship subsidised tariffs are transferred to the users.

However, due to the problems stated in section 2.4 utilities in many cities are not able to provide these services for all users.



Management by local leaders and water committees

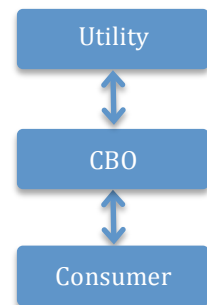
Whereas Keener *et al.* (2010) includes them within community based organisations, here they are described separately in accordance to WUP (2003). The expectation in this model is usually that institutions operating closer to the community are more effective and assure that social concerns are addressed. However, according to WUP (2003, p.43) in practice the performance of such organisations is often poor, as they tend to have less capacities and experience and are thus less capable to provide services than public utility providers Overall, this model is often linked to



political interference, inexperience in financial management and weak accountability mechanisms. Especially when opting for local leaders, Keener *et al.* (2010, p.19) mention that performance is largely dependent on the social context as well as the financial management skills and legitimacy of the respective individual.

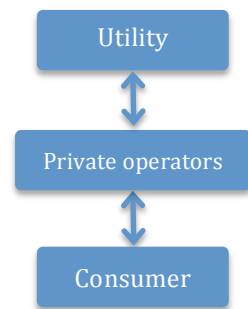
Management by community based organisations

Under this model, management responsibility is given to community members, who build an organisation that acts as an operator between the utility and the consumers. This option is meant to improve accountability of the operators and has generally been more effective than local leaders or water committees. However, Sansom and Bos (2008, p.7) point out that community organisations are often initially effective especially when facilitated by an intermediary such as an NGO. In the long-term, community groups often lack incentives to fulfil their responsibilities, thus raising concerns about the sustainability of services including operation, maintenance and cost recovery. Also, according to Brocklehurst (2004, p.6) it might be difficult for CBOs to get recognised by the utility as valid partners and legal registration might be complex. Regarding cost efficiency, although CBOs might not raise tariffs as private operators, the problem of overheads, e.g. salary of kiosk attendants, adding to the consumer price remains. Keener *et al.* (2010, p. 16f.) add that community based management is likely to be more successful in areas with a higher sense of social coherence, which makes it easier for the customers to confront the operators. In urban and peri-urban areas this might often be more difficult. In addition, in cases where there is limited social cohesion, strong local power structures and limited monitoring can easily lead to political interference, corruption and mismanagement. As an example, in Maputo local officials have ensured they are represented in standpipe commissions and responsible for payments to the utility, thus having power over bill collections. (Keener *et al.* 2010, p.21) Overall, Keener *et al.* summarise that the success of management models including community organisation depends strongly on the degree of social cohesion of the community, management capacity in the community and external monitoring.



Management by private operators

In the past, long-term public private partnership contracts with large private multinational operators rarely showed the results expected. Thus, utilities now focus on cooperation with the local private sector. (Sansom and Bos, 2008, p.6) Small-scale private operators, individuals of small companies, purchase bulk water from the utility and resell it to the customers. Keener *et al.*, (2010, p.21) mention two particular weaknesses of this model. First, selection procedures often lack



transparency, especially when the local municipality is involved. Second, monitoring efforts by the utilities on revenue collection, tariff levels and service quality are often poor. WUP (2003, p.44) also states that especially when the municipality is involved in choosing the operator the selection process is often not transparent. In addition, Sansom and Bos (2008, p.6) point out that the necessity to pay staff to sell water might lead to increased prices. WaterAid (2008, p.6) adds that this system requires good regulation mechanism to ensure that operators do not overcharge for water, as unregulated private operators often increase prices especially during water shortages. Inversely, Brocklehurst (2004, p.5) states that without adequate recognition of private operators through the utility, they are vulnerable to government crack-downs and corruption from utility staff or government officials. However, although often being more expensive for the users, (Keener *et al.* 2010, p.22) states that privately operated schemes tend to be better maintained than others.

Including institutions for support and regulation

Regardless of the type of the operator, Brocklehurst (2004, p.7) and Keener *et al.* (2010, p.18) mention the possibility to include a support institution between the utility and the service provider, and might be local authority administrators, NGOs or in some cases a federation of water point committees. Instead of engaging with the operators directly, the utility then enters a relationship with this institution, which itself delegates responsibilities to the operators. Payment procedure to the utility is then conducted via the support institution. The support institution can also be responsible for management assistance, intermediation, advice or capacity support. Whereas the inclusion of such an organisation can lead to improved service provision, another layer of costs is added to sustain this institution.

Another possible variation of all management types is the inclusion of monitoring committees or agencies. These are not involved in service provision but are solely responsible to monitor the operators. Monitoring committees might be integrated in the utility, community based or outsourced to private agencies. Brocklehurst (2004, p. 11) mentions that community groups responsible for monitoring might be prone to corruption by utility staff and there is potential for misuse of influence and loss of transparency. Figure 2.4 summarises these possible variations of management models, showing service delivery and payment procedures in schemes with and without a support institution, as well as with and without a monitoring committee.

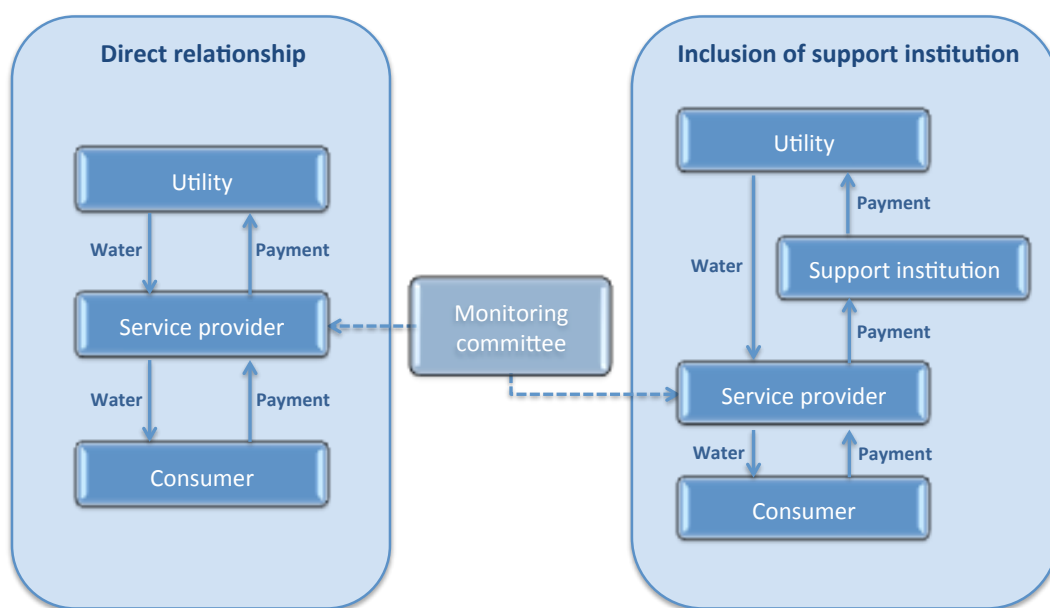


Figure 2.4: Delegated management with and without a support institution

Source: Adapted from Keener *et al.* 2010, p.19; Brocklehurst 2004, p.7

Finally, Brocklehurst (2004, p.10) mentions the importance of NGOs in all of the described models. NGOs can have a key role in establishing water service provision and in creating the environment to ensure sustainability. Advocacy of delegated management models, utility support in their establishment, lobbying for pro-poor approaches, encouraging replication of successful models, and being a formal or informal part of ongoing regulation are options of indirect support through NGOs. However, their engagement is usually meant to be temporary so that they withdraw once a sustainable system has been established.

2.6 Support and regulation of alternative providers

2.6.1 Engagement with alternative providers

With market shares ranging between 30% and 80% in many African cities, according to Franceys and Gerlach (2008, p.196f.) the important role of alternative providers is now widely acknowledged by many stakeholders in the water sector. However, the quality of service provided by these operators remains a major concern. Exorbitant prices and overcharging are amongst the major arguments against small-scale private providers. Lack of competition, monopolist behaviour, illegal involvement of corrupt utility staff and the threat of capture by local elites or formation of local cartels often add to the problem of an overriding profit motive. Apart from water prices, quality of water sold by alternative providers might often be inadequate. Other mentioned concerns are that of unreliable services, lack of qualifications of staff and the long-term sustainability of the providers. To overcome these obstacles, WUP (2003, p.84) highlights the possible benefits of enabling alternative providers and states that governments should learn to regulate them without stifling innovation and demand responsiveness. Keener *et al.* (2010, p.1) agrees that regulation of providers supplemented by consumer information is required to avoid declines in service levels and increased prices. UNDP (2011) also highlights the importance of recognising and engaging with alternative providers. The study finds that in the absence of a coherent policy framework with effective tariff enforcement and water quality monitoring, small-scale providers often deliver services that are very costly and of varying quality. Although several studies (Gerlach and Franceys, 2008; Keener, 2010; WUP, 2003, Sansom *et al.*, 2004a, UNDP, 2011) mention the benefits of engagement with alternative providers through support and regulation, Gerlach and Franceys (2008, p.200) find that in many cities current oversight systems frequently fail to deliver the desired levels of service and consumer protections and thus need to be re-examined.

To get a better understanding of the possible options for intervention, Sansom (2006b, p.210) lists 5 main types of how the government or utility can engage with alternative providers, which are: recognition, dialogue, facilitation/collaboration, contracting and regulation. Table 2.1 lists these engagement types with increasing levels of commitment and capacity requirements from left (recognition) to right (regulation). Also, within each engagement type a variety of intervention options are listed. The

potential benefits increase from bottom to top, however so do the difficulties and capacity requirements.

Table 2.1: Types and levels of government engagement with water and sanitation NSPs

	Category				
	Recognition	Dialogue	Facilitation/collaboration	Contracting	Regulation
<i>High levels of engagement</i>			Compacts (longer-term agreements between governments and civil society)	Long-term contracts for service provision (10 years+) Medium term contracts for service provision (3–10 years) Output based aid	Independent economic regulation (for larger utility operators) Regulation of minimum service quality levels
<i>Medium levels of engagement</i>	Registration of NSPs Formal legal recognition of NSPs and their rights to provide services	National policy dialogue Local policy dialogue	Collaborative arrangements including: co-production MoUs, and scaling up approaches Facilitation of NSPs	Short term contracts with private sector and/or civil society institutions (up to 3 years) Client/customer relationships	Regulation of market entry (promoting competition) Publicising NSP performance and costs Consumer forums and watch groups Supporting self regulation by NSP associations Flexibility in standards and supportive supervision
<i>Lower levels of engagement</i>	Limited formal recognition of NSPs Non-interference in acceptable NSP activities	Exploring options for local collaboration			

Source: Sansom 2006b, p.211

For this study, which focuses on cooperations between governmental agencies and alternative providers, medium and high levels of engagement are more relevant than the lowest levels, although the long-term contracts on the other end of the table might be more appropriate for large private companies rather than small-scale providers. However, Sansom (ibid.) adds that successful relationships between agencies and alternative providers are often based on a number of different forms of engagement. Also, different forms of engagement might be appropriate for different types of alternative providers within the same city.

Formal recognition of household reselling, which is usually prohibited by the utility but hardly enforceable, is given as an example by Sansom (2006a, p.25) as a useful low-level engagement with such providers, which could also be done in parallel to higher-level engagement with other providers. Recognition and encouragement of household water reselling could benefit the utility through increased water sales and revenues as well as the customers through better access to piped water. Smith (2006) adds that formal agreements might be inappropriate or irrelevant in some locations but lower levels of engagement more appropriate. According to WUP (2003, p.47), recognition of domestic

reselling could encourage resellers to be more professional, reduce the risk to the resellers and enable the utility to reduce the number of illegal connections. It is added that recognition of resellers is especially important where there are few public standposts. However, Franceys and Gerlach (2008, p.203) describe an example from Jakarta, where deregulation measures intended to increase competition and legalisation of household resale but were opposed by incumbent small-scale providers and standpipe operators who feared profit losses.

Dialogue between stakeholders is important to developing more comprehensive forms of engagement with NSPs, but must also be maintained under any established relationship. In tri-partnerships between government agencies, private sector and NGOs good dialogue with policy makers and information of NSPs about future programs is crucial to achieve improved water supply.

Collaboration or (short-term) contracting between utilities and alternative providers is the predominant engagement level with intermediate providers of DMMs described in this study, most notably in section 2.8 and chapter 4. As a main advantage of such engagements, Sansom (2006a, p.26) states that formally contracted alternative providers are usually able to respond better to incentives for improving performance. One highlighted successful example is that of Manila, Philippines, where concession contracts have been established which have encouraged the private operators to differentiate service and price and using innovative technologies to serve previously unserved low-income consumers.

2.6.2 Regulation

Although regulation is listed as a form of engagement in Table 2.1, it can be considered under various types of engagement reaching from lower to higher level. For this reason, and because of its' complexity, it is discussed here separately from the other engagement forms.

Franceys and Gerlach (2010, p.1229) define the tasks of an economic regulator as that to negotiate, elucidate, make transparent and monitor societal demand for water. To achieve cost recovery, regulators thus have to balance politically sensitive efficiency and welfare objects. In common water supply schemes, it is the relationship between government and utility which requires economic regulation and is often carried out by an independent regulatory agency. Compared to this, effective regulation of alternative

providers seems to be far more complex. The issue of regulating small-scale providers has been widely discussed in the literature (e.g. WUP, 2003; Sansom, 2006b; Franceys and Gerlach, 2008), and most authors acknowledge the need and benefits of any kind of regulatory interventions. Nonetheless, as Franceys and Gerlach (2008, p.204) point out, the published literature may recognise the need for regulation but still offers very few recommendations on regulatory arrangements. Further, almost no publication on this topic analyses appropriate interventions separately for informal, independent or intermediate providers. Franceys and Gerlach (2008, p.208) state that future studies must differ between these provider types, however their own study also discusses them almost without distinction. Besides this gap in the literature, the experience with regulation of alternative providers is very limited, so there is little knowledge on how to determine an optimum level of regulation and practicable regulatory arrangements and how to set up effective monitoring and enforcement mechanisms without much higher overheads leading to increased end-user prices. A general overview of possible regulatory interventions for alternative providers is presented in Figure 2.5.

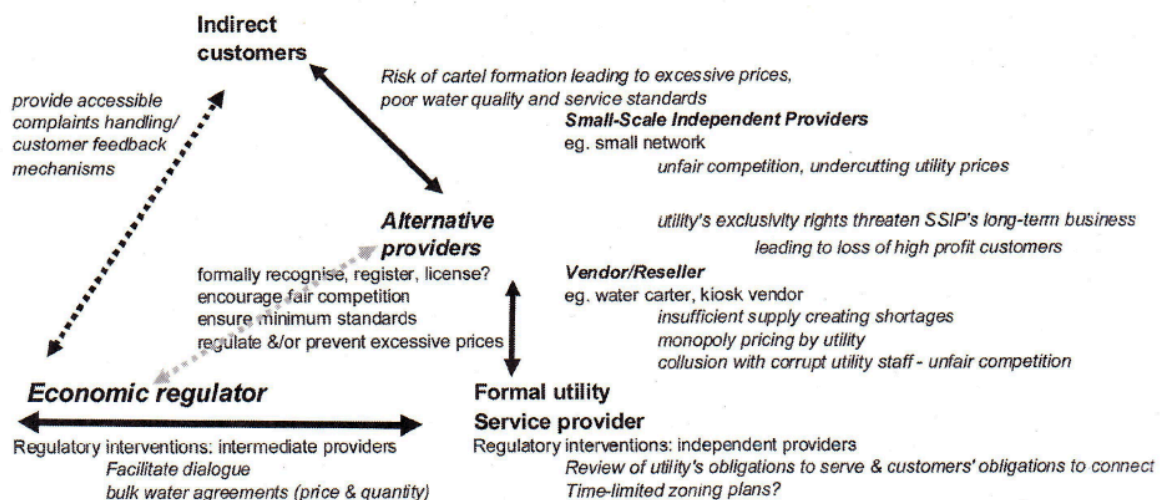


Figure 2.5: Possible regulatory interventions for alternative providers

Source: Franceys and Gerlach (2008, p.204)

Regarding the various options for intervention, Franceys and Gerlach (2008, p.199-203) state that in a largely competitive market economic regulatory intervention would not be required and the application of fair trading law and water quality regulation be sufficient. Gerlach and Franceys state that many authors put their faith in such loosely regulated markets, however their own case study from 10 cities of various developing countries showed wide-spread anti-competitive behaviour, oligarchic market structures, cartel

formation and mafia-like tendencies, leading to increased water prices for the poor. Although these problems warrant and necessitate economic regulations of providers, in the analysed cases they rarely exist. Even when intending to establish regulations, Sansom (2006b, p.215) highlights the vast challenges to regulate NSPs due to their usually small scale and informal characteristics. Effective regulation requires the regulator to have sufficient information about the performance of the operator and to build up a structured relationship with the provider, which are both difficult to achieve. WUP (2003, p.89) and Franceys and Gerlach (2008, p.204) also identify insufficient information and limited resources of regulators as major obstacles for efficient regulation. However, Franceys and Gerlach also acknowledge that illegal behaviour of the providers may be evoked by complex and opaque regulatory systems, regulations giving a competitive advantage to the formal utility, or lack of an enabling legal framework that protects the providers' investments.

Looking at regulation options for informal providers, Sansom (2006b, p.215) states that due to their diverse, small and informal nature it is hardly practicable for utilities to control their work. Instead, Sansom favours more market-friendly and supportive forms of regulation, such as publication of NSP performance and costs or regulation of market entry to promote competition (see Table 2.1). WUP (2003, p.90) also mentions the benefits of promoting competition and adds relaxing standards, secured legal status and land tenure as means to enable innovation. However, these measures seem to be more appropriate for informal alternative providers where higher levels of regulation are hardly practicable.

In contrast, according to Franceys and Gerlach (2008, p.205) and WUP (2003, p.90), small-scale independent providers, which work in parallel with the utility network and thus can be regarded as 'micro-utilities', might be better issued with an operating licence and regulated by a regulatory body along the same lines as the formal utility. In doing so, they have to follow the same, maybe simplified, terms as those specified for utilities.

For intermediate providers, which can be regarded as 'extended arms' of utilities, WUP (2003, p.90) suggests to regulate them through a contract with the utility or establish professional/trade associations to enable self-regulation. Franceys and Gerlach (2008, p.205) also state that third-party agreements between the utility and intermediate providers might be more effective and efficient rather than supervising them directly by a regulator. In such cases, the utility, which itself is monitored by an independent regulator, acts as a monitoring institution of alternative providers. Sansom and Bos

(2008, p.8) stated that different types of contracts might be appropriate for different forms of NSPs, but in general may specify resale prices, hours of operation or terms of payment. Other aspects mentioned by WUP (2003, p.91) are protection against the formation of cartels, promote competition and encourage the entry of new providers. Franceys and Gerlach (2008, p.204) add that in general, to make regulation of small-scale providers effective, economic, water quality and environment aspects should be considered jointly.

Regarding the option of professional/trade associations, WUP (2003, p.90) states that they can help to establish common rules and procedures and create a forum for dialogue between the authorities, utilities and independent providers. For example, in Ghana the establishment of such associations led to improved access to reliable water for the providers, a preferential bulk price and an agreement that the association regulate water quality and price. However, Franceys and Gerlach (2008, p.205) counter that in Ghana efforts to regulate the resale prices through the public regulator did not well function due to the lack of effective monitoring systems. In Kibera, according to Crow and Odaba (2010) a water vendors' association called Maji Bora was established in 2003 which should promote self-regulation, improve the credibility of the vendors and help them to develop relations with the utility. But due to unclear agreements and misunderstandings between the association and the utility the relationship did not hold and finally lead to mass disconnections. WUP (2003, p.90) also admits that in the end trade associations protect the interests of their members and not of their customers, so that authorities should keep their role in regulation and promotion of healthy competition. Another option mentioned by several studies (e.g. Sansom *et al.*, 2004b; Franceys and Gerlach, 2005; WUP, 2003) to increase efficiency of regulation is customer involvement in regulating the services of their providers. According to Franceys and Gerlach (2005), in several countries customer committees or water watch groups serve as a link between the regulator and the customers. However, they usually provide feedback only on services delivered by formal, regulated companies, and even so often struggle to reach the urban poor. Regarding service provision by alternative providers, WUP (2003, p.91) states that the role of consumers is usually limited to regulation-through-choice, but could be expanded to an established oversight role. Franceys and Gerlach (2005) add that low-income customers and unserved households are usually not even aware of the existence or functions of regulatory agencies or water committees, and when being aware are mostly unable to access their services. Thus, as Sansom *et al.* (2004b, p.47)

point out, effective consumer consultation requires effective methods of participation, and communication must be both inclusive and consistent.

One of the few available detailed outlines on regulatory frameworks of intermediate alternative providers is provided by Matsinhe *et al.* (2008), who describe the case of Maputo, Mozambique (Box 2.1).

Box 2.1: Regulatory framework in Maputo

The peri-urban areas of Maputo are served mainly through standpipes, and attendants contracted by the utility (AdeM) are responsible for their operation and maintenance. In addition to them, unregulated informal providers serve a significant share of the market. To ensure adequate service provision, local water committees have been established which are responsible for regulation at the neighbourhood level. In contrast to water committees in many other countries, they are not involved in the operation of services but solely responsible for service supervision. At higher levels, the Water Supply Investment and Assets Fund (FIPAG, asset owner and responsible for water service delivery), the Council for Regulation of Water Supply (CRA, responsible for regulation), the municipal authorities and Aguas de Moambique (utility) are the other major stakeholders involved in service provision and regulation. The regulation responsibilities have been divided between those stakeholders and are presented in Table 2.2.

Table 2.2: Regulation responsibilities of different stakeholders in Maputo

Service provider	Price regulation	Service quality regulation	Competition regulation	Consumer protection
AdeM	CRA for tariff review and approval	CRA/FIPAG, respectively, for defining and enforcing penalties and performance standards	Bidding process	CRA for approval and ensuring compliance with codes of practice
Small-scale independent providers	None/competition	Competition	None	None
Standpipe attendants	Water committee/Municipalities	Water committee/AdeM/Municipality	Selection by water committee	Water committee, local authority, Municipality, AdeM, CRA
Water resale	None/competition	None	None	None

Source: Matsinhe, 2008, p.845

However, the authors also highlight some weaknesses of the model that need to be addressed. In addition to standpipe operators, currently informal providers such as household resellers or SSIPs might better be included in the licencing framework. At present, the water committees depend on subsidies to function. A formalized system of payment of licenses and regulatory fees will thus be required to secure sustainable monitoring and regulation. Due to their limited human capacities, the water committees also require long-term capacity building. Reducing their size to single individuals might increase the efficiency of the committees.

To summarise, experiences with effective regulation of intermediate service providers are scarce and much has to be learned. Especially for lower levels of engagement, most of

the available studies agree that promotion of marketing and market-friendly regulation to increase competition might be more effective and practicable than formalised regulation systems. Although such efforts might also be useful in higher levels of engagement, regulation through contracting alternative providers by the utility is an option proposed in several of the discussed studies. Monitoring and regulation could then be conducted by the regulation authority, the utility or local water committees, or be shared between several stakeholders as done in Maputo. However, the study from Maputo also highlights that the increased overheads through regulation might jeopardise the sustainability of such interventions. Franceys and Gerlach (2008, p.208) thus conclude that whenever establishing a more advanced regulation system the cost-benefit ratio of the intervention must be regarded, as the costs for monitoring and enforcement are likely to be transferred to the poor. The choice of regulatory instruments should thus be based on a comparative assessment of the trade offs between effectiveness, ease of implementation and costs and benefits. Finally, the risks and challenges in regulatory involvement with alternative providers are highlighted in Figure 2.6.

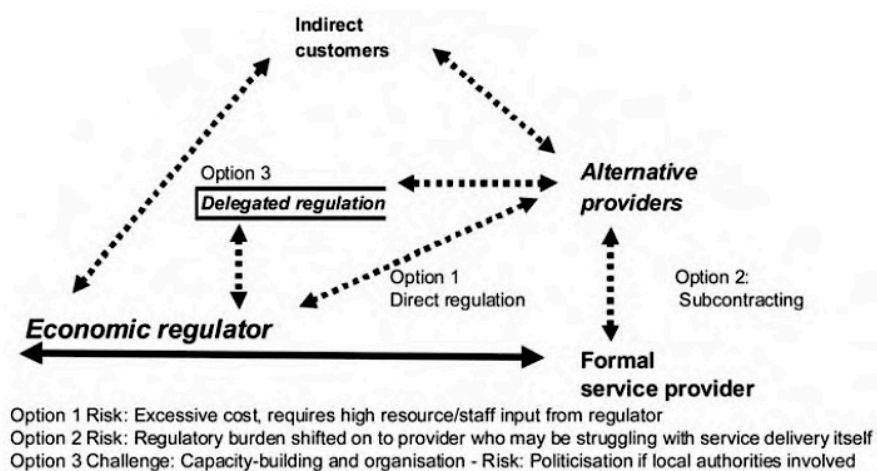


Figure 2.6: Risks and challenges in regulatory involvement with alternative providers

Source: Franceys and Gerlach (2008, p.208)

2.6.3 Support

Although the importance of regulation has been highlighted above, regulation alone might often not be sufficient to achieve the desired service levels. In many cases, support for the small-scale providers must be provided to increase their capacities and as a consequence improve their services. However, support is hardly ever provided for informal providers, and little information is available on support for intermediate providers.

As mentioned earlier, according to Sansom (2006a, p.26) in most of the cases of existing partnership approaches NGOs acted as intermediaries, encouraged the utilities to enter in relationships with alternative providers and subsequently facilitated in the establishment process. Referring to an example from Dakar, Senegal, WUP (2003, p.44) describes how the utility entered into a partnership with an NGO (ENDA) to design a strategy for reaching the low-income areas. ENDA assisted in the establishment and strengthening of water management committees as well as in the installation of the system. Regarding support for the standpipe operators in Dakar, NGOs provided training in management, maintenance, and hygiene and provide back up support for a period of 6 months following installation.

Besides limited capacities and skills, Sansom (2006a, p.33) adds that access to finance is often a key constraint for the providers. One option mentioned by PPIAF (2010) and Sansom (2006a, p.21) to overcome this problem is Output-Based-Aid (OBA). Under this measure, contracts with the providers can link the disbursement of subsidies to the delivery of performance-based outputs. Another option raised by PPIAF (2010) is micro-financing for peri-urban water providers, which has been established in Kenya in addition to OBA and consequently improved access to funds.

2.7 Service delivery options

Although this study focuses on management of water supply, service delivery options cannot be ignored as they might influence the success of any management model. If choosing an inadequate technology, any management type will fail to provide improved services to the urban poor. A wide range of service delivery options and some of their main advantages and disadvantages are described by Sansom *et al.* (2004a, p.59-80), Moran and Batley (2004, p.48), Sansom (2006a, p.6), Keener *et al.* (2010, p.3). Only the most important aspects of the different service options are described in this section.

- **Individual house connections:** Usually referred to as the desired level of service that utilities should aim to provide for all customers. In low-pressure systems, storage tanks (roof or ground tanks) can be installed at the households.
- **Individual yard connections:** Similar to individual house connections but water is obtained from a tap outside the house.
- **Shared yard connections:** A few households share one connection in order to minimize connection charges.

- **Standposts and kiosks:** Communal/public water points where water is collected by many people. Sansom *et al.* (2004a, p.59-80) state that in difference to kiosks standposts are usually unmanned and there is no direct charge for the water provided, however the terms of the two technologies are used interchangeably by many authors. According to Keener *et al.* (2010, p.37), public standposts/kiosks are the most common solution to extend water services to uncovered areas. Smith (2006) adds that they are most suitable in locations close to the network pipes, so that connection costs remain low. Two possible features to improve kiosk water supply – pre-payment and storage facilities – are described in Box 2.2.

Box 2.2: Pre-paid systems and storage tanks

In several countries, such as South Africa, Uganda, Lesotho or Namibia, pre-paid standposts seem to be a promising model to reduce kiosk management costs and thus to pass on the often subsidised water tariffs to the end-users. The payment systems can be based on a token (Picture 2.1) or an electronic measurement system, which according to Sansom *et al.* (2004a, p.71) is more popular nowadays. Drawbacks mentioned by Adonga (2010) are high investment costs and required service reliability. Keener *et al.* (2010, p.38) adds that good publication of prices and good management arrangements remain as important as with other models.



Picture 2.1: Pre-paid standpost with tokens

Source: Adonga, 2010

Storage tanks can be provided at kiosks to increase service reliability under intermittent water supply. Where water pressure is particularly low, tanks can be installed below ground and accessed through hand pumps. When water pressure allows for tanks can be constructed above ground or on the kiosk roof as shown in Figure 2.7.



Figure 2.7: Kiosk with storage tank

Source: Sansom *et al.* (2004a, p.71)

- **Supply by water tankers:** Water is delivered to an area using a water tanker.
- **Household resellers:** Households with individual connections to formal water supply resell water from their homes.
- **Supply by vendors:** Water carriers or carters deliver water using bicycles, hand carters, animal traction or motorised vehicles.

- **Public hand pumps:** Although usually more associated with rural areas they are also common in peri-urban areas if groundwater yields allow for that option.
- **Consumer-organised options:** Private individual or community boreholes, private storage tanks or roof catchments might be developed by consumers in areas where services are inadequate. Information on the most viable alternative water sources can be provided by the utility when improvements in services will take time. When promoting private boreholes the groundwater quality has to be regarded. Roof catchments are especially suitable in areas where most households have iron sheet roofs. However, the utility has to consider that customers that invested in the construction of facilities might be reluctant to pay for water once the utility offers other options.

The advantages and disadvantages of the different service options are summarised below in Table 2.3.

Table 2.3: Main advantages and disadvantages of different service options

Advantages		Disadvantages	
Individual household connections			
Users	Convenience	High connection costs	
	Low risk of water-related diseases		
	Household has full control of water service		
	Easy to store water when intermittent supply		
Utility	Less unit costs per volume	High capital and O&M costs	
	More water sold	Limited control of water use	
	Higher revenues	More potential for wastewater generated	
Individual yard connections			
Users	Lower connection costs	Less convenience than in house connection	
	Easier accessible than standposts	Waste may be a problem	
	Fair amount of control of water use	Increased contamination risk	
	Can allow neighbours to use the tap		
Utility	Intermediary service between kiosks and HH con.		
Shared yard connections			
Users	Lower costs and thus better affordability	Less convenient than house connection	
	Easier accessible than standposts	No control over the use of water tap	
	May not require a wastewater collection system	Potential dispute on cost sharing	
	Increased competition – lower kiosk price	Waste may be a problem	
Utility	Intermediary service between kiosks and in-house connection	Utility can lose revenues if households disagree on payments	
	Higher water sales & revenues than from kiosks		
Standposts and kiosks			
Users	Often more affordable for the poor	Often high water price – salary for kiosk attendant	
	Popular when no other service option available	Price fluctuations	
	Direct payment – good cost recovery	Time consuming & carrying required	
Utility		No water when intermittent supplies	
	Low costs	Limited amount of water sold	
	Serving many consumers	Low revenues	
	Good in areas difficult to serve	Kiosks sometimes supplied by illegal connections	
	Convenient billing		
Water tankers			
Users	Suitable for transient communities	High water unit costs	
	Transport large quantities of water	Inconvenience	
Utility	Minimal infrastructure requirement	Expensive	
		Not suitable in the long run	
Household resellers			
Users	Access to utility water for unserved people	Usually high water price	
	Increased competition – lower kiosk price		
Utility	Less infrastructure required		
Water vendors			
Users	Convenient because of house delivery	Usually high water price	
		May be unreliable	
		Sometimes use water from unprotected sources	
Utility	Suitable in difficult-to-reach areas	Vendors may not pay for water	
		Not suitable in the long run	
Water vendors			
Users	Free or low water price	Time consuming & carrying required	
	Good temporary option	Potential water contamination	
	Back-up when unreliable water supply	Limited volumes of water	
Utility	Potential temporary option for new areas	Low revenues	
	Low-cost option serving many customers	Not suitable in the long run	

Source: Sansom *et al.* (2004a), Moran and Batley (2004), Sansom (2006a)

A detailed comparison of the water prices of different service delivery options in 23 countries is provided in Keener *et al.* (2010, p.23). The average prices of the different service options of all cities combined are presented in Figure 2.8.

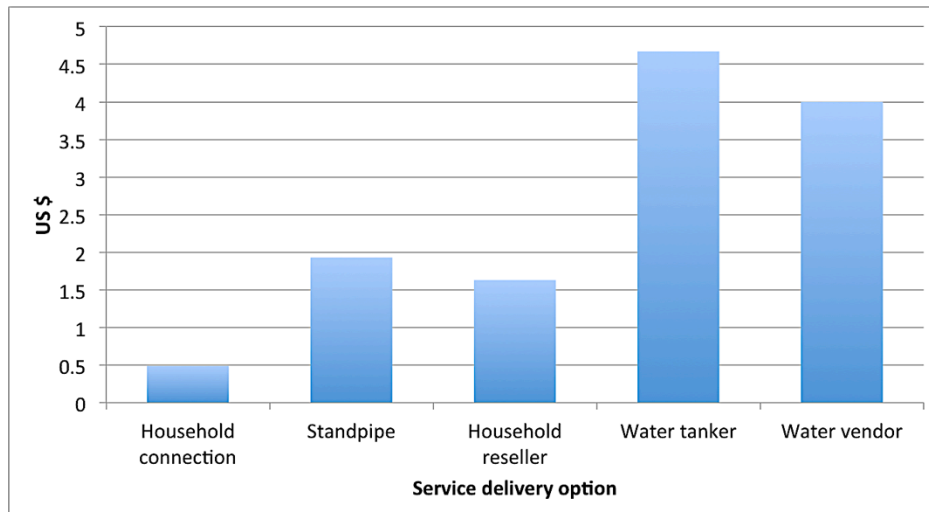


Figure 2.8: Water prices by type of service provision

Source: adapted from Keener *et al.* (2010), p.23

2.8 Experiences with different delegated management models

Due to the high number of examples of partnership approaches that emerged over the last decade, only the most relevant ones for this study can be presented here in more detail. Besides their quantity, another constraint is that for many of the cases mentioned in the literature, too little information is available to describe them thoroughly. The biggest difficulty, however, is that most published literature describe isolated single cases, whereas comparative analysis of international experiences and lessons learned hardly exist. Although the study of WUP (2003) is an important source, many delegated management models emerged after its' publication. The publication of Keener *et al.* (2010) stands out as an up to date comprehensive study, and provides much of the information described in this section. The findings of mainly these two studies are supplemented in this section by the available information on discretely described examples.

One aspect that all examples have in common is the major challenge for the service providers to extend their services to the urban poor and to expand coverage in a way that is acceptable and affordable to the majority of households. (Bevan and Franceys, 2009) Figure 2.9 highlights the complexity of expanding service provision to the poor

and illustrates differentiated service provision against segments of poverty. In the area coloured in dark grey ('service provider failure area' or 'informal service provision area') regular service providers often fail and are replaced by higher cost small scale providers. The same area is thus also labelled an area of potential new customer revenue. The area is bounded by a 'pipe network efficiency frontier', which expands over time due to economic growth (horizontally) or urban expansion (vertically), but which can also be expanded through creative delivery mechanisms.

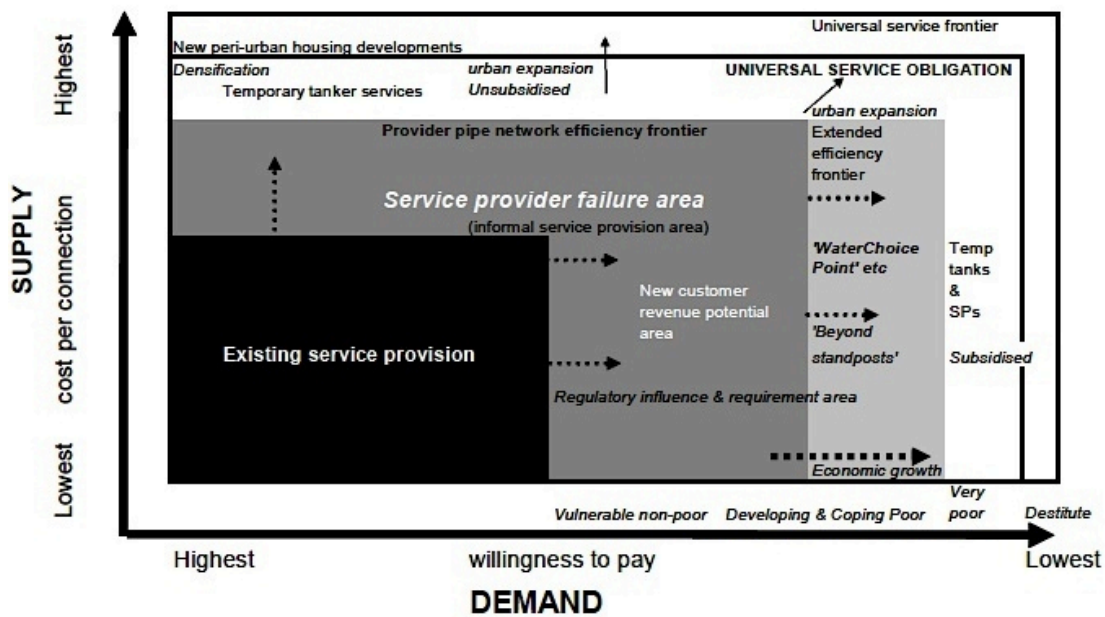


Figure 2.9: The boundaries of service extension

Source: Bevan and Franceys, 2009, p.3

Delegated management is an approach trying to extend and improve service provision in the service provider failure area. In the following, the experiences with this delegated management in different places are discussed in more detail. The presentation of the experiences is separated into three parts. At first, the outline of the most relevant delegated management models is described, which is followed by a description of their respective performances. Afterwards, the most important findings and lessons learned are presented. Finally, their relevance for the Malawi case studies is shown in the conclusion, which also provides an overview of the current status of delegated water supply in Lilongwe and Blantyre and thus provides an outline of the field study.

2.8.1 Outline of existing delegated management models

First of all, it has to be mentioned that it is impossible to cover all existing partnership approaches in developing countries in great detail in this study. A selection of the presented case studies is based on their relevance for the cases of Lilongwe and Blantyre. In these two cities, as described in more detail in chapter 4, the delegated management model currently involves water kiosks which are handed over to different operators, some of which manage one and others which manage several kiosks. Whereas for several years both utilities were hardly engaged with these providers besides the bill payment process, since a few years they both try to set up more formalised systems. Under support from WaterAid and Water for People (WFP), Water Users' Associations (WUAs) were established which at present manage between about 10 and 100 kiosks. Also, a sub-network supply system managed by a private operator is currently in planning stage. Thus, in Lilongwe and Blantyre there is a clear trend from less formal and easier single or small-number kiosk management models to more formal and elaborated multiple kiosk management, and which potentially will end up in sub-network service provision. The providers described in this section are either on a similar management level as Lilongwe and Blantyre or manage more advanced systems which are considered as future options in the two Malawian cities.

In Figure 2.10, the cases presented in this section are shown in relation to their management level. It has to be added that in reality, the process which is shown here as a straight line from low to high management level might be much more complex. Also, in some cities different models sometimes exist in parallel, which can make it difficult to assign them to a certain category.

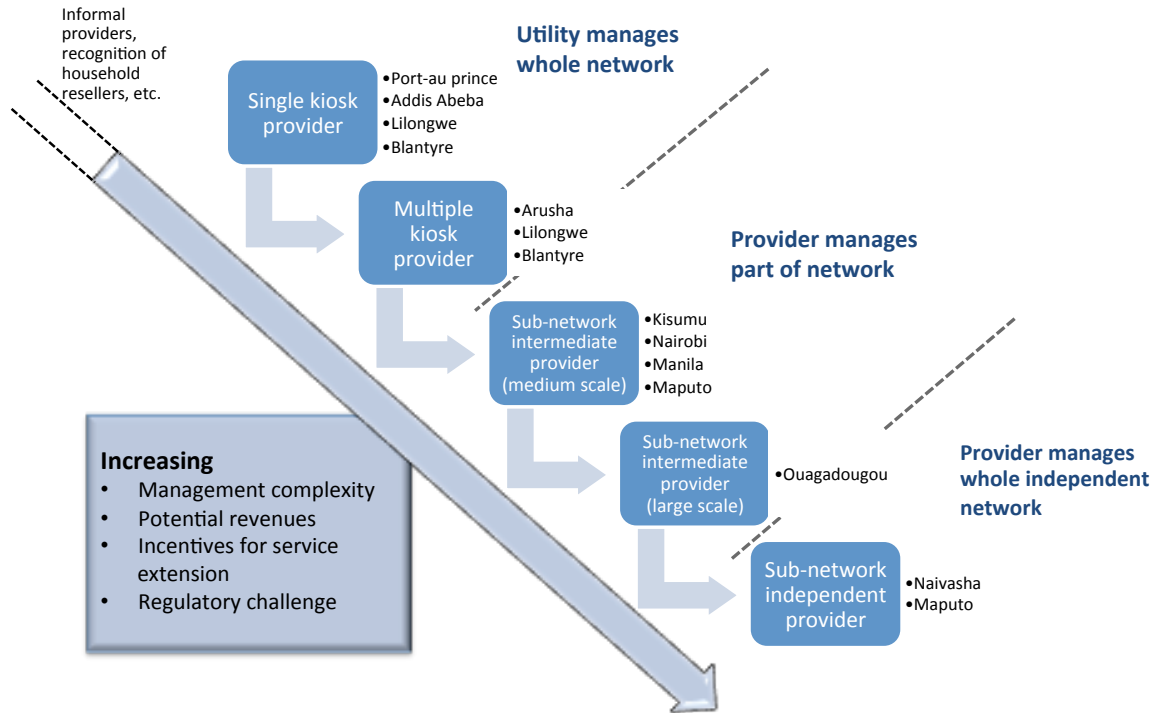


Figure 2.10: Levels of delegated water supply management

Source: Author

To start with, in the earlier partnership approaches management was usually only delegated for operation and maintenance of standposts. In most of these cases, such as in Arusha, Addis Abeba, Blantyre or Port-au-prince, the responsibility for these tasks was handed over to local leaders or water committees, or other neighbourhood representatives. In Arusha (Tanzania), according to WUP (2003, p.43) management responsibility was given to neighbourhood representatives as early as in 1993. The arrangement was that a selected local leader managed several kiosks and hired staff to attend the kiosks and sell water. The utility remained responsible for O&M up to the meter, and the kiosk operators had to take care of all parts after the meter. However, several problems occurred under this model. The water retail price at the kiosks was often found to be twice the amount of the agreed price, and thus almost 7 times higher than the kiosk water tariff the operators paid to the utility. Non-payment of water bills was another regular constraint. Standpost operators also faced problems due to competition from illegal household reselling. According to WUP (2003, p.43) the replacement of the local leaders with private operators has improved access for low-income consumers, however a more recent study on this case would be interesting but could not be found. Only WSP (2009a, p.3) mentions that the model applied in Kisumu (Kenya) has previously been used in Manila and Arusha. Other similar examples are from

Dakar (Senegal) and Bamako (Mali) which are described in more detail by WUP (2003) as well as from Port-au-Prince (Haiti) described by Colin and Lockwood (2002, p.6). In Dakar, in 1999 the utility started to lease the management of standpipes to local management committees, who themselves entrust day-to-day management of the standpipes to local community groups by a competitive selection procedure. In Port-au-prince, in 1994 water committees were handed over 65 standposts to supply 210,000 unserved inhabitants. In Mali, three Water Users' Associations have been established in one district each and are responsible to manage or delegate management of kiosk water supply. One of the associations, which manages three standpipes, contracted an operator that they chose through a public tender. The committee manages renewals and extensions of installations, represents the interests of the users and supervises the operator. The operator recruits standpipe attendants, sells water and pays a fee for every m³ produced to the committee. According to WUP (2003), the system has shown to be successful. The water reselling price is half that charged by utility standpipe operators, and no major disputes have occurred between the operator, the Water Users' Association and users.

More extensive models going beyond standpost management have been established in Manila, Ouagadougou, Nairobi, Kisumu, Naivasha (Kenya) or Maputo. Whereas the management of water services for the urban poor is relatively similar in all these cities, the cases of Naivasha differs in the way that the alternative providers do not receive their water from the utility and are thus independent from the utility. In Maputo, both systems are mentioned in different studies. All of the examples have in common the establishment of a tri-sector partnership between the utility, the providers and a facilitating NGO or agency.

The cases of Kisumu and Naivasha are discussed by WSP (2009a) and Norman and Parker (2011), and both studies mention the similarity of both projects regardless of the fact that the small-scale providers in Naivasha are independent and receive water from private boreholes, whereas in Kisumu they receive bulk-water from the utility. In both cities, but also in Manila, Ouagadougou and Maputo, the small-scale operators are selected by the water utility through a public tender. The chosen operators are then contracted by the utility to manage the water supply in an assigned area. Amongst others,

main responsibilities of the operators include billing, revenue collection and minor network maintenance.

Regarding the management type, in Kisumu the selected operators are both private and community based organisations. In Ouagadougou, Manila, Naivasha and Maputo all selected operators are private enterprises. However, Norman and Parker (2011, p.2) state that the principles and experiences of delegated management are similar regardless of whether the contractor is a private company or a community group. The only mentioned difference is that while CBOs may add another layer of bureaucracy, they offer a wide support network for tasks such as patrolling the network.

Methods of service delivery also slightly differ between the various cities. In Naivasha, the small-scale independent providers distribute water only through kiosks. In 2011, one private operator served 6,000 people via 8 kiosks, a number which shall be increased to 14. Kiosk attendants are hired by the operator. (Norman and Parker 2011) Another example of a parallel piped water supply network is from Lusaka. According to WUP (2003, p.61), a resident development committee manages a supply network that provides water through a borehole source and 39 standposts in a low-income settlement. The committee has legal recognition and owns the infrastructure within their jurisdiction.

In Kisumu, Ouagadougou, Manila and Ouagadougou, the providers are responsible to serve a whole assigned area and usually provide different options of water supply. In the sub-network model of Kisumu, five operators run five different supply lines in the informal settlements of Nyalenda. Via meter chambers which are installed at these lines they provide water to the customers using private connections, shared standpipes and commercial kiosks (Figure 2.11, left)

Two of these operators are community-based organisations, whereas the other three are private operators. In 2008, in total 155 connections were existent on all service lines, varying from 19 to 73 per line (including both household connections and kiosks). At the same time, these lines accounted for 23% of water billing in Nyalenda. After paying the set-up bulk price to the utility the operators can retain any revenue, which shall give them financial incentives to increase access and improve services (Figure 2.11, right). To reduce risk of non-payment, a deposit system has been established under which connected consumers have to deposit a certain amount of money to the operators, which themselves have to deposit money to the utility. Both the operators and the utility have the right to withhold the money in case of default. (WSP 2009a, p.11–12)

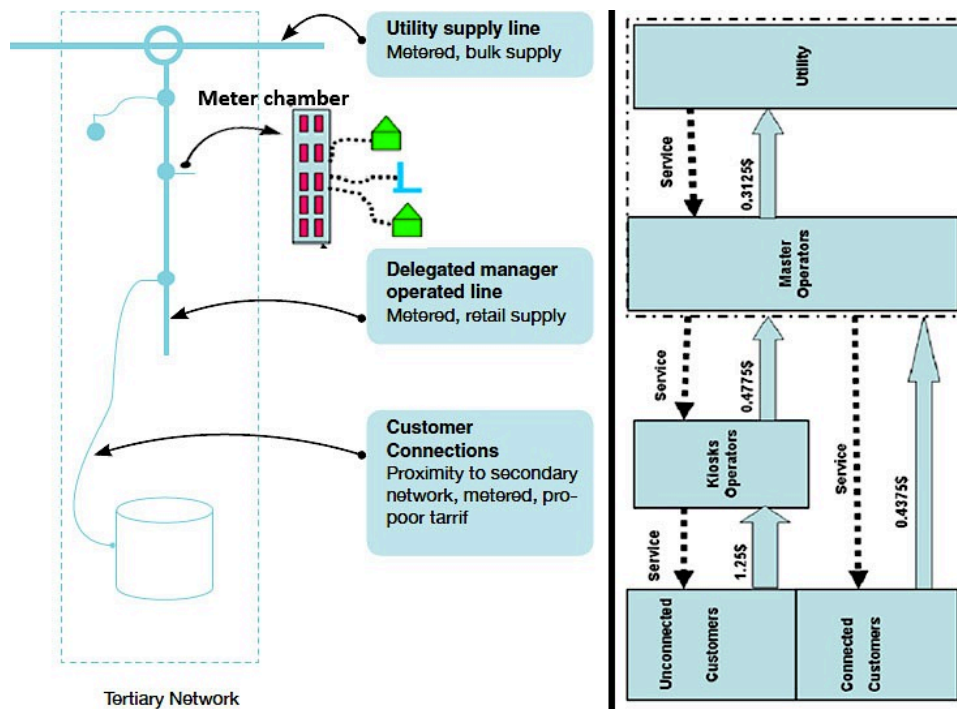


Figure 2.11: Network design and financial flows in Nyalenda, Kisumu, Kenya

Source: adapted from WSP, 2009a, p.4; Schwartz and Sanga, 2010, p.769

The delegated management approach in Ouagadougou is described by Messas *et al.* (2011). The utility (ONEA) extended service provision to five areas through construction of a simplified network and delegating the daily operation, customer management and network extension to private operators, who are provided with bulk water. To lay a main pipe into the area, a small re-settlement project was required to construct a new road into the settlement. Due to the lack of space in the settlement, different types of pipes are used for the secondary network than for the main pipes (Figure 2.12). As in Kisumu, the sale price is fixed by the utility and identical to the rest of the town. Incentives measures for connection development are provided in the form of a subsidy for each household connection realised by the operator. Until the end of 2010, the operators expanded the secondary network to serve about 12,000 previously unserved customers via 60 kiosks and 800 household connections. Only in the first year the operators struggled to generate enough revenues and required financial assistance.

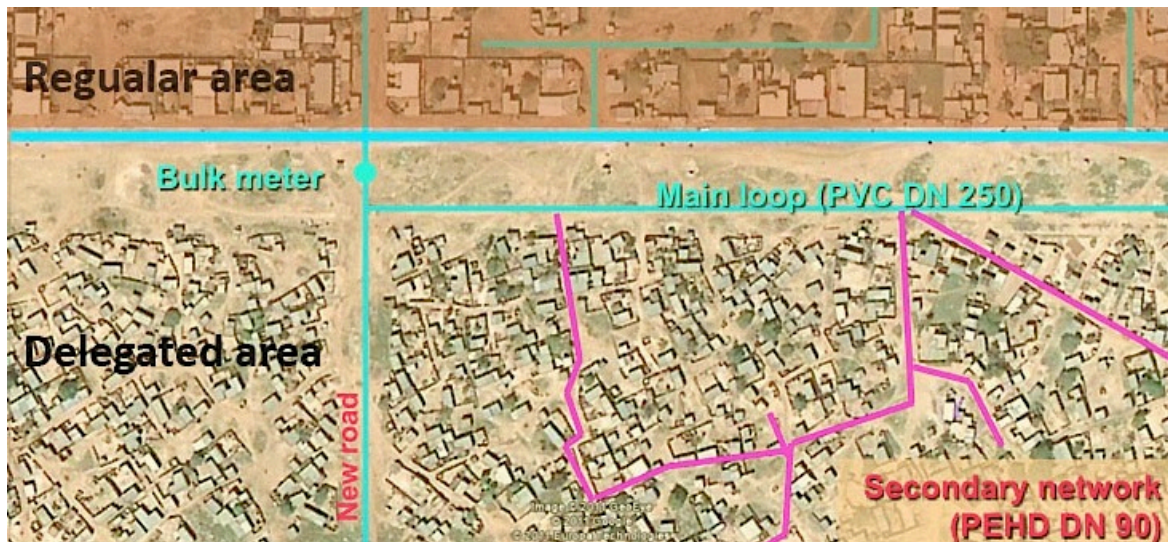


Figure 2.12: Network design in in informal settlements of Ouagadougou

Source: adapted from Messas *et al.*, 2011

Sansom (2006a, p.27) and WUP (2003, p.24) describe the model of Manila, where two private operators received responsibility for water services in poor areas. They operate under a concession contract and are supervised by a government regulator. This model leads to several innovative service delivery options. Groups of users can apply for group taps or yard connections and share costs. The shared connection is metered, and if wanted users can install sub-meters to avoid problems with sharing costs. In some settlements, bulk water supply to a community group for on-selling was established. Also, individual household connections are provided in low-income areas at reduced costs which can be paid by instalment. In the narrow streets of the informal areas, the network is extended through pipes above ground or attached to walls, which deliver water to a battery or cluster of water meters. From there, the inhabitants make their own plastic connection above the ground. One of the main findings of this option is that the residents of unplanned areas would prefer household connections to public standposts. A similar approach of service delivery has been adopted in Mukuru, an informal settlement of Nairobi. The utility (NCWSC) constructed water meter chambers in the middle of the settlement, each containing about 30 water connections (Figure 2.13). Small water enterprises are responsible for the pipe network from the water chamber to their water selling points. (Peal and Evans, 2010)



Figure 2.13: Water meter chamber, Mukuru, Nairobi

Source: Peal and Evans, 2010, p.8

In Maputo, a similar model has been established to the ones described above. There, the

utility supplies and charges a private operator bulk supplies, who is responsible for providing water supply in an assigned area and collect revenues from the customers. Individual household connections and shared connections are the means of service delivery provided by this private operator. (Norman and Parker, 2011, p.10) Chaponniere and Collignon (2011) describe a second management model that has recently been implemented in Maputo. In the northern unserved areas of the city, about 450, until recently informal, operators serve the inhabitants through house connections and stand pipes. All these operators have their own borehole, are independent from the utility and their investment is totally private. According to the study, the market is highly competitive, there are no cartels and in each district several operators compete for the same customers. Most of the operators are very small businesses, and only about 50 of them manage more than 200 connections. Since 2009, FIPAG, the national water assets management institution, is trying to establish a formal relationship with the operators and to issue licenses, which hardly includes regulation but leads to recognition of the providers. In addition, new infrastructure is constructed and leased to selected operators, who are responsible to manage the infrastructure, develop the secondary network and connect the households. So far, three operators were each allocated a small system, however to promote competition other operators are authorized to connect people in the same areas. The water tariff is fixed by the regulator, and service extension is promoted through output based aid. After one year, all three operators managed to connect more households than expected. Overall, the study concludes that these local public private partnerships appear to be an efficient solution to non-served areas and poor customers when providing them with an enabling environment and financial incentives. However, access to cheap groundwater also facilitated the success, but can be replaced in other cities by a utility supplying operators with bulk water.

2.8.2 Performance of different delegated management models

A good overview of experiences with delegated management models is provided by Keener *et al.* (2010) Although being very comprehensive, the study focuses on experiences with service provision through standposts and includes both formal delegated management approaches and the more informal water sector. Thus, it is supplemented here with the findings from the cases described above.

In general, the study (Keener *et al.*, 2010, p.37) summarises that experience with different delegated management models has been very mixed, both within cities and

among cities, and has often not been effective in terms of providing a reliable service, timely bill payments to the utility, and lower water prices for the poor. Models with management delegation to local leaders or community groups are highlighted as particularly problematic, as they often assume a more homogenous and well formed community and fail to take the complex local social environment into account that usually exist in more urban areas. Amongst the experienced consequences are political involvement into selection of standpipe managers, control of standpipes through local elites with little accountability to the users, and failure to pay utilities and to the provision of low-quality service at a higher price. Blantyre and Lilongwe are stated by (Keener *et al.* 2010, p.17) as examples where community managed kiosks have been developed with extensive community involvement but were captured by local elites as soon as the mediating NGO left. Although private operators may provide services more efficiently, they also tend to increase end-user prices. Besides disregard of the complex social environment, insufficient information sharing amongst the users, e.g. on water price, management structure or feedback mechanisms adds to the reasons for failure in many cases. Lack of transparency in the operator selection process and inadequate monitoring by the regulators are other constraints highlighted by Keener. One important source of many of these problems is that in many cities standpipes usually account for less than 10% (Keener *et al.*, p.38) of the utility total revenues. Therefore, many utilities have little incentives to deal with these problems and impose better monitoring systems. As an ultimate consequence of these problems, although water is sold to the operators at a subsidised tariff, end-user prices at standpipes are often higher than for house connections (Figure 2.14) and many users collect water from other unprotected sources, thus leading to a shift from improved to unimproved sources of water.

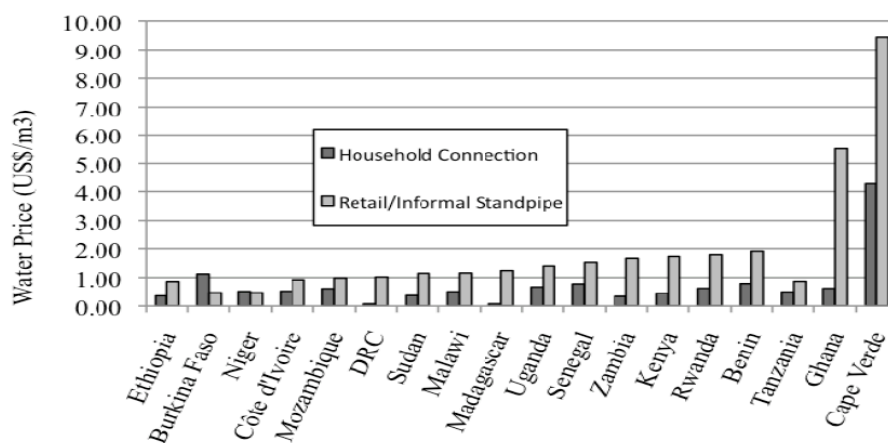


Figure 2.14: Comparative water price from household connection vs. from standpipe

Source: Keener *et al.* 2010, p.24

As most of the cities analysed in the study of Keener have implemented a delegated management model, it can be summarised that this model often falls short in terms of effective regulation of standpipe prices. Under delegated management models, operators are usually monitored directly by local authorities or community groups and indirectly by the utility. Although many utilities or regulators try to control the retail prices, they usually lack the capacity, resources and incentives to for effective monitoring and enforcement of regulations. As a consequence, retail prices are often not only higher than arranged, but also highly fluctuating. Figure 2.15 below shows how in many cities the formal standpipe prices, which are set-up by the utility or the regulator, differ from the informal retail prices which the end-users have to pay.

Whereas the fairness of the usually high water prices from informal alternative providers is open to discussions in the literature (e.g. Franceys and Gerlach 2008; Sansom 2006b), regarding the high price at more formally managed standpipes Keener *et al.* (2010, p.24) states with reference to several studies that the underlying causes for the difference between the utility and retail prices are less driven by high operation and maintenance costs but rather linked to profit-motives. Main reasons for this finding are:

- Low O&M costs due to inadequate maintenance of standpipes or kiosks
- Low water costs due to subsidised tariffs
- Underpayment of water bills to the utility
- Low level of regulation and enforcement of formal tariffs
- Social factors

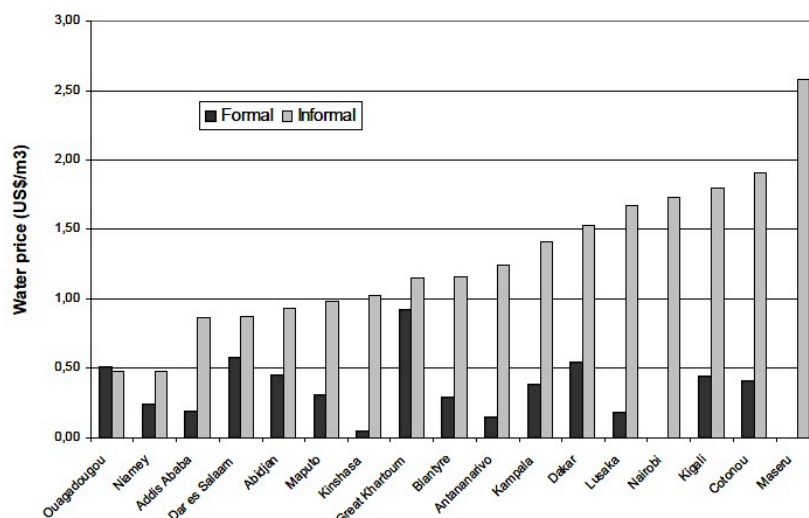


Figure 2.15: Formal and informal standpipe prices

Source: Keener *et al.* 2010, p.25

The importance of regulation is not only highlighted by the negative examples but also by the more successful schemes, which include monitoring by the utility, WUAs or NGOs. However, as mentioned earlier in section 2.6.2, the drawback of this necessity are additional administrative costs. Consideration of the social context and level of social cohesion is also important when determining the management structures. In addition, successful schemes implemented a good checks and balance system to minimise political interference in management. Overall, good quality service and fair and transparent prices are much more likely when the utility engages in monitoring the status of the standpipes, regularly collects the revenues and provides technical assistance to the standpipe operators. However this requires incentives for the utility to maintain interest in serving the poor. Besides regulation, Keener *et al.* (2010, p.41) proposes intensive publication of formal prices, management arrangements and responsibilities to broader groups of consumers. Regular feedback mechanisms for consumers should be implemented. Blantyre, which is discussed in more detail in chapter 4, is mentioned by Keener *et al.* (2010, p.17) as a positive example where the utility is responsible to provide technical assistance, legally registers the WUA, and monitors operation of the standpost, however the kiosk water price is still sometimes raised. In Ouagadougou, where water is partly provided by the delegates through kiosks, according to Hydroconseil³ resale prices at kiosks are sometimes informally raised, but still much cheaper compared to water sold by informal providers.

Looking at the more recently established and often sub-network delegated management models described above, most of the studies highlight their success. In Manila, WUP (2003, p.24) states that the service provision via the battery of water meters as reduced water costs for poor families by up to 25%. Within only two years, water connections could be provided for 50,000 new households. In Mukuru (Nairobi, Kenya), the recognition of SWEs as legitimate businesses in combination with the installation of water meter batteries helped the providers to reduce their operation costs, increase their financial security and enable better future planning. Reduced water prices and increased benefits are the main benefits for the users and the utility respectively. According to WSP (2009a, p.10) and Norman and Parker (2011, p.2), the operators working under the delegated management models in Naivasha, Kisumu and Maputo all have succeeded to run a viable business while at the same time making water more affordable.

³ Statement of engineer of Hydroconseil, Loughborough, 7th July 2011

WSP (2009a, p.10) states that poor residents in Nyalenda now pay less than high- and middle income earners in the city of Kisumu, which is the opposite from the situation before. Another major improvement is that connection costs from the small-scale operators are 63% cheaper than the utility price. Also, all water that enters the supply lines of the small-scale operators is metered and billed. As the operators rely on the revenues to pay their bills and make sufficient profit leaks and other breakdowns are usually identified and repaired promptly. Schwartz and Sanga (2010, p.768) and WSP (2009b, p.44) summarise that the delegated management model in Kisumu led to considerable service expansion, service improvements for those not connected to the network, decreased water prices, reduction of illegal connections and non-revenue water, improved billing-collection ratios and employment opportunities for the operators. For the utility, besides increase coverage the major improvement are the additional revenues by selling water to the small-scale providers. This model has also effects on the informal water vendors, who face increased competition due to the increased number of water points and lowered the prices.

In Ouagadougou, according to Messas *et al.* (2010) due to the success of the delegated management model the approach is likely to be expanded. Not only did the five operators manage to extend services to about 12,000 new customers, but also four out of the five delegates run commercially viable operations and have achieved financial stability and exceeded the annual performance objectives. To extend the model to other areas, funding for secondary network extensions would be required, however the existing operators have proved that they are able to finance the costs for operation and connections.

Success is also reported from the second model in Maputo, which is based on independent private providers. According to Chaponniere and Collignon (2011), all three operators managed to invest their own funds into extension of the pipe network and thus connected about 2,000 households. This is a sign for the fact that all operators have real confidence in the sustainability of the system. For the customers, service has improved in terms of pressure, price and reliability.

2.8.3 Lessons learned

While many of the earlier delegated management model projects have experienced problems, as for example highlighted by Keener *et al.* (2010), many of the recently established projects seem to be successful. In the next chapter, the main reasons and

factors for success of these cases are identified and presented as well as some of the remaining challenges discussed.

Regarding the performance of different management types, the study of Keener *et al.* (2010) highlights that local leaders and community groups or water committees are often not able to provide improved and sustainable services. WSP (2009a, p.12) adds that in Kisumu the experience with both private and community based operators shows that whether the operator is a CBO or private operator is not as important as having an entrepreneurial spirit, business acumen, strong community relations and remuneration of personnel, since volunteerism is not sustainable. Colin and Lockwood (2002) and Smith (2006) identify the following factors as important in partnership approaches:

1. Commitment of key politicians and utility to serve the urban poor.
2. Sufficient amount of water provided by the utility to meet the demand.
3. Clarity of the agreement or contract, including responsibilities and ownership boundaries, to prevent duplication or neglect of important tasks.
4. Financial incentives for all stakeholders so that each partner maximises their contribution.
5. Monitoring of the operators and on-going and regular dialogue between the utility, operators and community representatives.
6. Complementarity planning to combine the skills and resources of each partner.
7. Innovation to allow creative input from all involved.
8. Respond to local wishes

Many of the factors for success highlighted in the various studies are covered by this list. Norman and Parker (2011, p.12) mention the clearly defined contractual arrangements and appropriate financial incentives for all actors as key factors for success in all cases. They summarise that the most successful and sustainable examples are found where contracts are clear about ownership, management and operation.

A supportive regulatory environment is also a major factor raised by several studies. (Norman and Parker, 2011, p.12; WSP, 2009a, p.8; Chaponniere and Collignon, 2011, p.7) According to WSP (2009a, p.8), the success in Kisumu was strongly facilitated by a water sector that allows far-reaching decentralisation, legal recognition of small-scale providers, political will of the water board to improve services for the poor and improved performance of the utility itself. Availability of water ensured through sufficient water production is also a mentioned precondition. For Manila, Ndezi (2007,

p.36) states that the presence of a strong NGO helped in the establishment of the delegated management scheme. In general, a facilitating NGO or agency was involved in at least in the beginning in all projects. Besides assistance in the set-up, they might be required to provide training for the operators in management and maintenance (WUP, 2003, p.44) In Ouagadougou, technical assistance is provided to the delegates for a time period of about one year. (Messas *et al.*, 2011, p.4)

Enabling access to finance for both the operators and the users is crucial in all of the described cases. First of all, tariffs that allow the operators to make viable business and keep interest of the utility in serving the poor high are required. In addition to that, in Manila the operator introduced an interest free repayment scheme for household connections which made these affordable to the poor. In both Ouagadougou and Maputo, output based aid is part of the contract. Thus, the operators receive a subsidy for each household connected. However, it is crucial that the subsidy is paid promptly as the operators rely on them. For Maputo, Norman and Parker (2011, p.11) state that access to investment and credit facilities should be provided to help the providers to develop their operations and ensure sustainability.

Transparent and competitive bidding and selection processes are highlighted in the studies on Ouagadougou (Messas *et al.*, 2010), Maputo, (Chaponniere and Collignon, 2011, p.6) and Kisumu (WSP 2009a, p.15).

Adapted and less restrictive technical standards are mentioned by WUP (2003, p.24), Messas *et al.* (2010) and Chaponniere and Collignon (2011) as requirements to improve services in informal settlement in Manila, Ouagadougou and Maputo.

Norman and Parker (2011, p.4) describe the importance of regulation in Naivasha and how the contract between the utility and the operator defines responsibilities and bill payment. Amongst other specifications, the operator has to ensure storage levels for 13 hours, pay for local repairs and pays the utility 15% of the net revenue. The utility monitors quality standards of new constructions, pays for extensions of the network and administers customer complaints. Also, the operator is required to purchase water only from the authorised borehole owners. In Kisumu, according to WSP (2009a), the water reselling price could be lowered through official recognition of the small-scale operators, the sale of water at fixed bulk rates and regulation of the reselling price. Also, in addition to the regulation operators have to publish the arranged prices. A deposit system under which the operators have to give a certain amount of money to the utility helps to ensure

payment. In Maputo, to increase competition other small-scale operators are allowed to provide services to inhabitants of the same areas.

In Figure 2.16 the major factors for success identified in these delegated management models are summarised.

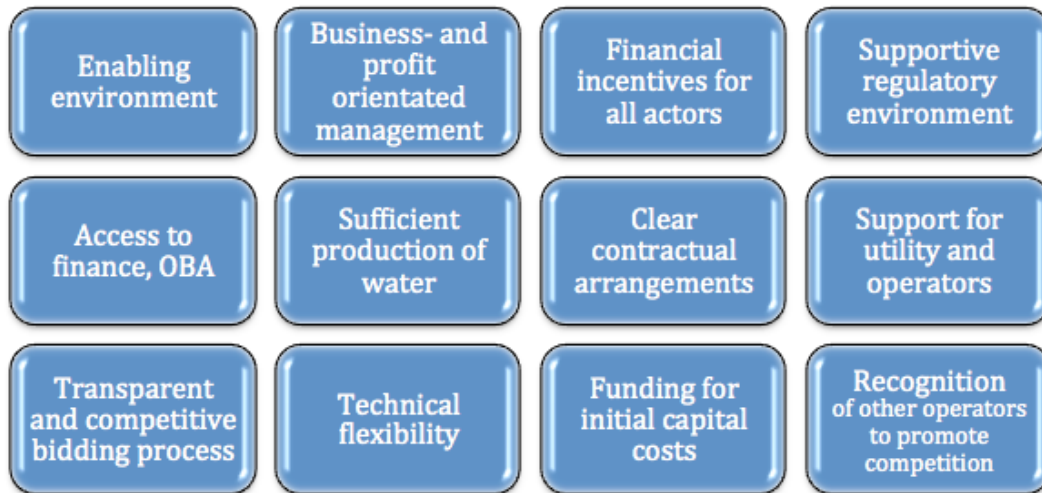


Figure 2.16: Main factors for successful delegated management models

Source: Author

Besides the general success of the described delegated management models, some clear challenges remain. Based on the experiences in Maputo, Norman and Parker (2011, p.10-12) state that insufficient resources and capacities of the local small-scale providers require a sustained period of capacity development to help the provider to strengthen their operational skills. In Kisumu, some remaining challenges mentioned by WSP (2009a, p.12) are occasional vandalism, meter theft, illegal connections, building staff capacity and interaction with the community. Although a user water and sanitation committee was set up, its roles are unclear and communication remains at a low level. The remaining problem of illegal connections is also mentioned in the case of Maputo (Chaponniere and Collignon, 2011, p.7)

Schwartz and Sanga (2010) mention some additional constraints that make the model of Kisumu not truly sustainable. In contrast to the findings from WSP (2009a), Schwartz and Sanga (2010, p.769-770) state that the customers of kiosks run by the small-scale providers pay three times more for their water than households with a private connection. Another observed problem is lack of transparency and corruption within some of the operators, where leaders were accused of misusing collected revenues. Also, against the agreement the utility has not transferred all customers from the old lines to the new lines managed by the small-scale providers. Unsupportive attitude towards the

operators of some of the utility staff and mistrust of customers towards these operators are also mentioned. To overcome these problems, Schwartz and Sanga (2010, p.770) recommend an outreach program to sensitize the community, to strengthen the capacity of the operators especially in the fields of financial management and customer management, and an increased commitment of the utility towards this model.

Regarding cost recovery, in most of the cases external funding was required to improve infrastructure, set up the management model and provide support and training to the involved stakeholders. Norman and Parker (2011, p.9) state that all capital costs of the project in Naivasha required grant funding, and that future investments to scale up the project would require at least partial subsidies. According to WSP (2009a), the operators in Kisumu are also able to cover their expenses but rely on external funding for capital costs. Messas *et al.* (2011, p.4) also mentions that while the operators manage to fund operation and connections, external funding would be required to extend the secondary network into other parts of the town. Schwartz and Sanga (2010, p.770) conclude that many of the benefits made in Kisumu appear to be wholly or partially the result of the infrastructure development phase rather than of the delegated management. They thus resume that it is unlikely that the delegated management model can have the same impact without such investment funds for infrastructure, an aspect that needs to be further looked at not only for Kisumu but also for other cases.

2.9 Concluding comments

The described international examples and experiences clearly show that delegated management approaches can bring a lot of improvements in water supply for the urban poor in many different locations. Better service provision for the local inhabitants, higher revenues for the utility and a viable business for the service providers are only some of the highlighted benefits. The lessons thus far do not only justify the utilities' efforts to engage more intensively with alternative providers but also the expansion of such models to other cities where utilities struggle to serve all urban consumers.

From the described cases, it seems that the more complex sub-network management systems, such as in Kisumu, Ouagadougou or Maputo, have the potential for higher benefits especially for the users. Under these systems, the providers have strong incentives to extend the network and provide reliable services so to increase their revenues. In contrast, in less complex management types, where the utility manages the whole network, service extension might be more difficult as the utility might not have the

capacities and alternative service providers may not have the required financial incentives. However, not only are the potential benefits higher in the sub-network management systems but also the required resources and capacities of the service providers. As well as this, the utility has to provide sufficient amounts of water and ensure regulation and monitoring.

Finally, the literature review shows that delegated management models, regardless of their design and management level, are not automatically successful but that many factors need to be regarded.

The literature review also highlights the strong need for further studies to get a better understanding of this young and complex topic.

First of all, there is no single in-depth cross-country analysis of delegated management models. The study from WUP (2003) was undertaken almost a decade ago and many of the described cases emerged afterwards. The second identified, more comprehensive study, is that from Keener *et al.* (2010), however it focuses more on standposts and hardly regards more complex management models. This literature review can be seen as a starting point to bring together otherwise isolated pieces of knowledge and experiences, however more detailed and extensive studies are required to deepen the information provided in this study.

Sustainability of delegated management models is another aspect that is not adequately discussed in the existing literature. Many described examples have been established only a few years ago, and although many operators have shown success, it is difficult to say how they will perform after several years without much external support. Regarding the long-term suitability of delegated management models, Hayward *et al.* (2011) raise the question whether delegated management models are more adequate as interim or also as long-term solutions, and add that stakeholders should keep in mind that intended temporary solutions may become permanent. Norman and Parker (2011, p.11) also raise the question of the long-term suitability of delegated management models. According to them, one long-term possibility is that the utility moves gradually into the periphery, while small private operators move ever further out until they are finally absorbed entirely.

Throughout the literature almost no differentiation is made between different types of management models, i.e. kiosk-only or sub-network models (see Figure 2.10). The

summarised main factors for success in Figure 2.16 thus require further specification for such different levels of delegated water supply management.

The requirement for distinction between different provider types is especially high when regarding regulation of alternative providers, a topic where literature is generally limited. More complex management models are likely to require different forms of regulation than kiosk-only models. Inversely, regulations that are successful for sub-network providers might not be practicable or effective for kiosk-only management systems.

Despite the possible higher benefits of sub-network models, in many cities the involved stakeholders might not have the capacities to establish and maintain them. Thus, kiosk-only systems might be more practicable in many situations. However, experiences with these have been mixed as described particularly by Keener *et al.* (2010). Thus, more knowledge is required on how kiosk-only systems can function more successfully.

These major identified gaps in knowledge provide the background and justification for this study. The research conducted in Lilongwe and Blantyre aims to address and reduce several of these gaps and thus to contribute to a better understanding of the topic and ultimately to improve delegated management models. To acquire the information needed to investigate the objectives of the research, suitable methods had to be identified and selected. The methodological approach used in this research is described in the following section.

3 Methodology

3.1 Background of the study

Communal water points have been established in Malawian cities since the 1980s to improve water supply in low-income settlements. From early on, management for many of these standposts was handed over by the utilities to other operators, such as water committees or local leaders. However, WaterAid (2008) and Manda (2009) describe a wide range of problems that occurred, such as poor bill payment, lack of transparency in billing system, overcharging of users or local and political leaders taking over the kiosk. As a consequence of these failures, the kiosk operators in both cities accumulated high amounts of arrears, which ultimately led to the interim disconnection of several kiosks in the mid 2000's. Since then, kiosk management units (KMU) have been established in both utilities, which focus on kiosk water supply in the low-income areas. In addition, a new kiosk management model was introduced first in Lilongwe and later in Blantyre, which are Water Users' Associations. Although other operators still exist, the Water Users' Association are now the main type of service providers who are responsible for the management of water kiosks, and according to WaterAid (2008, p.7) and Manda (2009, p.60) have brought commendable improvements in billing and repayment of arrears. However, compared to other models described in the literature review the delegated management model in Lilongwe and Blantyre is still on a relatively low level, as the utility manages the whole network and only kiosks are delegated to alternative providers. Nonetheless, inside this system there is a shift from more informal and smaller kiosk management organisations to more formal and larger ones, who are responsible for a high number of kiosks within an assigned area. In addition, according to O'Connor (2007) it is also planned in Blantyre to pilot a sub-network water supply model with a private operator.

3.2 The choice of Lilongwe and Blantyre

Kiosk-only management systems have been established in Lilongwe and Blantyre since several years. With an analysis of these, the study can contribute to a more diversified knowledge of the requirements for success under different management systems. Also, as pointed out above the existing knowledge is limited especially on such kiosk-only systems, however they might be more practicable in many cities than sub-network

models. The study in Lilongwe and Blantyre allows for an in-depth analysis of the challenges and important considerations under such kiosk-only systems.

In both cities, after handing over the kiosks to alternative providers the utilities experienced several problems, but since a change in the management structure of the alternative providers more successful outcomes are reported (WaterAid, 2008; Manda, 2009). As in both cities 'old' and 'new' management models still exist, the problems the utilities face with different providers as well as the challenges of the respective providers can be addressed in two cases. In doing so, valuable knowledge can be gained on the affects of different management models on the outcomes and success as well as their different requirements for support and regulation.

Due to the very limited existing knowledge, the aspect of regulation is a major focus of this study. The cases in Lilongwe and Blantyre allow for an investigation of the effectiveness and practicality of regulation in kiosk-only management systems. Finally, in both cities kiosk management has already been delegated to other providers for more than a decade, and more recently established management models have existed for several years. This relatively long timeframe of existing delegated management models in Lilongwe and Blantyre enhances the temporal validity of the research findings.

Finally, the delegated management approach in these two cities is very dynamic and subject to both change and growth. Thus, the outcomes of this study might facilitate future decision-making by key stakeholders and may help in the adaption of existing models to improve water supply in the low-income areas.

3.3 Research strategy

Yin (2009, p.8) lists five major research strategies, which are: experiment, survey, archival analysis, history and case study. To select an appropriate strategy out of these options, Yin determines three criteria which should be regarded. These are:

- The type or form of the posed research question
- The extend of control an investigator has over actual behavioural events
- The degree of focus on contemporary as opposed to historical events.

Regarding these criteria, the author decided that a case study was the most appropriate research strategy for this study. First of all, the study tries to find out *how* different management models vary in their performance, but also aims to identify *why* these differences appear. Exploratory *what*-questions were also raised by the author, which

according to Yin (2003, p.6) is suitable for case studies. Answers to these questions were then used to discuss *how* improvements could be achieved. Regarding the other two criteria, Yin states that a case study requires no control of behavioural events and focuses on contemporary events. Both were the case in this study, as the researcher did not have any influence on the local circumstances and because delegated water management is a very recent approach, which excludes the option of a historical study. Altogether, as summarised in Table 3.1, regarding these three criteria the characteristics of this study favoured the selection of a case study approach.

Table 3.1: Relevant situations for different research strategies

Strategy	Form of research question	Control over behavioural event	Focuses on contemporary events
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival analysis	Who, what, where, how many, how much?	No	Yes/No
History	How, why?	No	No
Case study	How, why ✓	No ✓	Yes ✓

Source: Yin, 2003, p.5

A case study is defined by Yin (2009, p.18) as “*an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.*” A case study allows the researcher to focus on a few instances and to deal with the subtleties and intricacies of complex social situations. (Denscombe, 2007, p.45) It therefore provides a multi-dimensional picture of the situation and can illustrate relationships in particular contexts. (Remenyi *et al.*, 1998, p.51) Denscombe (2007, p.45) adds that the case study allows and even encourages the use of a variety of research methods as well as multiple sources of data, which facilitates the validation of data through triangulation.

According to Yin (2003, p.14f.), case studies can be single or multiple. In multiple case studies, either the same issues can be covered more intensely or a wider range of issues be regarded. Multiple cases have the advantage that they provide a broader array of evidence than the do single cases. The context of two cases are likely to differ to some extent, so if common conclusions arrive from both cases, they strongly increase the replicability and generalizability of the findings. In this study, it was decided to undertake a ‘two-case’ case study in two cities in Malawi, which are Lilongwe and Blantyre. The main purpose of this decision was to cover the same issues more intensely.

3.4 Data collection methods

Although case studies are generally more linked with qualitative research, they can include both qualitative and quantitative methods (Yin, 2003, p.14). According to Denscombe (2007, p.248-251, qualitative research tends to be associated with:

- description rather than statistical analysis.
- small-scale studies rather than large-scale studies.
- words or images as the unit of analysis rather than numbers.
- holistic perspective rather than a specific focus.
- researcher involvement rather than researcher detachment.

All of these characteristics favoured qualitative over quantitative methods in this study. Thus, following the above guidelines it was decided that qualitative research methods were more suitable in this study and were employed and used exclusively. These allowed to get a more detailed and in-depth look on the relatively unknown areas of effective management and regulation, on which this study focuses. Regarding performance indicators of different providers, such as water price variations or time without water at kiosks, the chosen qualitative methods could provide a sufficient understanding of these issues. Nonetheless, future quantitative surveys on such performance aspects could deepen the knowledge gained through this research.

Within the general choice of qualitative methods, several methods of data collection were chosen to increase the quantity and quality of data and to increase the reliability of the data, as is proposed by Yin (2003, p.97) and Denscombe (2007, p.134). The following research methods were applied:

- Documentation, including both published and unpublished literature
- Observation
- Semi-structured interviews with
 - key informants
 - kiosk managers and attendants
 - users
- Focus group discussion with kiosk attendants

As mentioned above, the combination of several data collection methods allowed for an increased amount and quality of data, but also enabled the verification of the collected data through triangulation. Triangulation was done to both improve the accuracy of data

through data cross-checking as well as to obtain a fuller picture by producing complementary data. Using triangulation, the consistency of the gained data could be tested, thus leading to an increased reliability of the data and validity of the study.

3.4.1 Documentation

Documentary information, such as progress reports, formal studies of similar cases, official publications and statistics, meeting records, letters or memos etc., are likely to be relevant to every case study (Yin, 2009, p.101) and were also included in the methods of this research.

In accordance with Yin's guidelines (2009, p.203), in this study documents were mainly used to corroborate and augment evidence gained through other collection methods. Documents were collected prior to the field visit as well as during the visit from different stakeholders, most notably the NGOs WaterAid and Water for People. Progress reports, evaluation studies and discussion papers were particularly useful to both validate and supplement the findings presented in chapter 4. These documents helped the researcher to widen and deepen the understanding of the topic and were useful to refine the other research instruments such as the structure and nature of questions in the interviews.

3.4.2 Observation

In contrast to indirect methods such as interviews, which involve other people to find information, observation draws on the direct evidence of the eye to witness events at first hand (Denscombe, 2010, p.196) Observation involves field work to collect data in real-life situations. With a case-study approach that involves such field work different areas of two cities, observation was a suitable method not only to collect additional information but also to verify data gathered through indirect methods.

On-site, observation was carried out mainly at the water kiosks to gain knowledge on the water selling process, the technical aspects of the kiosks, the kiosk operators and the behaviour of the users. Observation was used both during the interviews with kiosk operators and users as well as outside of interview schedules. The latter approach was intended to reduce the effect of altering the situation, so to observe situations as they normally happen. (Denscombe, 2010, p.197)

3.4.3 Semi-structured interviews

Interviews are considered as a very good data collection method as it gains insights into people's opinions, feelings, emotions and experiences. Semi-structured interviews allow

the interviewees to freely express their ideas on issues raised by the interviewer. Also, the interviewees were allowed to develop ideas themselves and speak more widely on the raised issues, which was in accordance with the guidelines given by Denscombe. (2010, p.173-175)

In the field study, semi-structured interviews were first used to collect data from the key informants, such as the water utilities and international NGOs. Regarding the possible variations in flexibility of semi-structured interviews, these interviews were generally very open and sometimes close to unstructured interviews. Based on the collected information, the interview questions for the kiosk managers (Picture 3.1), kiosk attendants (Picture 3.2) and users were elaborated on in more detail. Whereas interviews with kiosk managers (or members of kiosk managing organisations) were also relatively flexible, interviews with kiosk attendants and users were more structured. However, the order of the raised issues did change, and the interviewees were still allowed to express all their ideas, therefore these interviews are also best categorised as semi-structured ones. After the conduction of several interviews at the kiosks, the key informants were approached again to verify or supplement the gained information. The interview questions for different interviewees can be found in Appendix C.



Picture 3.1: Interviewed members of WUA Kauma, Lilongwe



Picture 3.2: Interviewed kiosk attendant, WUA Kauma, Lilongwe

3.4.4 Focus group discussions

According to Kitzinger (1995), focus groups are a form of group interview that is based on communication between the interview participants. Instead of only responding to the interviewer's questions, the participants are encouraged to talk to each other, ask questions and comment on the statements of others. Thus, they are particularly useful

for exploring people's knowledge and experiences and finding out not only what people think but how the opinions are derived.

Focus groups were undertaken with kiosk operators, which besides the benefits described above allowed to collect data from several people simultaneously who otherwise would be difficult to reach. Thus focus groups were used as a complementary method to the interviews, as is described by Michell (2001). Whereas several focus

groups were initially planned in both Lilongwe and Malawi, due to difficulties in their organisation it was only possible to conduct one focus group with private kiosk operators in Lilongwe (Picture 3.3). With five women participating, the focus group was in accordance with the size guideline of four to eight people given by Kitzinger. (1995) The main obstacle to conduct more focus groups was the large expansion of low-income areas in which the operators live and



Picture 3.3: Participants of Focus Group Discussion, Lilongwe

work and the difficulties in transport. However, for this management model the focus group discussion helped to increase both the quantity and quality of data.

All chosen data collection methods, their links to the research questions and the informants that were addressed with the respective methods are summarised in Appendix A.

3.5 Sampling

Following the decision to use solely qualitative methods, exploratory samples were more suitable for this research than representative samples, which require large surveys, involve a cross-section of the population and usually quantitative data. (Denscombe, 2010, p.24, 41) Opposed to this, exploratory samples are more appropriate in small-scale research and to generate an insight into relatively unexplored topics. Also, exploratory samples only require a size which makes the researcher feel that sufficient information is collected, which was much more practical in this research due to lack of time and funding. Following this, a non-probability approach was chosen over probability

sampling again for practical reasons. However, non-probability sampling requires a choice to be made by researcher in the selection process. As proposed by Denscombe (2010, p.25), to follow the method of explanatory samples key informants were selected on criteria as expertise or experience. According to Bernard (2005, p.196), “good key informants are people whom you can talk to easily, who understand the information you need, and who are glad to give it to you or get it for you.” These guidelines were kept in mind when selecting the key informants for this study.

Amongst the various non-probability sampling techniques, snowball sampling was finally chosen for this study. According to Denscombe (2010, p.39), snowball sampling is highly appropriate for exploratory and non-probability sampling, small-scale research, a small sample size and low-cost and quick resources, all of which applied to this research. Following the snowball sampling technique, at the beginning of the research progress only a few key informants were included. These persons then referred to other people and stakeholders, which could then be contacted and included into the sample.

In particular, in this study key informants of WaterAid were contacted at an early stage. With their assistance, other stakeholders could be included into the sample. In Lilongwe, these were the Lilongwe Water Board and local NGOs, who then assisted the researcher to approach kiosk managers and users. WaterAid then assisted introducing the author to the key stakeholders in Blantyre, where again a snowball sampling method was followed. This process is described below in Figure 3.1. A list of all interviewees, including key informants, kiosk managers, kiosk attendants and users is provided in Appendix B.

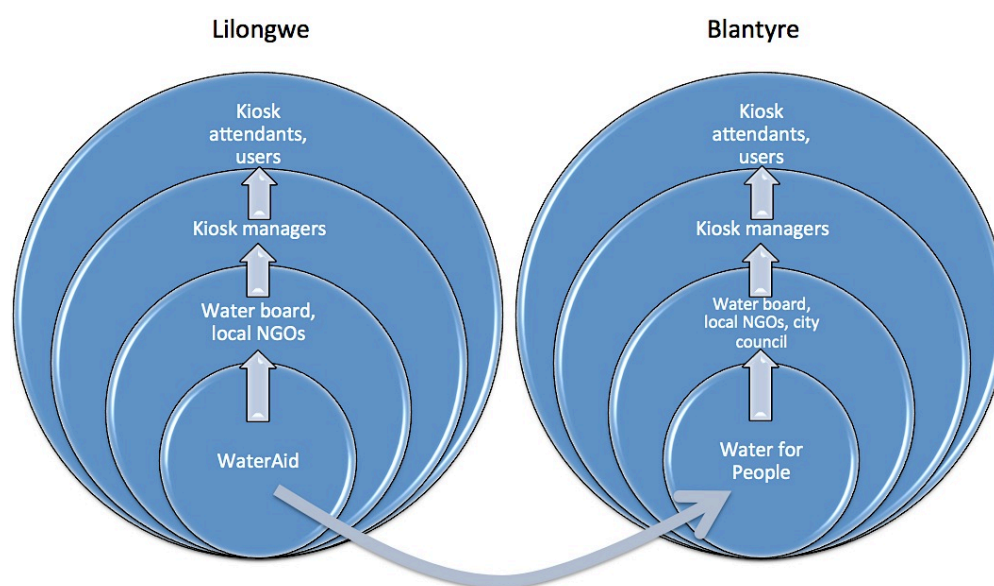


Figure 3.1: Snowball sampling in Lilongwe and Blantyre

For the interviews with kiosk operators and users, the choice on the samples was made based on several factors. First of all, following the research objectives information about kiosks operated under different management models had to be collected. Also, different areas in both cities should be included in the data collection. The selected areas and kiosks should as representative as possible, and were identified in the interviews with key informants and kiosk managers. The selection was finally influenced by the existing contacts of key informants to kiosk managers, the availability of the selected persons and feasibility mainly in terms of time and distance. Regarding the selection of participants for the focus group discussion, this process was again assisted by key informants. As the discussion topic did not involve any taboos in the society, the specific group composition was less an issue. Also, in general almost all kiosk attendants are young and middle-aged women, so that the similarity of the group was automatically given.

3.6 Data analysis

Denscombe (2007, p.288) describes five stages that are generally involved in the analysis of qualitative data:

- Preparation of the data
- Familiarity with the data
- Interpreting the data
- Verifying the data
- Representing the data

In this study, these stages were not entirely followed as a logical sequence. Instead, as according to Denscombe (*ibid.*) it is often the case, the analysis of the data was an iterative process of going back and forth between the stages.

Regarding the preparation of the data, back-up copies were made of all recorded interviews and focus groups. The data was kept on the recorder and additionally copied on to the computer.

Familiarising with the data was an on-going process both during the field study and afterwards and included reading the data and listening to the records. This process went hand in hand with the preparation of the data.

Interpretation of the data was done by a method to which Blaxter *et al.* (2006, p.210) refer to as 'explicitation'. This method works by steadily extracting a series of themes from the data collected. Denscombe (2007, p.292) specifies this process and splits it into

coding the data, categorizing the codes, identifying themes and develop general statements. Coding of the qualitative data was done after all data was collected by assigning codes, which were based on topics and ideas, to passages of the transcripts and sections of audio records. (Gibbs and Taylor, 2010) Afterwards, in accordance with Blaxter *et al.* (2006, p.211) the general and unique themes from all the interviews were identified and extracted by the researcher. For example, amongst the identified themes were 'advantages and disadvantages of different management models', 'tariffs and prices', 'performance of different providers' 'support', 'regulation' or 'technical issues'. Verification of data was done continuously as described in section 3.4 and 3.9.

In the following chapter, the findings from the field work are presented along the major identified themes and categories. Due to the iterative process of data collection, this way of presentation was decided to be more suitable than presenting the findings in the chronological order of the methodologies used in the field. Whenever suitable, the findings are underlined and supplemented by photographic illustrations, quotes or documentary information.

One major decision that had to be taken by the author was whether to present the two cases one after the other or to present the findings from both cases combined under the respective sub-headings (themes). The latter option was chosen due the relatively high homogeneity of the data. In doing so, the information of the two cases is compared against each other directly in chapter 4. As a consequence, chapter 4 is not only a presentation of the findings from the field work but at the same time a cross-case analysis. The identification of differences and similarities between the two cases in this chapter was essential to the process of constructing generalisations, which were required to answer the research objectives in the subsequent analysis (chapter 5).

3.7 Major challenges and limitations

Several challenges were encountered during the field study, which limited the outcome of the research. Table 3.2 gives an outline of the major challenges experienced by the researcher on-site as well as of the most important limitations of this study. In addition, actions undertaken by the research to overcome these challenges are presented.

Table 3.2: Challenges encountered during the research and limitations of the study

Challenge encountered	Example	Action taken to overcome the challenge
Researcher does not speak language of interviewees.	This challenge occurred usually in the interviews with the kiosk attendants and users, as well with some of the kiosk managers.	Finding a translator who is able to speak both languages with appropriate quality.
Use of untrained translators.	The translator used in the focus group discussion had little experience in both translation and facilitation, and was tempted to answer questions himself.	Briefing session before the focus group and small hints during the focus group discussion.
Use of biased translators and presence of biased persons during interviews.	In Lilongwe, several interviews with WUA members were conducted under presence or with translation of a member of the water board.	Briefing session about the importance of impartiality of this research and the importance of asking some critical questions to every stakeholder.
Transport	Fuel shortages during the whole field study handicapped transport and highly increased travelling times also within cities.	Advising to come with a full tank in the morning when ordering a taxi for the next day to go to a low-income area.
Unavailability or little time of key informants.	The key informant of the Blantyre Water Board was hardly available during the whole stay.	Being flexible and try to get information from other stakeholders. Asking the informant if can be later contacted via phone or mail.
Non-operated kiosks due to lack of water pressure.	In Nkolokoti area in Blantyre, no kiosk attendants and users could be interviewed as kiosks were not operated due to water shortages.	Being flexible and try to get information from other areas.
Closed kiosks due to kiosk opening hours.	Kiosk managers often preferred to meet in the morning at about 8.00am. Kiosk visits planned afterwards were sometimes difficult as kiosks were often closed between about 10am and 3pm.	When arranging the meetings inform interviewees that it will be necessary to talk to kiosk attendants and users as well. Visiting other open kiosks in the area.
Researcher effects	The general effect that any system is changed when the researcher enters it. After a high number of interviews the researcher had to concentrate not to interpret the information based on based on the outcome of previous interviews. This was especially important when changing the location from Lilongwe to Blantyre	Being aware of the interaction effect, that people might give answers to satisfy the researcher and that people might expect benefits from the research. Avoiding cultural misbehaviour by informing about cultural norms. Critically analysing the outcomes of all interviews.

3.8 Ethics

Ethics are an important issue in any field study. During the research on-site, the following guidelines provided by Denscombe (2002), Blaxter *et al.* (2001) and Bernard (2005) were particularly regarded:

Culture: Any researcher must ensure that they stay within and respect the cultural norms of the society in which they conduct the research.

Voluntariness: Any participation of informants in the study must be voluntarily. They must receive information on the purpose of the study and be informed that they can withdraw at any time without explanation.

Confidentiality: If confidentiality has been agreed or demanded, the material should not be used without the acceptance of the participant. If desired by the participant or if any negative consequences might occur, the participants should be given enough anonymity.

Understanding of implications: Participants in the study must receive enough information so that they can fully understand the implications of their involvement.

Information sharing: The findings and gained knowledge should be shared with the participants of the field study.

Although more points are raised in the literature, these are the most important ones that the author of this study tried to follow during the field study. Regarding the latter point of information sharing, according to Murray and Overton (2003, p.2) this is especially important to consider when a western researcher conducts research in a developing country. In this field study, a discussion about the findings was held at the end of the field stay with one major key informant. Sharing the findings from this report was agreed on with several research participants.

3.9 Validity of the study

By maximising the validity, the credibility and defensibility of the study increase and consequently lead to an improved generalizability of the results. As much of the data has been gained through interviews, it is important to note that according to Denscombe (2007, p.200) there is no absolute way of verifying what someone tells, especially when the interviewee talks about emotions, feelings and experiences. However, Denscombe

(ibid.) and Yin (2003, p.34) describe some practical checks to increase the credibility of gained information, of which the following were applied during the field study:

- Use multiple sources of evidence: Interview data should be corroborated with other sources of information. This process of triangulation was conducted by the researcher as described in section 3.4 by using information gained through observation or documentation.
- Check the plausibility of the data: the researcher should gauge how far an informant might be in possession of the facts about the topic. This was kept in mind by the researcher in all interviews and especially with non-key informants.
- Look for themes in the transcripts: a recurrent theme in several interviews increases the validity of information compared to an issue which is raised only by a single individual. Such themes were looked in the transcript when analysing the data. Examples of such themes in this study are low water pressure or long water board response time for repairs.
- Feedback to interviewees: Information gained from some interviewees was cross-checked by asking other interviewees on the same issues. This was especially used with information gained on the ground, which was often discussed with key informants afterwards.

To summarise, the case-study approach in combination with qualitative methods allowed the researcher to obtain a comprehensive and detailed picture of the benefits and challenges of different options of management, support and regulation in Lilongwe and Blantyre delegated water supply. Because of the topicality of the subject, the chosen methods were also suitable to develop new ideas, which were required to address the overall research aim. The use of several sources enabled triangulation of collected data, thus increasing the validity of the study. In the following chapter, the information that was gained in the field work is presented.

4 Findings from the field work

This chapter aims to address two key aspects of the study. In the first sections, the current approaches for water supply for the urban poor in Lilongwe and Blantyre are examined. To get an understanding of the local situation, the main stakeholders, existing delegated management models and the relationship between utility and providers are discussed. This is followed by an investigation into the differences in performance of various providers as well as looking at the reasons for these variations.

The findings that are presented in this chapter are based on the information collected with the methodologies as described in chapter 3. A list of the interviewed key informants, kiosk managers, kiosk attendants and users is provided in Appendix B. Other sources which were used to supplement or verify the given information are referenced as usual.

4.1 Presentation of the case study

4.1.1 Local context

The field work was carried out during 4 weeks in the cities of Lilongwe and Blantyre, Malawi. The author was based in these studies, and besides the interviews with key stakeholders most of the work was conducted in low-income areas at the outskirts of the cities.

Although still only 20% of the total Malawi population live in urban areas, Malawian cities are growing fast with growth rates of between 4.7% and 6.3% per year. (Manda, 2009, p.1) The urban population is concentrated in the two cities of Lilongwe and Blantyre, which together account for about 70% of the total urban population of the country. Figure 4.1 shows their enormous increase in population over the last two decades, which is likely to continue. Between 2010 and 2030, Malawi's urban population is likely to double.

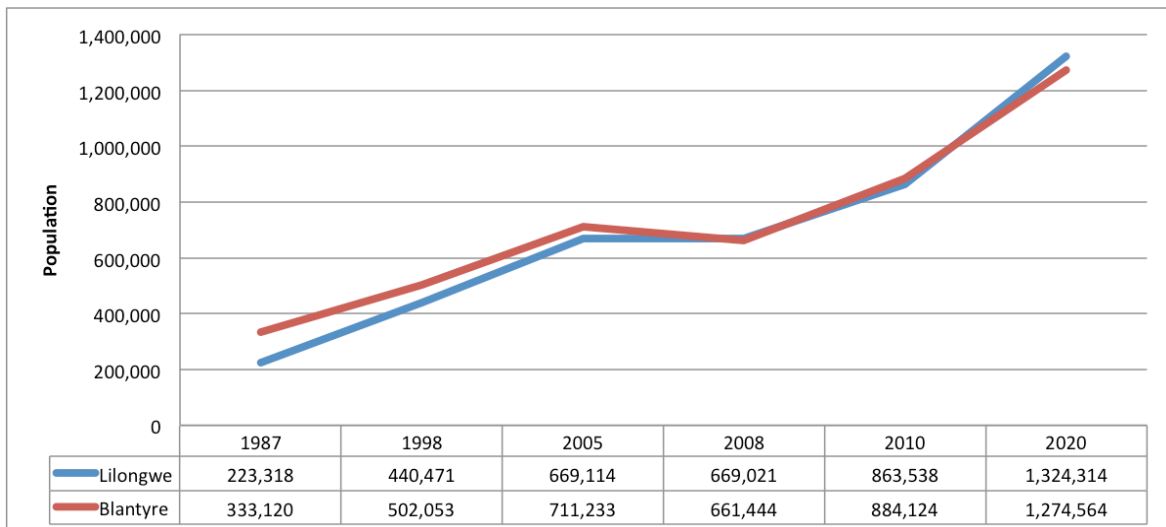


Figure 4.1: Population growth in Lilongwe and Blantyre

Source: based on Manda, 2009, p.2

According to Chirwa and Junge (2007, p.12f.) in Blantyre and Lilongwe about 430,000 and 412,000 people respectively live in low-income areas that are characterised by poor housing structures, poor water supply and sanitation services, roads and communication facilities. In both cities, it is expected that a large proportion of the projected urban population growth will occur in these areas and thus further exacerbate the difficulties in the provision of infrastructure services.

4.1.2 Situation of water supply

Regarding the regulatory framework, the Ministry of Irrigation and Water Development has the overall responsibility for the water supply and sanitation sector in Malawi. Under the Water Works Act, the Lilongwe Water Board (LWB) and the Blantyre Water Board (BWB) are responsible for water supply in the respective cities. (UN-HABITAT n.d.)

Looking at the coverage rates, it is important to mention that figures on water supply reported in the literature are conflicting and should be regarded with caution. The IIED (2009) states that Malawi is failing to meet the MDGs for water in its urban areas and that misleading official statistics are hiding the scale of the problem.

According to GoM (2011, p.25), in 2011 the Lilongwe Water Board provides water to 80% of the cities' population. In Blantyre, the BWB (n.d.) states that in 2008/09 water coverage was at 75%. However, Kalulu and Hoko (2010, p.807) highlight the strong variation in coverage within Blantyre, which in 2005 was 40% in low-income areas

compared to 96% in medium to high-income areas. Manda (2009) provides an analysis of the water sources used by the inhabitants in three low-income areas in both Lilongwe and Blantyre, which are presented in Figure 4.3. Although these figures are not representative for the whole of Blantyre and Lilongwe, they clearly show the variety of sources that inhabitants in low-income areas use. Also, they point out the low number of households in low-income areas that have their own individual connection and show the

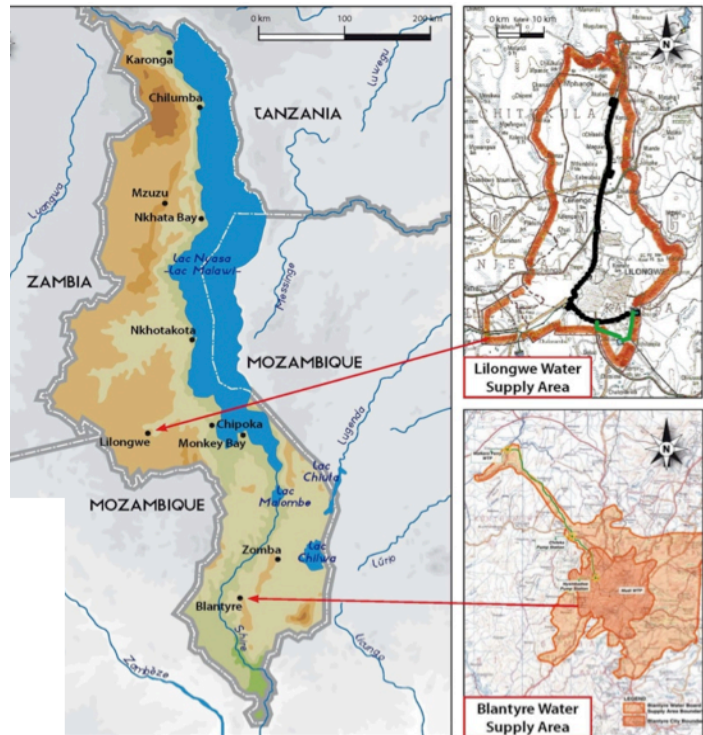


Figure 4.2: Water supply areas of Lilongwe and Blantyre

Source: Adapted from Gilst, 2010

importance of communal standpipes/kiosks in these areas. IIED (2009) and Kadzamira *et al.* (2004) add that many users in low-income areas only buy some of their water at kiosks and get the rest at potentially contaminated sources such as shallow wells or rivers. In Blantyre, according to UN-HABITAT (n.d., p.30) 46% of slum dwellers access water through kiosks while only 11% have taps in their households.

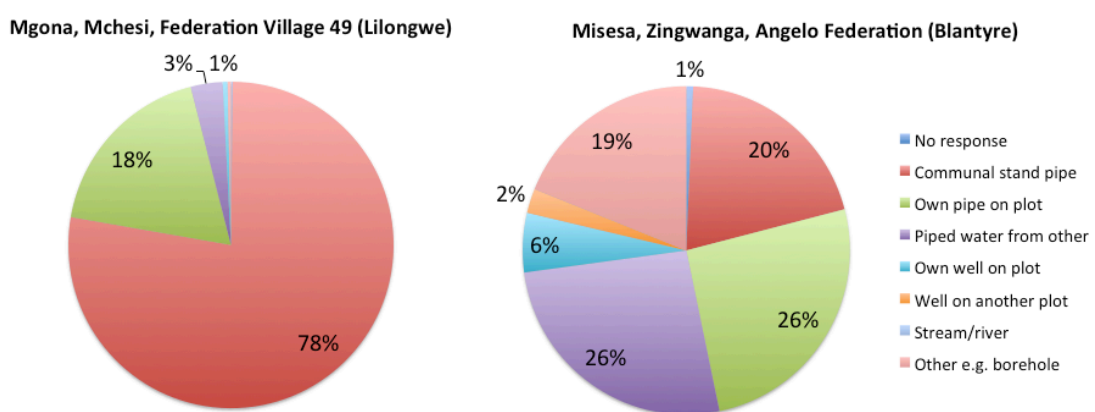


Figure 4.3: Sources of water in Lilongwe and Blantyre low-income areas

Source: based on Manda, 2009, p.34

Besides coverage, intermittent water supply and low pressure is a major problem in both cities. In Blantyre, GoM (2011, p.25) states that due to shortages, low yields, non functioning systems, short opening hours of kiosks or rationing limits, only 30% of the served people have a 24-hour supply, and 21% have access to water for less than six hours per day. In 2008, according to Manda (2009, p.vii) in the six analysed settlements in Lilongwe and Blantyre (Figure 4.3) there were several occasions when there was no water in the system for more than a week.

Walking distance is another key issue for customers especially in the low-income areas. According to the GoM (2011, p.25), in a study conducted in 2008 in Blantyre peri-urban areas 70% of the interviewed households said they walk more than 500m to the nearest improved water source, and 55% need more than 30 minutes to collect water. In a study conducted for Water for People in 2008 Bretz *et al.* (2008, p.2) add that most water points serve too many residents with only 12% meeting the governmental standard of 125 people.

Non-revenue water is another key constraint in both cities and is estimated at 30% and 45% in Lilongwe and Blantyre respectively. (LWB, 2011, p.3; BWB, 2008, p.22)

Although all these figures show that the utilities in both cities struggle to serve the low-income areas, Chirwa and Junge (2007, p.46f.) highlights some major differences in water supply between these two cities. Whereas Lilongwe is described to be “coping” with the situation, according to Chirwa and Junge Blantyre has a water crisis. There, insufficient water supply leads to severe water rationing especially in low-income areas. The Blantyre Water Board also struggles more with old and worn out equipment, meter and billing problems, untimely repair and maintenance services. Over the past decade, despite of the strong population growth investments in water supply facilities have been declining in Blantyre. Another problem the Blantyre Water Board faces are the high costs for water production. According to Kalulu and Hoko (2010, p.807), 90% of the raw water is pumped from a river over an 800 m static head and distance of 40 km.

Finally, regarding financial sustainability, Kalulu and Hoko (2010, p.810) state that the Blantyre Water Board is not viable and making losses since 2002, which is also highlighted by the BWB performance report from 2008. (BWB 2008, p.37). In contrast, after years of continuous losses the LWB reports to be making profit since 2010. (LWB, 2011)

Currently, the 'Second National Water Development Project' (NWDP II) funded by various donors addresses water supply and sanitation investments and rehabilitation in Blantyre in Lilongwe as well as in other urban areas in Malawi. The project, which shall be finished by 2012, shall provide an additional 250,000 inhabitants of mainly Lilongwe and Blantyre with access to safe water and contribute to the goal of universal coverage by 2025. Supply disruptions especially in Blantyre also shall be solved. (World Bank, 2007) Under the NWDP II, the 'Malawi-Peri Urban Water and Sanitation Project', which is funded by the European Investment Bank, aims to provide safe drinking water to 723,000 additional people in the low-income areas of Lilongwe and Blantyre through the construction of 735 new kiosks.

4.1.3 The background of delegated kiosk management

According to Manda (2009, p.vii), kiosks were introduced in Malawian cities in the 1980s to improve water supply in the low-income areas. In the 1990s their number grew rapidly, for instance in Blantyre from 36 in 1990 to 359 in 2008. Many of the kiosks were constructed with funding from the government, UNICEF or international NGOs. The utilities in both Lilongwe and Blantyre kept management responsibility for some kiosks, and for others handed it over usually to community organisations (e.g. water committees, local leaders or private individuals).

After several years, however, it turned out in both cities that many kiosk operators under all different management options were not able to provide adequate services to the users and meet the requirements set by the utilities. From the utilities' perspective, mismanagement, non-payment and accumulation of bills by the operators, non-payment for water by the users, insufficient maintenance or political interference were among major experienced problems. WaterAid (2008, p.3) and Manda (2009, p.vii) also highlight the problem of raised water prices by many operators, so that inhabitants from low-income areas often paid more for water in, both in absolute terms as well as in proportion of their income, than customers in high-income areas. Also, charging systems were unclear and often varied within communities. Overall, monitoring of the network was poor and the utility did not carry out inspections in low-income areas. Illegal connections and vandalism add to all these problems.

In Lilongwe, by 2006 the kiosks in low-income areas had accumulated a debt of MWK 31 million (\$ 204,000)⁴ to the LWB who as a result threatened to disconnect

⁴ The currency rate used in this report is that during the time of stay in Malawi in June 2011: 1US \$ = MWK 150

several of the kiosks. (MCF, 2009, p.6) According to WaterAid (2008, p.3), several of the inhabitants consequently approached WaterAid to construct boreholes in their areas, which was denied as boreholes are prohibited in city areas by Malawian law. Instead, a tri-sector relationship was established between WaterAid, the Lilongwe Water Board and local NGOs, which resulted in the establishment of a Kiosk Management Unit in the LWB and the foundation of Water Users' Associations who took over management responsibility for kiosks in several areas.

Similarly, in Blantyre due to the many problems stated above in 2007 the water kiosks owed the Blantyre Water Board MWK 50 million (\$ 330,000) from unpaid bills, which led to an interim disconnection of hundreds of kiosks⁵. (Jimu 2008, p.837) As a consequence, the BWB approached WaterAid to help them to establish a Kiosk Management Unit as well. Under assistance of Water for People, Water Users' Associations also were formed to improve management of kiosks.

4.2 Results from the case study

To get an overview of water supply in the low-income areas, first of all the involved stakeholders in both cities and their various roles are presented. This is followed by an analysis of the currently existing service delivery options offered by alternative providers. The various kiosk management models and actual water tariffs and prices are discussed subsequently. After a section on support and regulation of the service providers the section is finished with a presentation of the performance of the respective service providers operating under different management models.

4.2.1 Stakeholders and responsibilities

In general, the involved stakeholders in Lilongwe and Blantyre are very similar, including the water boards, city councils, international NGOs, local NGOs, and the service providers.

Water Boards – Kiosk Management Unit

Until a few years ago, interaction between kiosk operators in low-income areas in Blantyre and Lilongwe and the water boards was mainly done through kiosk inspectors working for the water boards. Maintenance was conducted by technical staff of the

⁵Chimpweya (2010) states arrears of MWK 38 million from the 360 kiosks in Blantyre

board, although response times were very slow and consequently faults were often not reported. (O'Connor, 2007, p.68)

In 2005, the Lilongwe Water Board set up a Kiosk Management Unit, an approach which the BWB followed in 2008. According to WaterAid (2008, p.4-5), since its establishment the KMU it is the responsible department in the water board for managing the kiosks and cooperate with the alternative providers. Besides providing water to the kiosks, amongst its tasks are service extension, regulation of prices at all kiosks, increasing the financial management capacity of the providers, and establishing good reporting and response systems to kiosk faults between the providers and the board. Also, it must ensure that all kiosks are operated by legally recognised entities. In addition, the KMU has to provide technical assistance to the providers, repair larger breakdowns and conduct maintenance of facilities up to the meters, which are positioned next to the kiosks (Picture 4.1) or, at the newest kiosks, inside the superstructure.



Picture 4.1: Kiosk (old standard) with meter

Receiving and recording bill payments, book keeping of bill payments, responding to consumer demand for expanded services and monitoring the Water Users' Associations through participation in the Board of Trustees are some more key tasks mentioned by O'Connor (2007, p.69). Figure 4.4 below shows the structure of the KMUs. For Lilongwe, O'Connor (2007, p.68) notes a staff of 3 technical assistants, 1 cashier and 5 inspectors.

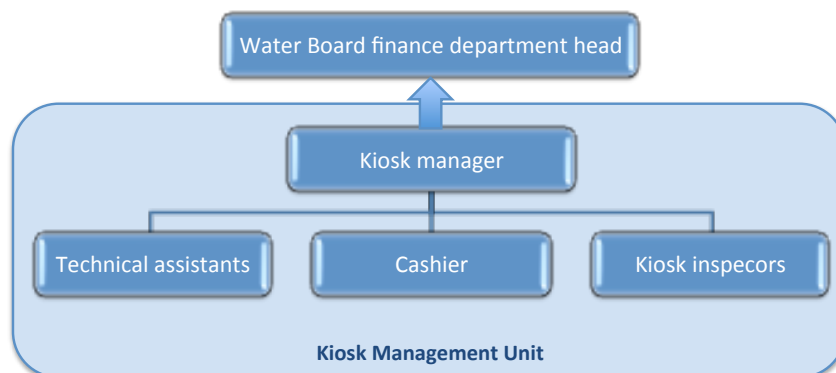


Figure 4.4: Structure of the Kiosk Management Unit

Source: adapted from O'Connor, 2007, p.68

City Councils

The city councils in Lilongwe and Blantyre are responsible for seeing that all structures in water supply are operated within the legislation and meet the national laws and standards. Thus they supervise the water boards as well as other service providers. In

addition, they write and execute policies, formulate constitutions of community organisations, process the registration of Water Users Associations, assist in the election of WUA members and generally help in mobilising the communities. However, in Blantyre the city council seems to be more involved in water supply in the low-income areas, as in 2007 the Blantyre City Assembly entered into a partnership with the Water Board and Water for People to work together in the establishment of WUAs. (BWB, 2008, p.13). In Lilongwe, according to Ndezi (2007, p.191) their role is more one of coordination of activities conducted by NGOs and various donors in water services.

International NGOs

In both Lilongwe and Blantyre, international NGOs support the stakeholders involved in water supply in the low-income areas. These are WaterAid in Lilongwe and Water for People in Blantyre.

In general, the overall aim of WaterAid is to ensure water supply and adequate sanitation in the low-income areas of Lilongwe. They thus try to ensure physical access to water and sanitation facilities for people. Since 2003, WaterAid provides technical and financial support to the LWB, local NGOs and service providers. Also, funding was provided for the kiosk management unit for three years, rehabilitation of water kiosks or replacement of meters. However, WaterAid leaves implementation to local NGOs and other parties while focusing on policy, advocacy and support of other stakeholders.

In Blantyre, Water for People has taken a similar role and partnered with the BWB in 2007. Its key roles are provision of support and capacity building for the other involved stakeholders. WFP also assists in targeting communities and facilitates discussions about future management models for water supply, such as WUAs. Once a service model is established, WFP focuses on capacity building and provides training for the provider. Jimu (2008, p.836) adds that WFP also provides funding for the construction of new kiosks.

Local NGOs

In both surveyed cities local NGOs assist in service provision in the low-income areas. In Lilongwe, at the beginning of the partnership between WaterAid and the LWB a local NGO called CCODE was an important stakeholder to mobilise communities and to help them to develop sustainable management systems and set up WUAs. (WaterAid, 2008, p.4) Whereas the partnership with this NGO ran out, at present three NGOs, CCODE, TSP

and Matama, are working on water supply, sanitation and hygiene promotion in the LIAs of Lilongwe. Regarding water supply, their main responsibilities are mobilisation of communities to identify new areas for water kiosks, support for the Kiosk Management Unit to set up new WUAs, and provide training for the kiosk operators.

In Blantyre, the same tasks are carried out by an NGO called Hygiene Village Project (HVP). The NGO assists in the establishment of WUAs, locates areas for new kiosks and provides training for the Water Users' Associations. However, the HVP also runs several kiosks on its own and thus also acts as a service provider.

Kiosk operators

Although a wide range of different types of service providers exist in Lilongwe and Blantyre, their main tasks are the same. Whereas the water boards are responsible for providing water to the kiosks, the service providers are ultimately responsible for selling water to the customers. They are thus responsible for the day-to-day operation of the water kiosks. In addition to selling water, they have to ensure adequate hygiene at the kiosks, collect payments, pay the bills of the water boards, do the meter reading and conduct minor maintenance and repairs after the meter. However, depending on the level of engagement with the utility, the responsibilities of different providers vary in detail, e.g. for monitoring, management of staff and finances or service extension. The different types of providers are thus further discussed in section 4.2.3.

4.2.2 Service delivery options

In both Lilongwe and Blantyre, for people without household connections water kiosks are the most common service delivery option. In contrast to many other African cities, it is not common in Lilongwe and Blantyre for people to sell water through other options than kiosks, such as water carriers or carters. Besides water kiosks, the only other existing delivery option is water on-selling from private households, which in contrast to the kiosks is illegal. However, it was also reported in both cities that there exist several unregistered kiosks, which have usually have been connected before WUAs were established and now are not contracted or regulated. All kiosks are operated through kiosk attendants who sell water and collect the payments. In accordance to the information given by the interviewees, during the whole field work water selling at kiosks was the only service delivery method used by alternative providers which was observed by the author. Only household reselling was mentioned by several customers as

another source of water other than boreholes or shallow wells. From these two existing options, people usually prefer to go to the kiosks to save costs. As mentioned earlier, the number of kiosks is going to increase under the current water development projects, so that other service options are unlikely to be promoted in the future.

Instead, some stakeholders such as WaterAid would like to encourage kiosk attendants to sell other products and to diversify the business to increase revenues. So far, this is not done at any kiosk, with the main reason stated by the kiosk attendants that they are not permitted by the water board to sell other products. As household reselling is not a permitted and official method of water distribution, the focus for the following sections is on kiosk management only.

4.2.3 Kiosk management models

4.2.3.1 Kiosk management models existing in Lilongwe

In Lilongwe, there are currently 566 kiosks across the city which are managed by four different kiosk management systems. The numbers of kiosks operated by the different operator types in Lilongwe that are stated below are derived from WaterAid (2010).

Lilongwe Water Board: Under this option, the board places its own kiosk attendants to sell water and collect funds. Currently, 106 kiosks are operated under this management option. The water board decided to keep these kiosks under its own management as a social responsibility to ensure water supply in areas where kiosks cannot be viable. They might be able to recover the costs of water but do not produce enough revenues to pay staff. Thus, the kiosk attendants work on a commission only basis.

Private operators: 90 kiosks are managed by private operators as their own business. In Lilongwe, each private kiosk operator manages not more than one kiosk, which means that the person managing the kiosk is usually the same person who attends the kiosk to sell water and collect payments. All these kiosks were previously managed by the LWB directly but later handed over to private individuals. The kiosk operators were selected amongst formerly employed utility staff who were then working as utility kiosk attendants.

CBOs: At present 10 kiosks are operated by CBOs such as a youth group or a local church. Formerly, water point committees also played an important role in kiosk

management in Lilongwe. These committees were appointed by the local communities to manage the kiosks, however these committees were replaced by the Water Users' Associations.

Water Users' Associations: Currently six WUAs are managing 319 kiosks in six areas, which are listed in Table 4.1. A seventh WUA is in planning stage. This management type is described in more detail at the end of this section.

Table 4.1: List of WUAs and respective kiosk numbers in Lilongwe

Name of WUA	Kiosk No
Area 50	47
Chinsapo	86
Chimutu III	45
Kauma	26
Mgona	16
Mtandire/Mtsiliza	83
	303*

Source: WaterAid, 2009, p.10,13

*The total number of 319 kiosks mentioned above is derived from a more current document

4.2.3.2 Kiosk management models existing in Blantyre

In Blantyre, according to Water for People (2010) a total of 315 kiosks are currently under operation in Blantyre. As in Lilongwe, there are several different kiosk management systems existing in parallel across the city:

Blantyre Water Board: The Blantyre Water Board manages a remaining of 25 water kiosks in different areas through kiosk attendants employed by the water board. According to Jimu (2008, p.837), these water sellers are relatively better paid than many kiosk attendants working under different management options.

Private operators: In Blantyre, also several kiosks are managed by private individuals. However, in contrast to Lilongwe some of them operate multiple kiosks. The biggest private operator manages 18 kiosks in different low-income areas. A second one operates three kiosks in the Ndirande area. Unlike in Lilongwe, these operators constructed all kiosks with their own private funding.

Water committees: Water committees in Blantyre have been continuously replaced by WUAs over recent years, however some of them still remain. They usually consist of local,

religious or political leaders, who are not elected by the community, and manage about 10-15 kiosks. The biggest water committee is located in Ndirande/Malabada and manages about 70 kiosks.

CBOs: Two major CBOs involved in water supply in Blantyre LIAs are the Hygiene Village Project, a local NGO, and the Kabula Development Association (KDA), which operate 36 and 54 kiosks respectively. The KDA is also involved in sanitation and hygiene promotion and provides training to other Water Users' Associations. It has only managed kiosks since early 2011 and acts as an interim kiosk operator. In medium-term, the kiosks will be handed over to another organisation, which is likely to be a WUA. The HVP applied as a private operator of the Mbayani sub-network water supply pilot project. The KDA has a set-up very similar to WUAs, with the only differences being that it is also conducts other tasks and that the kiosks are situated in different areas, whereas WUAs usually operate in only one assigned area.

Water Users' Associations: Since the establishment of the Kiosk Management Unit of the BWB in 2008, five WUAs have been set up who are operating a total of 159 kiosks (Table 4.2).

Table 4.2: List of WUAs and respective kiosk numbers in Blantyre

Name of WUA	Kiosk No
Michiri	20
Mitsidi-Sanjika	24
Nkolokoti-Kachere	52
Ndirande- Matope	33
Namiyango-Chigumula	30
	159

Source: key informant interviews

Private operator sub-network model: Under a pilot project starting in August 2011 and funded by the World Bank, a private operator will become responsible for serving the whole area of Mbayani, including water provision through both kiosks and household connections. At the time of the field work of the author the bidding process was about to be finished.

4.2.3.3 Water Users' Associations

Over recent years, in both Lilongwe and Blantyre there has been a shift in management types from private individuals and water committees to Water Users' Associations. This process is still on-going, and more WUAs are likely to be established in the coming years,

especially because over 700 kiosks will be constructed in the two cities under the Peri-urban Water and Sanitation Project. For these reasons, the set-up and mode of operation of WUAs is described here in more detail.

According to WaterAid (2008, p.6), a Water Users' Association is a cooperative water society where the community establishes a legal business entity registered at the Government to operate all water facilities in a designated area. The management system is based on a business principle of cost recovery and profit-making, however many of their members are elected from the community. It is thus a combination of a community based and a private organisation.

Six WUAs have been established in Lilongwe since 2006 and five WUAs in Blantyre since 2009. However, from the KDA's perspective the Kabula Development Association in Blantyre was the first organisation in Malawi to establish the structure that WUAs now use and thus served as a role model for this management type. This is also reported in O'Connor (2007, p.65), who describes the success of the KDA and its' similar structure to the recently formed WUAs. Figure 4.5 shows the low-income area of Ndirande, Blantyre, in which a Water Users' Association has been managing the kiosks since 2009.



Figure 4.5: Ndirande low-income area, Blantyre

Source: adapted from GoogleMaps, 2011

The Water Users' Associations in Lilongwe and Blantyre have the same structure and are both supervised by the Kiosk Management Unit in the respective water board. The structure of the WUAs consists of 3 tiers, which are a board of trustees, an executive committee and a secretariat.

In the WUAs interviewed during the field study, the number of members of the board of trustees varied between three and ten, who are not elected but representatives or leaders of the local community. In addition, the head of the kiosk management unit is always represented on the boards. Other members are typically Ministers of Parliament, prominent businessmen and religious or other local leaders. The main tasks of the board are to oversee the work of the WUA, to approach the kiosk management unit if necessary and to make any final decisions. (Chirwa and Junge, 2007, p.80) The board is supposed to meet once per three months if not required more often.

The members of the executive committee are elected by the community and are usually people from the local area so as to facilitate good dialogue between the users and the committee. The executive committee is the place where users can raise any complaints and then forward them to the board of trustees. The committee is thus meant to be the representation of the users in the WUAs. As shown in Figure 4.6, the executive committee is further divided into three sub-committees and one secretariat. Meetings of the executive members should not take place less often than once a month.

The secretariat is positioned at the lowest hierarchical level and consists of one administrator, kiosk inspectors and the kiosk attendants who sell water at the kiosks. The administrator heads the secretariat and oversees the staff, collects the revenues, pays the water bills, does the accounting and forwards any problems to the executive committee. Kiosk inspectors, as observed usually about two or three per WUA, are responsible for daily meter readings, monitoring of kiosk functioning and level of hygiene, reporting breakdowns and forwarding the daily revenues from the kiosk attendants to the administrator. Many WUA secretariats also hire their own plumbers for minor repairs. Finally, the kiosk attendants make by far the highest share of WUA staff. Members of the secretariat are the only members of WUAs who are employed and receive a regular salary, which is derived from the water sales. In contrast, members of the board of trustees and the executive committee work on a voluntary basis and irregularly receive smaller allowances. Depending on the number of operated kiosks, the number of employees at one WUA can go up to about 80 staff.

Figure 4.6 shows the overall set-up of the Water Users' Associations in Lilongwe and Blantyre and how they are related to the water boards, the kiosk management unit and the customers.

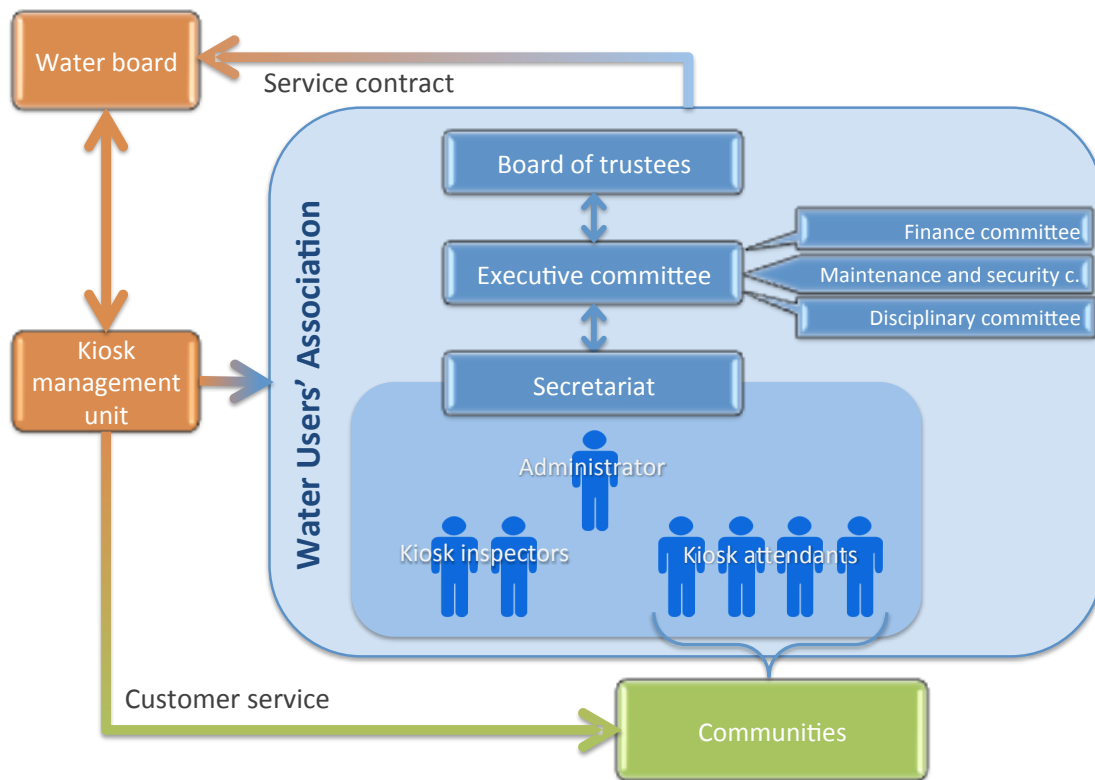


Figure 4.6: Organisational structure of Water Users' Associations

Source: Author

4.2.4 Tariffs and prices

Both the Lilongwe and Blantyre Water Boards have a subsidised water tariff for kiosks, which is MWK 65/m³ (\$0.43/m³ or MWK 1.3/20l⁶) in Lilongwe and MWK 59/m³ (\$ 0.39 m³ or MWK 1.18/20l) in Blantyre. This tariff is the same for all kiosk operators and is the cheapest of all tariffs charged to the different customer types (Figure 4.7)⁷.

⁶ Prices are also stated per 20l units as this is the commonly used sales unit at the kiosks

⁷ The figures presented in both Figure 4.7 and Figure 4.8 should not be compared against each other due to the different year for which they are valid. However, they show how in both cities water tariffs for kiosks are relatively low and that sales revenues from kiosks are marginal.

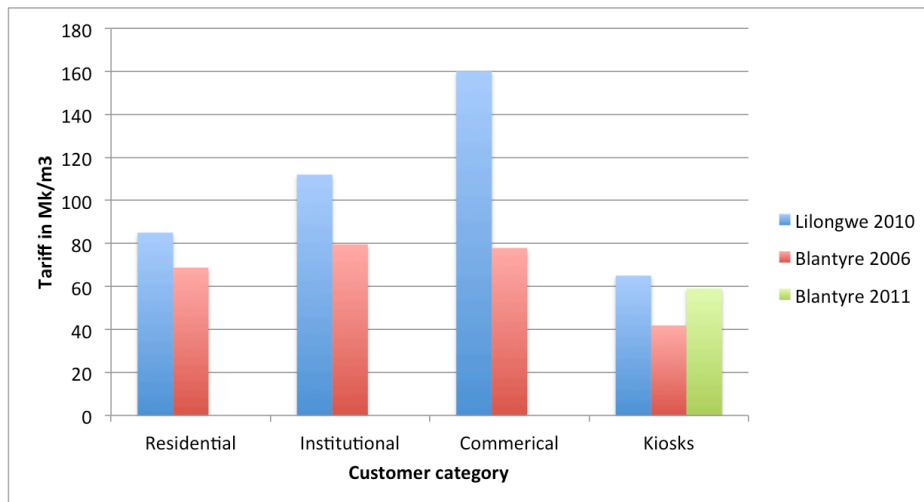


Figure 4.7: Average water tariffs per customer category

Source: based on Lilongwe Water Board, 2011, p.19; Blantyre: O'Connor, 2007, p.15; key informants⁸

Regarding the sales revenues, as Figure 4.8 shows revenues from water kiosks are hardly significant for the water boards. In Lilongwe, in 2010 kiosk revenues only accounted for 4.4% of total revenues. In 2006, in Blantyre kiosk sales' contribution to total sales was less than 2%. (see Figure 4.8)

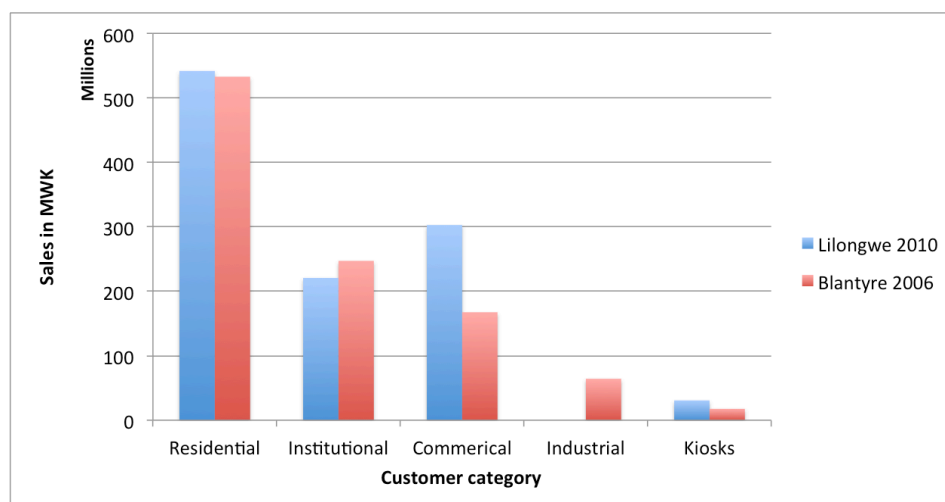


Figure 4.8: Sales revenue per customer category

Source: based on Lilongwe Water Board 2011, p.20; O'Connor, 2007, p.15

The water reselling price at the kiosks is regulated by the water boards in the service contracts with the providers and uniform for all operators. In Lilongwe, the water price at the kiosks is currently MWK 125/m³ (\$ 0.82/m³ or MWK 2.5/20l bucket). In Blantyre, it is slightly higher at MWK 150/m³ (\$ 1.00 m³ or MWK 3/20l bucket). Thus, in both cities

⁸ In Blantyre, no information on current average tariffs is available. During the field work, the kiosk tariffs were identified through interviews with key informants. According to KDA key informant, the current average residential tariff in Blantyre is about MWK 90-95/m³

the formal kiosk water reselling price is about double the amount of the kiosk water tariffs. Although the tariffs for the kiosks are subsidised, kiosk customers in both cities pay about 1.5 times more for the same amount of water than residential customers with individual connections. This finding is in accordance with earlier findings from Chirwa and Junge (2007, p.51) and Manda (2009, p.40), who note that households who get water from kiosks pay more per unit of water consumed than high-income users with individual connections.

In addition, the price of MWK 2.5/20l (Lilongwe) or MWK 3/20l (Blantyre) is the best case for customers with no household connection, as some kiosks, most notably those other than the WUA managed ones, and especially household resellers charge much higher prices. For example, in Lilongwe customers of privately managed kiosks mentioned a water price of MWK 3/20l. In Blantyre, at the kiosks of the two major private operators prices of MWK 4/20l and MWK 6/20l respectively were stated by the interviewed operators and customers. The kiosk attendants working for the water committee operating in Ndirande, Blantyre, also charge about MWK 6/20l. Several stakeholders stated that the water committees and private operators all tend to raise the fixed reselling prices. However, according to the Blantyre Kiosk Management Unit kiosk attendants working for WUAs also raise prices on their own, as long as the WUA management does not recognise it. A letter observed by the author in one WUA office in Blantyre, which was composed by the KMU for all WUAs, stated that against the arrangement increased prices had been observed at some kiosks. However, at the observed kiosks water prices were always in accordance with the guidelines and no customer mentioned occasional higher prices. Overall, even the highest observed or mentioned kiosk water price is much below the price of water sold by individual households, which varies between about MWK 5 – MWK 20 per 20l bucket in both cities. Although the prices changed over the last years and thus are difficult to compare over time, the studies by Chirwa and Junge (2007, p.60) and Manda (2009, p.36f.) show similar findings. Chirwa and Junge note that the highest prices are charged by household resellers (varying between MWK 2 – MWK 20/20l), followed by privately managed kiosks. Manda states that kiosk water prices in Blantyre vary between MWK 2 and MWK 10, however does not differentiate between differently managed kiosks. Water sold from private wells was found to be the most expensive option.

Figure 4.9 shows the prices as observed by the author and stated by the different stakeholders, both kiosk attendants, customers and key informants. It has to be noted that the data was collected through qualitative methods and only in some areas of both cities, thus they are not representative for whole Lilongwe and Blantyre and for all operators. However, the author’s goal was to get an overview of water prices and if and how they vary between differently managed kiosks. In addition, the findings could be verified by literature on previous studies as stated above. The identified prices show a clear trend of increasing prices from kiosks managed by the WBs and the WUAs to kiosks managed by water committees and private operators. The highest prices are charged by water resellers with individual household connection.

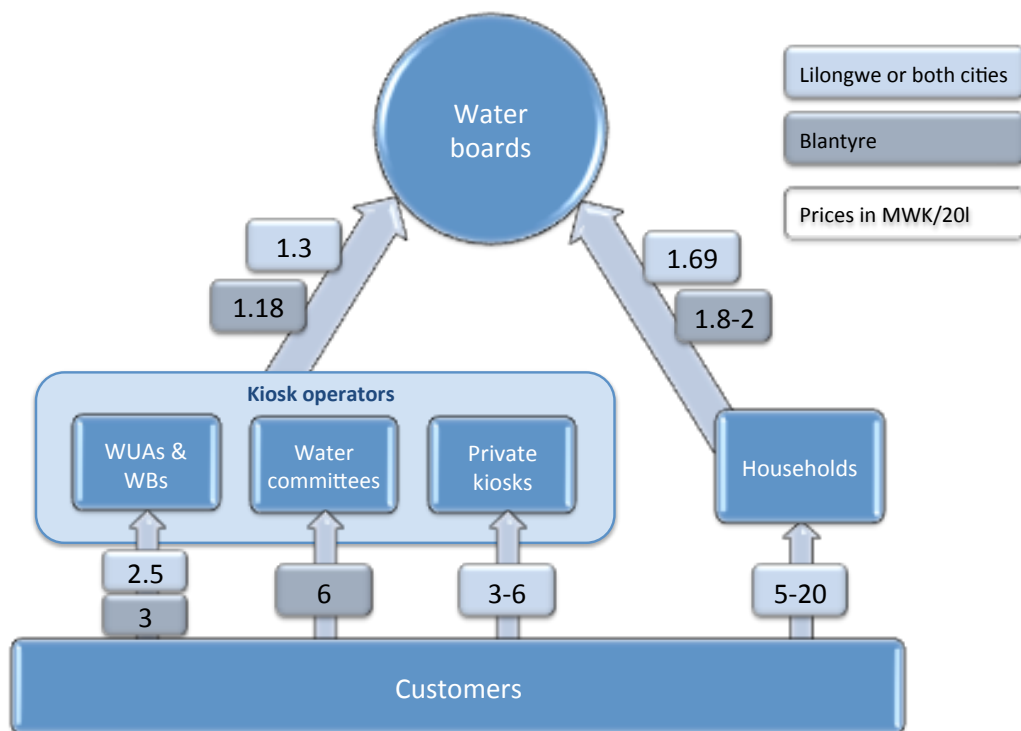


Figure 4.9: Water prices and tariffs from kiosk operators and household resellers

Source: Author

Looking at the margins between the kiosk water tariff and the formal retail prices charged by the WUAs and the water board kiosks, the figure shows that with MWK 1.82/20l this is higher in Blantyre than in Lilongwe, where it is only MWK 1.20/20l. In both situations, the end users pay more than twice the price for water than the operators pay to the utility.

4.2.5 Support and regulation of service providers

In both Lilongwe and Blantyre, the market of alternative water providers is not very diversified. Besides household reselling and use of unimproved sources, water is distributed in the LIAs mainly through kiosks which receive water from the utility network. Most of the kiosks were set up by the water boards and management and operation later handed over to other organisations or individuals. Private individuals also could construct their own kiosks and were allowed to on-sell the water. Thus, in contrast to many other African cities, in Lilongwe and Blantyre providing support and regulation to service providers mainly means engagement with kiosk operators. However, the water boards did usually not establish any formal relationship with the operators, and they were only recognised through the monthly water bill payments. The establishment of the kiosk management units in both water boards was the first step to improve collaboration with the various kiosk management organisations or individuals and shows the dedication of the boards to improve water supply in the low-income areas. In cooperation with the NGOs WaterAid and Water for People respectively, for several years both kiosk management units have tried to establish stronger relationships with the various existing operators.

The most formal relationships are those between the utilities and the Water Users' Associations. Although the utilities also engage with other kiosk operators, there are still several individuals or water committees who operate their kiosks with very little monitoring or regulation from the water boards. However, private individuals are no longer allowed to construct new kiosks, and their numbers, as well as those of water committees are going to further decrease in the coming years as both water boards plan to increase the number of more formalised operators, whether WUAs or private operators.

Whether for new kiosks or existing ones, the establishment of a certain kiosk operating unit is usually not started at the community but at the higher hierarchical levels. In Lilongwe, the major involved stakeholders are the KMU together with WaterAid, in Blantyre this is the partnership of the KMU, Water for People and the Blantyre City Councils. Usually, at first the KMU works out a profit and loss assessment to find out if a WUA could be financially viable in a certain area. As for now, WUAs are the prioritised management type in both cities by the water boards so that their establishment is usually aimed for. Afterwards, a suitable number of kiosks for the regarded area is assessed. In

cooperation with local NGOs, these stakeholders then approach the communities to discuss the various possible management options and finally establish the most suitable one which is also preferred by the community.

In the past, kiosk operators did not enter in any contractual relationship with the water boards but only had to pay their monthly water bills. Also, there were no regulations on kiosk construction and selling water. For many of the operators, this is still the case. For example, in a focus group discussion in Lilongwe with private operators, who were formerly employed by the water board, they stated that they were handed over responsibility for kiosk management but without signing any contract or agreement. The same was found for water committees and private operators in Blantyre. Regarding WUAs, according to the Blantyre utility and Rusca (n.d.) service contracts are established between the water boards and WUAs in both cities. However, in Lilongwe it was mentioned that so far no contracts but only verbal agreements exist. MCF (2009, p.46) mentions a “formal partnership” between the Lilongwe Water Board and the WUAs in Lilongwe. In Blantyre, in contrast to the information provided by the utility the interviewed WUA representatives stated that no formal contracts have been established.

Everyone was allowed to have a kiosk.

-Lilongwe Water Board

Monitoring and regulation of the kiosk operators is conducted by the kiosk management units of the water boards. As the operators only manage the kiosks and no part of the network, regulation is mainly limited to economic regulation and monitoring focuses on the reselling price. Adequate hygiene and functioning of the kiosks also have to be ensured by the operators.

The kiosk management unit visits every kiosk, including all operator types, about once per month to do the meter readings and check if the kiosks are being operated in accordance with the regulations. For all kiosk management types besides WUAs, this is the only monitoring mechanism. Regarding water committees, according to the Blantyre Water Board they are very informal and communication with them and monitoring is difficult. Compared to this, the WUAs have a much more intense monitoring system which is integrated into the WUA organisation and consists of several steps. At the lowest level, the kiosk inspectors daily visit all kiosks to conduct meter readings, collect the money from the water sales, compare the amount of revenues with the amount of water sales, check hygiene and kiosk functioning. Any failures and breakdowns are reported by

the kiosk attendant to the inspector, who forwards them to the administrator of the secretariat. Depending on the location (before or after the meter) and severity of the problems, the administrator then sends the plumbers or informs the kiosk manager of the KMU. Other problems, for example raised reselling prices, are forwarded to the executive committee who are responsible for supervising the kiosks. As the members of the committee are drawn from the community they should have good dialogue with the customers and have a strong interest to assure kiosk operation in accordance with the set agreements. However, the customer interviews draw a mixed picture of how well customers are informed about where to raise complaints.

Customers often still think the water board manages the kiosks

-Lilongwe Water Board

In all surveyed areas, including the ones managed by WUAs, customers did often not know who was responsible for the kiosks and who to contact in the case of any concerns.

Support for the kiosk operators is provided by various stakeholders through different measures, but varies strongly between the different management options.

First of all, financial support is very limited for all operators. Most of the kiosks under operation have already been constructed before the water boards started to engage with the alternative providers. Since then, service extension through construction of new kiosks was usually achieved only through projects with donor support. In both cities, only a few kiosk operators managed to construct a very small number of kiosks financed through their water sales. For example, the Water Users' Association in Kauma, Lilongwe, constructed three kiosks on their own but so far could afford connection for only two of them. The interviewed WUA

The inherited debts of former operators impede the construction of new kiosks.

-WUA Ndirande, Blantyre

representatives in Nkilototi, Blantyre, also stated that they had constructed some kiosks using their own revenues. The two private operators in Blantyre were the only operators found in both cities who constructed all their kiosks with their own funding. Other financial support is only provided by the KMU for repairs of major breakdowns. In Lilongwe, spare parts for all repairs are provided by the KMU to the Water Users' Associations, however as discussed later this arrangement has led to several problems. For the water committees and private operators, no support is provided for any maintenance after the meter.

Besides finance the other major type of support is that of training. In Lilongwe, most private operators only manage one kiosk, which they operated already before as staff of

the Lilongwe Water Board. These operators only received training in kiosk management and operation once when they were hired by the water board, which for some of them is more than three decades ago. The interviewed water committee and two private operators in Blantyre never received any type of training. The members of all Water Users' Associations received training by the water boards or local NGOs once when they were established. According to CICOD, a local NGO in Lilongwe, training is provided for WUAs in good governance and accountability, financial management, organisation of maintenance and general kiosk management. The training takes about one day and is provided for the board of trustees and the executive committee. The village hygiene project in Blantyre provides similar training also only to WUAs. However, since their establishment almost no training was provided for WUAs, although several interviewees stated that the requirement for support is especially high for WUAs and must be on-going. Also, as they are large institutions involving a lot of members at different levels, they need more support and training than individual private operators. The requirement for training of WUA staff is especially high as many of their employees are drawn from the local communities and often have low technical or financial management skills. Several WUA representatives stated that more training is required especially for the executive committee and the administrator who have to manage the finances and the day to day operations.

Most WUA staff come from the community and have low skills and little education.

-WUA Mtandire, Lilongwe

4.2.6 Performance of alternative service providers

The performance of kiosks operated under different management types was assessed against several indicators, including service reliability, water price, maintenance, service extension, bill payment and viability. Political interference and dialogue between stakeholders was also included in the study. It has to be mentioned that previous studies, including Chirwa and Junge (2007), Manda (2009) O'Connor (2007) or WaterAid (2008), highlight the poor performance of water supply in the low-income areas through kiosks managed by the water board, water committees or some private operators. As a consequence of their failure, many kiosks are now handed over from them to Water Users' Associations so that other management options are on the decline in both cities. However, according to WaterAid (2010) private operators are also considered as possible future operators in certain areas, and the sub-network water supply pilot in Mbayani, Blantyre, might also increase their importance. For these reasons, although this

study includes interviews with a large variety of stakeholders and different types of operators, the focus is on management types which will play a more important role in future water supply in Lilongwe and Blantyre low-income areas. Again, all findings stated in this section are derived from the interviews listed in Appendix B and partly supplemented with the findings from previous studies.

Low water pressure is the core problem for all involved stakeholders in both Lilongwe and Blantyre. At almost all visited kiosks, regular water shortages have been reported by both the kiosk attendants and customers. In some areas of Blantyre kiosks sometimes do not have water for three to four weeks, and the Blantyre Water Board sometimes has to provide water alternately to different areas. For the customers, the consequences are longer queues, longer walking times to other kiosks, purchase of expensive water from private households or use of unprotected sources. Several kiosk attendants stated that in the case of low pressure they sometimes have to work at night, when water is available. Due to low pressure, the water sales often cannot meet the demand of the communities, which thus leads to reduced revenues for the operators. WUAs, with their fixed staff and salaries, especially suffer from this problem as, while revenues are reduced, expenditures remain the same and the kiosk attendants still have to be paid. Especially in Blantyre it was found that WUAs and other operators are underperforming due to unreliable water supply.

Since four days there is no water and without water there is no income.
-Private operator, Blantyre

Most sources, including both literature and interviewed key informants, agree on the poor performance of several alternative providers especially when regarding payments of bills. Manda (2009, p.29) states that at the time of his study in Blantyre 256 kiosks were managed by water committees, which were elected by the communities to oversee revenue collection, minor maintenance and payment of bills. Due to lack of transparency, these committees failed to pay bills and members used the revenues for other purposes. Non-payment for water by some community members was another surveyed problem. Although the number of water committees has been reduced since then, there still remain several ones. The Blantyre Water Board still continuously faces problems with them, such as insufficient maintenance, non-payment of bills and accumulation of arrears. For Lilongwe, WaterAid (2008, p.6) states that the management option of water committees was replaced because of the mismanagement of revenues and that private

operators seem to achieve better results in payments of bills. However, from the LWB's perspective private operators "have to be pushed" to pay their bills and delays in payment are common. One problem especially in Lilongwe is the very high number of private individuals operating not more than one kiosk, which makes it difficult for the board to oversee all of them. In the focus group discussion, the private operators stated that sometimes they are not able fully to pay the bill, so that they have to raise the reselling prices despite it being illegal. In Blantyre, the utility does not face problems with bill payment from private individuals. Regarding kiosks operated by the water boards, Jimu (2008, p.837) states that in Blantyre under this management option water supply is not interrupted by non-payment of bills. No problems in bill-payment of water board managed kiosks were mentioned by any key informant. Water Users' Associations in both cities usually pay their bills in time, a finding which is also stated by MCF (2009, p.11). However, the interviews representatives of the WUA operating in Ndirande, Blantyre, mentioned that sometime they struggle to pay the full amount of the water bill. This is due to severely decreased revenues when water pressure is low and water not available for many days of the month. Although the BWB understands the problem, kiosks had consequently been disconnected in the past.

This study of MCF further mentions that in Lilongwe three WUAs fully cleared their debts whereas the other three WUAs managed to substantially reduce their debts. In total, debts owed to the LWB, which the WUAs inherited when they were established, could thus be reduced by 64%. The report also highlights the fact that now all WUAs manage to pay their current bills on time, so that the risk of accumulated debts is very low. In the field study it was found that this achievement has been on-going to present. In Blantyre, according to Breslin (2010) the WUA Nkolokoti has managed to pay off their water debt of \$11,500. The representatives of the WUA Ndirande stated that they are still paying off their debts, and according to Chimpweya (2010) the WUA in Malabada reduced the debts from MWK 17 million to MWK 10 million.

As analysed in section 4.2.4, water reselling prices vary a lot between the different kiosk operators, with WUAs having the lowest prices of all delegated management models. Prices at WUA operated kiosks are usually in accordance with the water board guidelines, whereas all other operators tend to raise prices. However, as mentioned earlier, water at kiosks is always cheaper than from the informal household resellers. Another aspect related to prices is that according to the users the price of water is

usually the same at different kiosks within a certain area, so there does not seem to be much competition between kiosk operators. The stated reason for collecting water from a certain reason was usually related to distance and not to price.

In both Lilongwe and Blantyre the Water Users' Associations are generally described as viable businesses, which are able to achieve cost recovery, afford maintenance and repairs, pay the salaries and meet all other operational costs. This finding is reflected in the clear reduction of the accumulated arrears. Also, all interviewed WUA representatives in both cities, despite the mentioned occasional problems in bill payments in Blantyre, stated that they are able to cover all expenditures. The interviewed WUA representatives in Kauma, Lilongwe, stated that although overall the WUA manages to make small profits, some kiosks sometimes make losses due to the low water pressure. According to MCF (2009, p.12), low pressure is also the main reason why three WUAs in Lilongwe could only reduce their debts but not clear them. Some of the surveyed WUAs just seem to make enough revenues to avoid losses. A general list of requirements for improved kiosk operation raised by different stakeholders is listed in Box 4.1.

Box 4.1: Requirements to improve the operation of WUAs.

To balance the challenges of adequate reselling prices, cost recovery and sufficient salaries, it is required to:

- Ensure that all kiosks run properly
- Raise the pressure
- Increase the number of kiosks
- Deliver spare parts and do repairs in time
- Increase the number of users that collect water from the kiosks (at the moment many use other sources such as wells).
- Provide more training
- Communicate with good examples

Interestingly, the WUAs achieve cost recovery although they have higher expenditures compared to other operator types, as they have to pay salaries for a high number of staff, such as inspectors, kiosk attendants or plumbers, sometimes rent an office, buy office equipment etc. In contrast, private operators managing a kiosk can sell the water themselves. However, most interviewed kiosk operators and kiosk attendants, including all management types, stated that revenues or salaries for staff are hardly enough to cover all costs of living. The salaries WUAs are able to pay might better be regarded as allowances, which are usually not enough for the employees to afford their living. Similar,

the private operators in both Lilongwe and Blantyre as well as the water committee in Blantyre are able to afford maintenance, operation and bill payment, but only provide very small salaries to the kiosk attendants. In Blantyre, the private operator who owns 18 kiosks achieves cost recovery for the recurrent costs but capital costs for kiosk construction could never be recovered.

The money is in the kiosks.

-Private operator, BL

With maintenance, there seems to be little difference in the performance of different types of operators. All operators are responsible for maintenance after the meter and minor repairs and are generally able to conduct them. As all kiosk operators depend on the revenues incentives are high for all of them to keep the kiosks functioning. Nevertheless, MCF (2009) highlights the continuous problem of kiosk maintenance as a major constraint. For Lilongwe, MCF (2009, p.13) states that 20% of kiosks under WUA management are non functional. A survey by Bretz *et al.* (2008) also shows that in Blantyre many of the water points are not functioning. According to the Blantyre City Council, about 90% of the kiosks of three WUAs are functioning and about 50% of the kiosks of two WUAs. Most of the kiosks observed by the author were only partially functioning, often only having one or two taps working out of about six. However, fully functional kiosks might not lead to increased revenues and shorter waiting times as long as water pressure remains low.

One general major problem is the long response time of the water boards to conduct repairs of breakdowns. One factor that adds to this problem in Lilongwe is that the WUAs request spare parts from the KMU who forwards the address to another department of the LWB, so that the whole process usually takes a long time. In addition, the provided spare parts sometimes do not fit the request so that repairs are further delayed. In Blantyre, the WUAs are responsible to buy spare parts on their own, which leads to quicker repairs after the meter. Due to the generally long response time of the water boards and the need of operators for revenues, several operators mentioned that they sometimes do minor repairs, such as sealing of leaks, also before the meter. Vandalism, especially of meters, is a remaining constraint at kiosks in both cities, although in one area in Blantyre according to the responsible WUA due to the sense of ownership that the WUA creates in the community their number was strongly reduced. At new kiosks, the meter is inside a superstructure which should prevent this problem (Picture 4.2).



Picture 4.2: New kiosk with superstructure, Nkolokoti WUA, Blantyre

Service extension, in terms of construction of new kiosks or upgrading of existing kiosks, has hardly been achieved by any operator. In both cities, most of them stated that revenues are not sufficient to do so. The only identified operators that constructed all their kiosks on their own are the two private operators in Blantyre, with 18 and 3 kiosks respectively. The private operators in Lilongwe were given the already existing kiosks from the LWB. In Lilongwe, only the WUA in Kauma managed to construct two kiosks, and the high connection costs due to the long distance from the network prevent the construction of more. In Blantyre, the Nkolokoti WUA was able to construct 'some' kiosks with their own funding. In both cities, almost no water tanks have been constructed so far to reduce the problem of low water pressure. Only the Kabula Development Association in Blantyre was found to have constructed 5000l storage tanks at 14 kiosks with external donor funding (Picture 4.3). Regarding diversification of business, in both cities at no kiosk is any product other than water sold.



Picture 4.3: Kiosk with storage tank, KDA, Blantyre

Political interference was a major reason for the many problems both utilities experienced with the various kiosk operators before they started to engage with them more intensively. O'Connor (2007, p.63) states that many of the water committees were captured by local leaders and politicians, leading to problems such as mismanagement and unpaid bills. Other kiosks were captured directly by individual local politicians, some of which simply dismissed existing committees. Thus, water committees are highly prone to political interference, and thus rely on both the goodwill and the abilities of these persons to achieve adequate service provision. The findings from O'Connor match the findings from the field study. The water committee in Ndirande, Blantyre, is headed by a Minister of Parliament and includes several other politicians. Although less prone than water committees, political interference has also been stated as a major constraint of Water Users' Associations by many stakeholders. Ministers of Parliament are members of the Boards of Trustees of some WUAs and use these organisations as political tools. WUAs with a strong executive committee may manage to reduce their influence, however many committees are not able to do this. For example, at the Mtandire WUA, Lilongwe, an MP who is the chair of the board makes sure that all board members are from his party and that no decisions in the WUA contradict his preferences. Political interference at WUAs in Blantyre was also mentioned as a problem by some interviewees but was raised less often and usually not stated as clearly as a severe major problem as which it was often highlighted in Lilongwe. The aspect of political interference is a major strength of

the private operators, who are not affected by any local politicians and can work more independently than the other operator types.

4.3 Perspectives on strengths and weaknesses of different DMMs

In general, most stakeholders regard delegated kiosk management from the utility to other operators as a good measure to improve performance of kiosk water supply. The water boards should only keep some kiosks as a social responsibility in the areas where kiosks cannot be viable businesses, but are not able to efficiently manage all kiosks of the respective city efficiently. The kiosks are spread all over the town and are usually far away from the water board office. Thus, repairs take a long time and monitoring is very difficult. Regarding the additional costs that the alternative kiosk providers create, it is important to keep in mind that kiosk attendants employed by the water boards are relatively expensive. Also, these employees usually do not live near the kiosks, so that they cannot react quickly to any problems on-site. Another mentioned major advantage of delegated management is that under this model the operators manage only smaller areas which they can oversee and on which they can concentrate.

It is better to have many eyes.

-Blantyre Water Board,

Water committees are not regarded by any stakeholder as an option for the future due to the many past and on-going problems of mismanagement mainly caused by political interference and insufficient checks and balances. Already suspended in Lilongwe, in Blantyre Water for People and the water board try to get away from them, but this process is not easy and requires time.

Many stakeholders in both cities highlighted the advantages of WUAs and clearly preferred this management model. Amongst the mentioned reasons are the success in payment of bills, cost recovery, viability, ownership, community participation and water prices. In contrast, especially from both utilities' perspectives private operators are more problematic, as they raise the tariffs and are primarily driven by profit. Besides the raised tariffs, no big differences were mentioned in the performance of private operators and WUAs. One important factor that needs to be considered is the number of kiosks. Water Users' Associations require a large number of kiosks under their management to afford the costs that their large body produces, with a minimum of about 20 kiosks. Thus, as

WUAs should be all over the city.

-Lilongwe Water Board

WaterAid (2010) points out, they might not be suitable in low-density areas. Compared to them, private operators only require about three kiosks, which is to reduce risks and lost revenues in the case of breakdown of one kiosk. However, private operators managing a large number of kiosks might be a risky option, as if the manager fails to provide good services the impact would be severe. This would be different under a larger private organisation. Water for People (2009) summarises several advantages of private operators, such as professional management, prompt payment of bills and a clean risk environment. However, unless there is a tight regulatory regime of water rates, poor communities face the danger of being overcharged. In comparison, the WUA's democracy-driven governance structure comprising the Board of Trustees, Executive and Secretariat provides the checks and balances that would be rare in a private operation. Nonetheless, as a private operator they also aim for a positive balance, which is not viewed as a profit but as a surplus that must be reinvested in the community.

Regarding requirement for support, WUAs might need more training than private operators, as they manage a lot of money as well as a lot of staff and thus need more capacity to be able to do this effectively. Another reason raised by several interviewees is the low skills of many WUA staff.

WUAs do not function without support and support must be on-going.

-WaterAid

To improve maintenance efficiency and overcome the often slow respond time of the water boards, several WUA representatives mentioned that they should have more responsibilities also for larger repairs and before the meter. In Lilongwe, they should be allowed to buy spare parts on their own and not have to request them from the utility.

Another mentioned aspect was that at present WUA's work is isolated from each other and there is not much communication between them. One option to improve this situation would be to establish board in which all WUAs are represented to share experiences. From the WaterAid' perspective in Lilongwe representatives of different WUAs meet regularly. However, in the interviews with the various WUA representatives it seemed that usually they have only little information on the operation of other WUAs.

In the focus group discussion with the private operators in Lilongwe, it turned out they are hardly informed about Water Users Associations. For them, who formerly were all employed by the BWB to attend the kiosks, it would be better to become water board staff again rather than self-manage the kiosks. The main stated reason for

There is no one who can replace me and I am too important.

-Private operator, BL

this is the low income that remains after paying the water bills and which is not enough to sustain their lives. In Blantyre, according to both interviewed private operators the set up of WUAs is preferable over an individual kiosk manager. With only one person being responsible for many kiosks, the risks for failure are very high and the sustainability of the system is non-existent.

Regarding the pilot project of sub-network water supply with a private operator, several stakeholders in Blantyre raised their concerns about the possible success of this model and stated that the main reason for doing this is only to learn lessons for the future. Besides the general fear that private operators only want to make profit and that the communities do not benefit, one major problem for the operator could be the high number of illegal connections. One raised argument was also that it would be better to improve the efficiency of the water board itself. However, all key informants and interviewed WUA representatives stated that at present Water Users' Associations do not have the required technical and management capacities to manage a sub-network water supply system, but that they would be motivated to do this in future.

Looking at the perspectives of the kiosk customers, many of them are not aware of the management models and often do not know who is really responsible for the management of the kiosks they get water from. Answers often stated were 'the government' or 'the water board'. Also, most users collect their water from the same kiosk or kiosks in the nearby, so they hardly take water from kiosks managed by different people or organisations.

4.4 Chapter summary

Overall, the findings from Lilongwe and Blantyre are very similar. In both cities, the utilities struggle to serve the urban poor and thus try to improve access to water in the low-income areas through water kiosks. As a consequence of the utilities' limited capacities, they were not able to manage all kiosks efficiently and delegated their management to different providers, such as water committees or private individuals. For several reasons, many of these providers failed to adequately manage the kiosks and arrears to the utilities grew continuously. Whereas in principle delegated kiosk management is still a favoured approach, it is now Water Users' Associations who shall manage the kiosks more effectively. Five years after the first WUA was established in

Lilongwe, in both cities they are able to provide adequate services under the achievements of cost recovery and constant bill payments, thus showing a high potential for sustainable kiosk management. From the several remaining challenges, many are caused by the general major problems the utilities face, such as low-pressure and high non-revenue water. Although inadequate in both cities, the water supply situation is even more severe in Blantyre. Due to their overall success, the utilities will further promote Water Users' Associations in future. However, they might not be practicable in all circumstances. With their large body and high operating costs, they require a high number of kiosks to create sufficient revenues. In areas with lower population density and less demand, private operators thus might remain a more suitable management type. Unfortunately, the delegated sub-network water supply pilot was not yet started at the time of this study, and future studies on this model would be interesting. At present, Water Users' Association do not have the capacities to manage such models, however many stakeholders are very optimistic that this could be a future option. Besides that, the construction of hundreds of new kiosks in both cities over the next years requires consideration of suitable management options, and WUAs might only be one of several possible models. WaterAid (2010, p.2) summarises the considerations that should be made when deciding for management option (Box 4.2).

Box 4.2: Considerations in choosing management options

1. Sustainability of the management option in the absence of or with limited external support.
2. Adaptability in an ever changing environment.
3. Ability to respond to system faults and reduction of illegal connections and other forms that lead to unaccounted for water.
4. Ability to operate and maintain the system with resources from the business operations.
5. The optimal number of contracts that the LWB will be able to manage and service effectively and efficiently.
6. Implications of extension of the LWB service area beyond Lilongwe city as a result of the merger.
7. The consumption patterns from water kiosks for the targeted areas
8. Number of kiosks to be managed and capacity of the operator.
9. The existing management system for the area and how it has performed.
10. The estimated number of beneficiaries.
11. An option that brings benefits to the community it serves.

5 Analysis and discussion

In this chapter, the findings from the case studies are analysed against the background of the international experiences and relevant literature. In combining these previously presented elements and complementing them with the researcher’s opinions, it shall be investigated how services under the delegated management approach can be improved in Lilongwe and Blantyre.

Two major findings from the literature review are especially important for the analysis of the Malawian case studies. To investigate how water supply in the low-income areas of Lilongwe and Blantyre can be improved through delegated management, several factors have to be considered, which are highlighted in Figure 2.16 in the literature review. In Figure 5.1, these factors are divided into three main categories, which are:

- Management aspects
- Technical and financial aspects
- Support and regulation

In this chapter, the case studies of Lilongwe and Blantyre are analysed against these three categories to investigate possible improvements in each of these categories. However, it has to be added that the boundaries between these three major categories are not always clear, and that some factors have to be regarded in different categories.

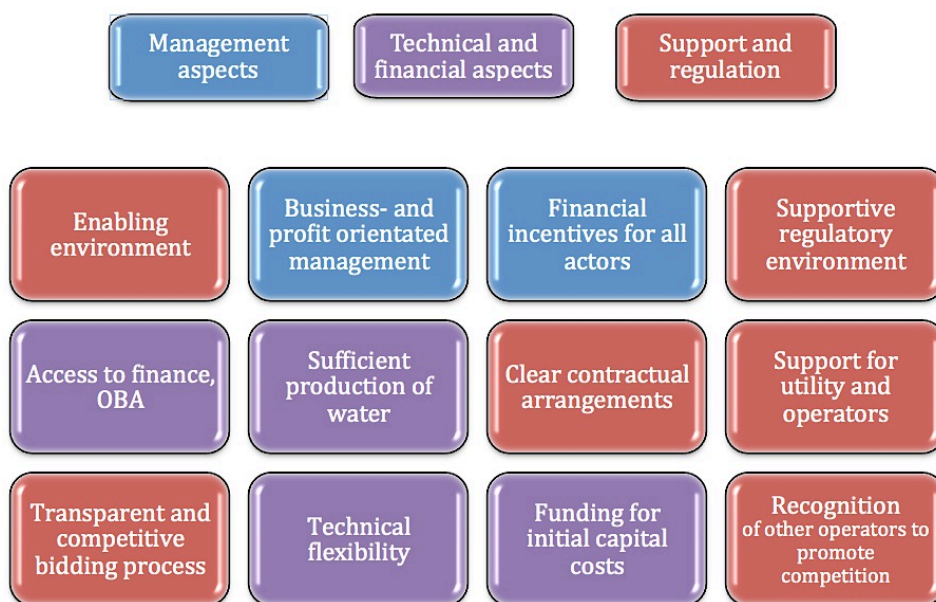


Figure 5.1: Main factors for successful delegated management models

Source: Author

The second important finding from the literature review is that in the existing literature alternative providers are regarded without much distinction. The definition of WUP (2003) of intermediate and independent providers (see section 2.3) is very useful but does not sufficiently address the very different types of delegated management models that have emerged in various cities in recent years. The general factors for success as summarised above are the main factors mentioned in the literature, the majority of which are seen as important in studies of different cases and in different locations. Although most of the factors are generally important in delegated management models, many of these factors can be implemented in very different ways. For different types and levels of delegated water supply management, different measures might be required to achieve the desired results. Therefore, it is not sufficient to examine if a certain factor has been considered in a management model but also how it is best implemented in the context of the actual model.

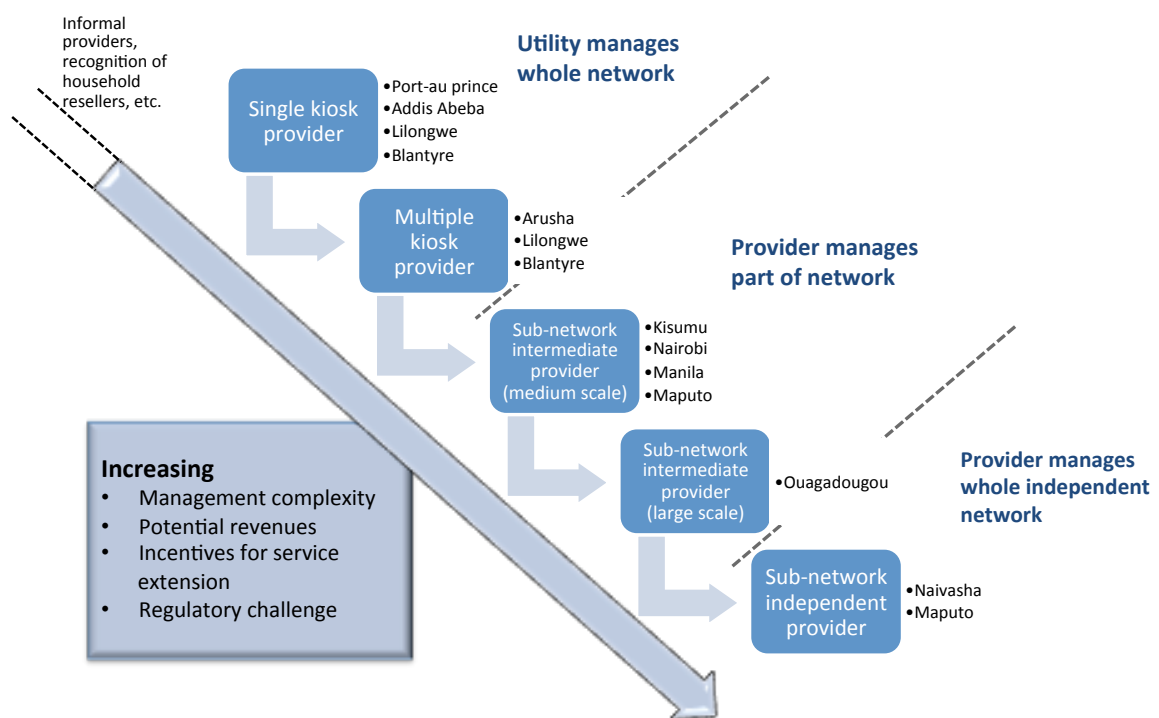


Figure 5.2: Levels of delegated water supply management

Source: Author

In the following analyses of possible improvements in management, technical and financial, and support and regulation aspects in Lilongwe and Blantyre, the highlighted factors for success are discussed for their suitability and effective implementation in the respective levels of delegated water supply management. It has to be noted that the field research only allowed to look at single and multiple kiosk providers that are evident in

Blantyre and Lilongwe, so that the analysis focuses on these types of DMMs. However, because of the clear progress in those cities towards more complex management forms and the upcoming sub-network service provision in Blantyre these are also addressed in this chapter.

5.1 Management aspects

5.1.1 The delegated management model in Lilongwe and Blantyre

Overall, the set up of the delegated management model in Lilongwe and Blantyre is similar to the general outlook of such models as described in section 2.5. This is in accordance with the WSP (2009a), as shown in Figure 2.3, with relationships between the water company, service providers and consumers. However, in the cases of Lilongwe and Blantyre, this figure falls short in terms of the support provided by external agencies. The option of including institutions for support between the utility and the service provider is described in section 2.5 and presented in Figure 2.4. Such support institutions have an important role in the delegated management models in both cities, although their responsibilities are slightly different from that in Figure 2.4, where they are included in the payment system. In the Malawian cases, the international NGOs, WaterAid and Water for People mainly assist the utilities in the implementation of effective management models and provide funding for the first years. Support for the service providers, especially in terms of training, is delegated to local NGOs. As well as support institutions, the option of including monitoring committees or agencies to supervise the alternative providers is also discussed in section 2.5. However, such external monitoring systems, either community based or a professional organisation, do not exist in the Malawian context. This issue is discussed in more detail below in section 5.3. To summarise, the general management outlook and relationship between major stakeholders in Lilongwe and Blantyre is a combination of Figure 2.3 and Figure 2.4 shown in the literature review. Figure 5.3 highlights the involved stakeholders and their respective relationships in the Malawian delegated management models.

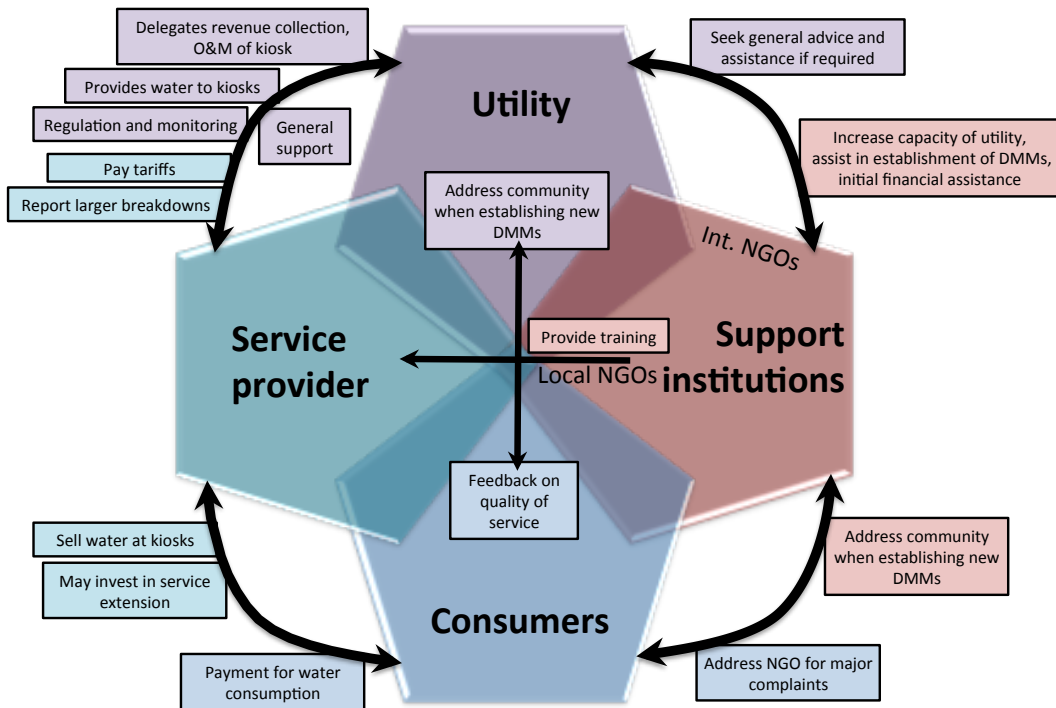


Figure 5.3: Relationship between utility, provider, support institutions and consumers

Source: Author

Regarding the different management models described in section 2.5, all of them exist in the two analysed cities. It is also mentioned in this section that the described general models might show variations in reality, and the Malawian Water Users' Associations are such a case, being a combination of private enterprises and community based organisations. From the exiting models, both utilities now focus on private operators and especially WUAs as kiosk managers, besides the few kiosks that the utilities keep under their management for social reasons (Figure 5.4).

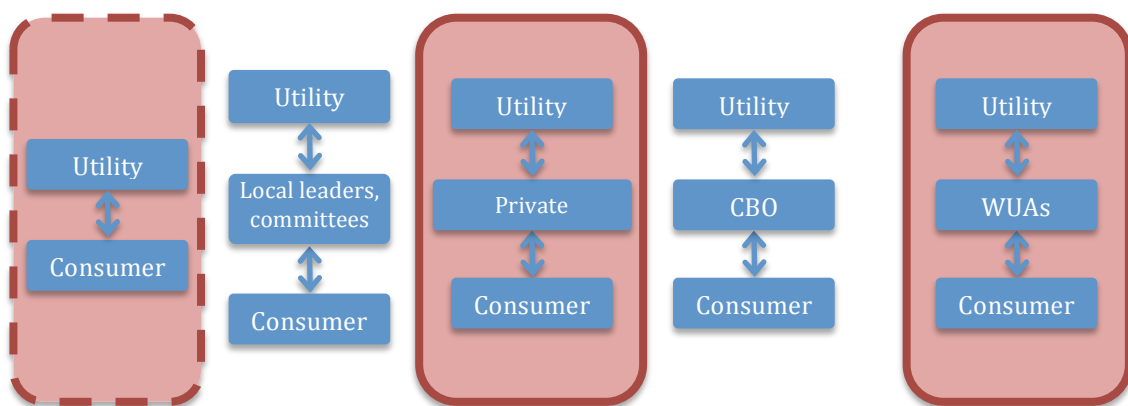


Figure 5.4: Kiosk management models in Lilongwe and Blantyre

Source: Author

5.1.2 Relevance of appropriate management models

Schwartz and Sanga (2010, p.770) conclude that many of the benefits made in Kisumu appear to be wholly or partially the result of the infrastructure development phase rather than of the delegated management. (See section 2.8) As construction of new infrastructure was also part of most other cases described in the literature, this aspect needs to be looked at in more detail.

In the cases of Lilongwe and Blantyre, construction of new infrastructure was only partially included in the delegation of kiosk management, and only in the form of a few kiosks. Major infrastructure projects, including the construction of a high number of new kiosks, are currently under progress and will take a few years to complete. In both Lilongwe and Blantyre, Water Users' Association took over management of most existing kiosks and facilities from other operators, and not only reduced the many previously existing problems but overall provide adequate services and over the last few years have been self-sustaining organisations. Thus, the improvements in service provision in Lilongwe and Blantyre are less driven by improvements in infrastructure but by a change in the management model. The cases of Lilongwe and Blantyre show that effective management is an important factor for success in delegated water supply and the suitability of different types of providers must be considered in the selection process.

However, technical issues are clearly amongst the major problems which the Water Users' Associations face in these two cities, and many of them would be able to improve their performance with a better infrastructure, not only in terms of service provision but also regarding cost recovery and profit making. In addition, although effective management remains a decisive factor, the importance of technical aspects is likely to increase with the level of delegated management, when alternative providers have to manage parts of a network or even a whole independent network on their own.

5.1.3 Review of management models

The literature review shows that in the past usually non-profit orientated organisations, such as water committees, other CBOs or individual representatives of the community, have been handed over management responsibilities in **kiosk-only management systems**. Until a few years ago, the same applied for Lilongwe and Blantyre. However, even in these management schemes of relatively low complexity and responsibility, both the literature as well as this research highlight that community based organisations were overall unable to provide adequate services. With their strong relationship to the

community and thus often to local leaders, they are highly prone to political interference. Also, without the pressure of achieving cost recovery financial management is often highlighted as a main problem (section 2.8 and 4.2.6). As these management options overall failed in these kiosk-only management systems, they do not seem to be suitable providers in more complex sub-network delegated water supply management systems.

In the **sub-network management systems**, the delegates are not only responsible for operation and maintenance of (parts of) the pipe system but also for service extension. In all such cases described in the literature review, private alternative operators are the predominant management option. One exception is the example of Kisumu, where a CBO operates with similar performance to the private operators (see section 2.8). In Malawi, the pilot of a sub-network management system (see section 4.2.3) will also be carried out with a private operator. As highlighted in chapter 4, the main reason that this pilot is not carried out with a Water Users' Association is that they do not have the capacities to run such complex systems. The fact that in most other cases the bidding process was open to everyone, but mostly private operators were selected (and maybe applied), suggests a similar lack of capacities of community based organisations in other cities.

Whether private or community based, the examples of sub-network management systems presented in section 2.8 clearly highlight the importance of business- and profit orientated management as well as financial incentives for all stakeholders. Where alternative providers are responsible for service extension, sufficient opportunities for profit-making must be ensured to increase the motivation to do so. However, the findings from Lilongwe and Blantyre show the importance of business- and profit orientated management also in less complex management kiosk-only management systems. Overall, both Water Users' Associations and private operators have achieved better performances than the local water committees or other CBOs.

As a result, WaterAid (2010) states the following potential future kiosk management options in Lilongwe after the construction of all new kiosks:

- Water Users' Associations
- Private operator with one kiosk
- Private operator with multiple kiosks
- Private bulk operator (i.e. sub-network providers)

The latter of these options is currently not considered in Lilongwe but will be first tried out in Blantyre. Other options, such as water committees or other CBOs, are no option for the future due to the overall negative experiences, most notably the accumulation of bills, from the past.

Regarding the Water Users' Associations, main benefits such as regular bill payment, cost recovery, reductions of arrears, adequate kiosk maintenance and relatively low tariffs are identified in section 4.2.6 and 4.3. However, three major drawbacks are also highlighted, which are:

- Vulnerability towards political interference
- A heavy and costly governance structure of three tiers
- Lack of capacities and skills of staff, resulting in high requirements of support

If generally staying with the option of WUAs, then solutions to reduce these problems should be considered.

Although being business-orientated, as community based organisations local leaders and politicians become automatically members of the board of trustees. Interviewees mentioned the need for a strong executive committee in conjunction with training and awareness for the board members as possible options to reduce the chances of abuse (see section 4.2.6). However, having a strong executive committee depends on the individuals and cannot be controlled, and the option of raising the level of awareness might not be sufficient. Thus, structural changes are likely to be required to overcome this problem. Options to be considered might be the possibility to vote out board members or making board members also subject to elections as the executive committee members are. A more far-reaching change would be the abolition of the whole board, which would also have effects on the second major issue of the heavy and costly WUA governance structure.

Keeping the large body of WUAs in mind (see Figure 5.5), a general reduction of their size and number of tiers could have positive effects on their efficiency, as high operational costs and the long chain of decision-

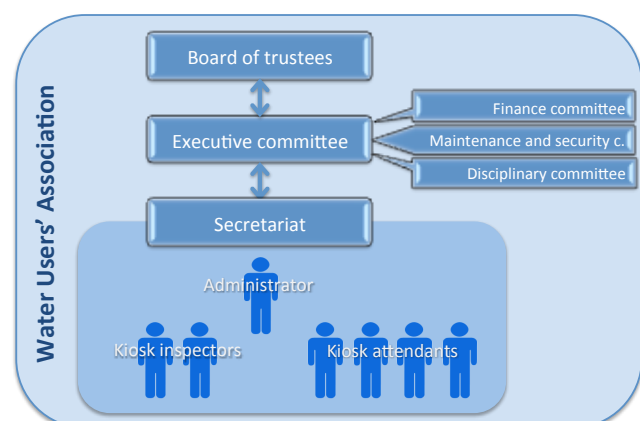


Figure 5.5: Organisational structure of WUAs

Source: Author

making would be reduced. From the author's opinion, there does not seem to be need for all three tiers. Whereas the secretariat is responsible for the day-to-day operations and thus required, one supervising body responsible for the general management seems to be sufficient. However, a vast reduction of paid staff is difficult, as the biggest share of staff is hired as kiosk attendants which cannot be avoided. Options to downsize the staff of the committees must be further looked at in detail.

Regarding the third aspect, capacity and skills must especially be increased for the members of the committees and the higher staff in the secretariat. In general, two options exist to achieve this. One was mentioned by several stakeholders and is that of training. The other one would be the direct employment of higher skilled staff. At present, this is not possible as the WUAs are community based organisations and mostly employ local staff. Abolishing this restriction of hiring local staff could be considered in future, however practical aspects such as transport and information sharing must then be considered.

The other general option to overcome these problems is the selection of a different management model, which would be private operators. As shown in sections 4.2.6 and 4.3, private operators do not have problems with political interference, do not have a large and costly governance structure and are generally considered to have higher skills and capacities, although the latter generally might be more accurate for private organisations rather than individuals. However, other issues arise with this management type. The case of Lilongwe shows that private individuals managing a single kiosk are very difficult for the utility to supervise due to the high number of operators. As a consequence, WaterAid (2010) proposes private operators with multiple kiosks (about 2-12) as an adequate solution in areas where WUAs may not be viable. However, in Blantyre the private multiple-kiosk operators themselves mentioned consequent problem of high risks. If the one individual fails to provide good services, several kiosks would be affected. Also, with only one individual being responsible the checks and balance system would depend solely on the utility. For the operators managing multiple kiosks rather than single kiosks reduces the impact of shortfalls of revenues due to breakdowns, and the lower number of operators is easier to handle for the utility. Thus, multiple-kiosks are likely to be more effective than the current single-kiosk systems that

mainly exist in Lilongwe. However, as the examples of Blantyre show, monitoring systems are required.

Another option that is not raised at all by WaterAid (2010) and has not been mentioned by any stakeholder would be that of private enterprises managing a larger number of kiosks, as WUAs do. As the individual private operators, such organisations would not have the same major problems that WUAs face. In addition, they could overcome the problem of the high risks of management failures in the individual private operator model. Also, larger enterprises might have more financial capacities for service extension, which should be promoted by giving them sufficient financial incentives. This could be a suitable management model that should be looked at in more detail, keeping in mind that an adequate system of checks and balances would be required.

5.2 Technical and financial aspects

The discussion of technical issues goes hand in hand with financial aspects, as in addition to better access to water for the users the main benefits of technical improvements in service provision would be reduced costs in water supply in low-income areas.

In general, technical improvements are required to increase pressure and reduce NRW, however these are general issues the utilities have to address and do not only affect delegated water supply. Thus, this analysis focuses more on how water could be provided at a lower price specifically in the low-income areas.

Water provision through kiosks has the advantage that many customers can be reached with relatively low investments. Also, water is distributed fairly to all kiosk customers at the same price. As a consequence of the inconvenience caused by the time and physical exertion needed to collect water, water demand is suppressed. Although in the long-term customers in low-income areas should have access to higher amounts of water, this can be seen as an advantage in supply systems that already fail to meet the demand.

The high costs that kiosk water selling includes are one of the main drawbacks of this service option. As shown in section 4.2.4, the subsidised kiosk water tariffs do not reach the end users in both Lilongwe and Blantyre. The official water price that customers should pay at the kiosks is 2.1 (Lilongwe) and 2.5 (Blantyre) times higher than the water tariffs the operators pay to the utility (see Figure 4.9). Also, the official kiosk water price is about double the price of water for households with private connection. Nonetheless,

the official water price that the WUAs mainly use does not allow for high profits but is about sufficient to achieve cost recovery and small profits. The statements of other interviewed operators generally suggested that kiosks are not financially viable to generate large amounts of money. However, it should be mentioned that for example the two private operators in Blantyre charge about double the price of WUAs and should have less operational costs.

As a consequence of the high costs, caused mainly through the necessity of a kiosk attendant, other services delivery options should be considered. In chapter 2.7, several options for alternative water provision are discussed. Regarding the advantages and disadvantages provided in Table 2.3, shared yard connections, household reselling and public handpumps seem to be worthwhile to have a more detailed look at. Promotion of rainwater harvesting might be another adequate option that could supplement other sources.

From these options, only household reselling is already in use, but water prices are very expensive. The possible benefits of recognition of household resellers are highlighted especially by Sansom (2006b) and WUP (2003) and discussed in section 2.6.1. However, it is questionable whether promotion of household reselling would have large effects, as they would have to be lowered by up to six times to compete with official kiosk prices. Also, the water market in the Lilongwe and Blantyre low-income areas in general does not seem to be very competitive. In addition, household reselling is mentioned by WUP (2003, p.48) as especially important in areas where there are not many kiosks, and in both Lilongwe and Blantyre their number is going to increase.

In the low-income areas of both cities, inhabitants use several sources to collect water, of which shallow wells is one (see section 4.1.2). The existence of such shallow wells indicates that handpumps would be a possible option. However, as stated in section 4.1.3 the construction of boreholes in cities is prohibited by Malawian law. Any further study on the suitability of this option must therefore include the legal aspects.

Finally, from the author's point of view shared yard connections seem to be a very promising option to bring utility water at the normal household tariff to more customers, who cannot afford household connections. As well as better affordability, this option would increase convenience by elimination of long walking distances and waiting time. Thus, shared yard connections is comparable to the advantages that individual

connections bring, but can overcome the problem that usually prevents them, which are expensive connection costs.

All of the described options, or the most suitable for local circumstances, could be promoted in addition to the kiosks to make water in the low-income areas of Lilongwe and Blantyre more affordable and accessible. At the moment, all stakeholders seem to focus on water kiosks without much consideration of other service delivery options. However, if any other service options are going to be promoted in future, the utility must consider the possible effects of reduced revenues for the kiosk operators.

Regarding the service provision through water kiosks, two possible options for improvements are highlighted in Box 2.2, which are pre-paid systems and storage tanks. The latter option seems to be especially important in the context of Lilongwe and Blantyre due to the low pressure and high unreliability of water supply. So far, only a few kiosks in Blantyre have such tanks attached (see section 4.2.6), although the extension of this technical upgrade would have large benefits for the users as well as for the kiosk operators, who could increase their water sales. The other describe option of pre-paid systems seems to be less suitable for the moment due to the high installation costs and the insufficient service reliability. However, when infrastructure is improved installation of these could strongly decrease the kiosk operating costs and consequently the kiosk water price.

One other aspect in kiosk operation that needs to be evaluated is the responsibility of maintenance, which is both a technical and a management issue. Currently, the operators are responsible for maintenance and small repairs up to the meter from the kiosks. In Lilongwe, the WUAs do not even buy the spare parts themselves but request them from the water board. Therefore, repairs can often take a long time (see section 2.8). As mentioned by several interviewees, it would be more effective if WUAs buy spare parts directly, as their counterparts in Blantyre do. In both cities the long response time of the kiosk management units to faults is a general problem caused by the KMU's insufficient capacities. Under the current arrangements, operators often do not take action even if there is only a minor fault before the meter, which would be easy to repair. Thus, the effectiveness of the current maintenance arrangements should be re-evaluated. Handing over more maintenance responsibilities to the WUAs before the meter could not only reduce the time for repairs and the overall costs for maintenance but would release more resources of the kiosk management units.

Finally, the issue of access to finance for the operators in Lilongwe and Blantyre should be addressed. The international experiences discussed in the literature review highlight the importance of access to finance as an important factor for success. The cases of Ouagadougou and Maputo show the option of output based aid as one measure to increase the financial capacities of operators. Micro-credits are another possibility which has been established in Kenya. In most of the described examples, the operators have been able to largely extend services, whereas the kiosk operators in Lilongwe and Blantyre failed to achieve this, which is mainly due to their revenues which often suffice only to reach cost recovery. This might be less a problem of the tariff system but, as Figure 5.2 shows, a general drawback of the kiosk-only delegated management systems which provide fewer opportunities for the providers to increase their revenues and thus provide less financial incentives. However, as stated in section 4.2.6, some WUAs that could afford the costs did construct new kiosks, which indicates that increased revenues due to the new kiosks are expected. Also, it was mentioned by WUAs that the high connection costs and repayment of inherited arrears prevent construction of new kiosks, which otherwise would be done. Thus, provision of better access to finance for WUAs and other future operators could enable service extension also outside externally funded projects, which would contribute to the sustainability of the delegated management model as the low-income areas will continue to grow. Output based aid for the construction of new kiosks might be an option that could be looked at in more detail. Another option highlighted by WaterAid (2010, p.16) to increase revenues would be to convert kiosks into small shops and make water to only one of several products on sale. Most of the kiosk attendants stated that they do not sell other products because it is not allowed by the water board. Thus, if promoted by NGOs or the water board kiosk attendants seem to be motivated to increase their revenues by expanding their selling products.

5.3 Support and regulation for alternative providers

5.3.1 Support

In Figure 5.1, two factors refer specifically to support, which are an enabling environment and support for utility and operators. Important elements of an enabling environment are legal recognition of the providers, political will of the water board to

improve services for the poor and improved performance of the utility itself (see section 2.8). In the cases of Lilongwe and Blantyre, these elements have been improving for several years. With the Water Users' Associations, a large share of kiosk operators is already authorised by the utility to sell water. In future, all selected kiosk operators, whether WUAs or private ones, will enter formal relationships with the utilities. Also, in both cases the city councils are involved in the delegated management model and support the on-going process. The second element, political will of the water board to improve services for the poor, is very strong in both Lilongwe and Blantyre. With the establishment of the KMUs, both utilities clearly show their ambitions to improve water supply in the low-income areas. The performance reports of both water boards also highlight this goal. (LWB, 2011; BWB, 2008, p.13) The third aspect, the improved performance of the utility itself, is a major remaining problem, but should improve over the next years due to the current infrastructure projects.

In all delegated management models described in this study, external agencies have a major role in their establishment. These organisations help to create an enabling environment, increase the capacities of utilities, give advice in the set up of effective management process and provide funding for the first years. Often, these agencies are international NGOs, as in Lilongwe and Blantyre. No example was found where utilities set up delegated management models solely on their own. In many cases, including the ones from Malawi, this support leads to a tri-partnership between the utility, an NGO and the alternative providers. In both Lilongwe and Blantyre, even after several years, WaterAid and Water for People are still very much involved in the delegated kiosk management, less so in funding but in advocacy, provision of advice for the utility and assistance in the delegation of kiosk management for new operators. With the number of kiosks growing in both cities, external support is likely to be required in future for at least several years.

Support for the operators can be provided mainly in terms of finance or training to increase capacities. In the previous section, the benefits of output based aid or access to credit have been mentioned. Although such financial support is even more important in sub-network management models, in which household connections must be provided, on a lower scale such measures would also be useful in kiosk-only management systems. In both Lilongwe and Blantyre, such types of financial support do not currently exist for the

operators, but should be considered in future. Effective financial support for the future sub-network operator in Blantyre must particularly be addressed.

Training for the operators is an important factor described in all cases of DMMs, and is the main type of support that is provided to the kiosk operators in Lilongwe and Malawi. Whereas support for the utility is mainly provided by international NGOs, the water boards or local NGOs usually provide training for the operators. However, this is currently on a relatively low level even for the Water Users' Associations and according to the interviews with the WUA representatives not sufficient (see section 4.2.5). Also, interviews with other operators showed that many of them have not received any training at all. Regarding the WUAs, most of them received training only once when being established, and lasts no longer than about a day. This is not enough regarding the relatively high capacity requirement of WUAs compared to other operators. They are not only more formal organisations but also responsible for much more kiosks than other operators. Thus, the executive committee and especially the administrator have to manage large sums of money, staff, and carry out the accounting and other financial tasks. Considering the fact that many employees are hired from the local areas and have low skills, this should be improved in the future.

Apart from training, one option to increase capacities would be to link the WUAs with each other more strongly, as mentioned in section 4.3. As well as the general benefit of sharing information and experiences, this would be especially useful for WUAs which are going to be established for the new kiosks, as they could learn from others who are already more experienced.

5.3.2 Regulation

Regulation of alternative providers is one of the most complex aspects of this study. As shown in the literature review, the experience on effective regulation of alternative providers is very limited. Further, the existing literature does not distinguish between different levels of delegated management. As shown in Figure 5.1, most of the identified factors for success relate to regulation. However, due to the limited knowledge it remains unclear how these factors relate to the different management levels as shown in Figure 5.2. Therefore, in this section the author has endeavoured to combine measures of regulation with management levels, to help identify suitable and effective regulation under different circumstances and in Lilongwe and Blantyre.

Informal providers

In section 2.6.2, options to regulate informal providers are discussed. According to several authors (Sansom, 2006b; WUP, 2003; Franceys and Gerlach, 2008), regulation of such providers is hardly practicable due to their small scale, their informal characteristics, their often high number and the lack of information. As a consequence, market-friendly regulation is proposed by most authors as a more practicable and effective way of regulation for these providers. Possible measures are the publication of operator performance, publication of prices or market entry regulation to promote competition. However, as Franceys and Gerlach (2008, p.199-203) point out, in most cities with no or loosely regulated markets water provision through alternative providers is characterised by wide-spread anti-competitive behaviour, oligarchic market structures and cartel formation, leading to increased water prices for the poor. Based on this knowledge, it seems that strict regulation of informal providers is not practicable, however, market-friendly regulation is unlikely to have huge effects. Nonetheless, market-friendly regulation and promotion of competition is likely to be better than no engagement with the providers at all.

As pointed out in section 4.2.2, in Lilongwe and Blantyre there is no wide-spread competitive water market of informal water vendors. Household reselling is illegal but regulation cannot be enforced by the utilities. As shown in Figure 5.1, recognition of other operators might be an option to promote competition, and regarding household resellers in Lilongwe and Blantyre could be considered as discussed above. Kiosk operators are all legal water sellers that are recognised by or have formal relationship with the utilities.

Kiosk-only management models

The kiosk management models in Lilongwe and Blantyre both come under this category. As the utilities remain responsible for the whole pipe network, regulation is limited to economic regulation. From the several regulation aspects highlighted in Figure 5.1, only some seem to be relevant at this level.

First of all, the factor of a transparent and competitive bidding process is more relevant in sub-network management models. In Lilongwe and Blantyre, operators such as WUAs do not apply for the kiosks but the water board together with the supporting agencies approach the communities to propose suitable management models (see section 4.2.3).

Clear contractual arrangements might also be more important especially in higher management levels due to their increasing complexity, however, the case study of Lilongwe and Blantyre shows that they are also relevant at this level. As WaterAid (2010, p.16) states, it is important to ensure that for any chosen option contracts should be signed to ensure the interests of all parties including the community. In future, two aspects should be addressed in these contracts that currently lead to problems. First, in Lilongwe responsibility for maintenance is not entirely clear due to the complex arrangement of who has to provide spare parts. Second, the adjustment of prices takes a long time. When the water board raises the tariffs, the operators have to request tariff adjustments at the kiosk management unit and the water board needs to agree. This process should be simplified.

Increasing competition between kiosk operators seems to be very difficult in the cases of Lilongwe and Blantyre and is even more unlikely in future. At the moment, there is hardly any competition between kiosks. As described in section 4.2.4 and 4.2.6, kiosks in a certain area usually charge the same price and users do not switch between different kiosks. The first aspect also seems to apply to areas where kiosks are managed by different operators. The main reason for the second aspect is the low number of kiosks and therefore the large distances to other kiosks. In future, one kiosk operator or operating agency will manage all kiosks in one area, as the WUAs already do. As a consequence, there will be minimal competition between kiosk operators, with other alternative providers' virtually non-existent. As the operators enter in a contractual relationship with the utilities, regulation should ensure that all operators charge the official water price set by the utility without competition. However, the experiences from the past as well as from other cities show the difficulties of regulating the water price at kiosks. One relatively simple measure that could contribute to regulation would be to make it mandatory for each operator to display the official water price per bucket at the kiosks. This measure is also proposed by WaterAid (2010, p.16).

One important aspect that needs to be discussed is who should regulate the alternative providers. In Figure 2.6, three options are described. The first is regulation directly through the same regulator who is responsible to supervise the utility, which leads to excessive costs and requires high resources and staff input from the regulator. The second option is regulation through the formal service provider, which increases the burden to the utility who may be struggling with service delivery itself. The third option

is delegated regulation to a local regulator responsible only for the alternative providers. This option requires the set up of an organisation and capacity building and involves risks of political interference if local authorities are involved. In Lilongwe and Blantyre, the second option is in place, with the water boards supervising the alternative providers. However, as the often raised tariffs and other described problems show, the utilities do not have the capacities to monitor the several hundreds of kiosks in the widespread low-income areas. One major reason for the improved services and lower water prices at the WUA kiosks is that in addition to the on-going supervision through the utilities regulation has also been delegated in a similar way as described in option three. However, the difference is that regulation is delegated to the operators, i.e. the Water Users' Associations, themselves. With their multiple-level self-checking mechanism, members elected by the community and inspectors who conduct daily visits to all kiosks, WUAs have a strong monitoring mechanism, whereas the other operators are supervised only by the kiosk management units which have little capacities to do this. The drawback of this model is the increased operational costs for WUAs, however as they usually sell water cheaper than the other operators and are still viable it seems to be worthwhile to establish such extensive regulation mechanisms. In future, it will be important to find adequate regulation mechanisms for the private kiosk operators. The success of the WUAs shows that any regulatory agency must be situated on-site and close to the kiosks. It is both expensive and non-practicable to conduct daily visits to kiosks in different areas, so that delegated regulation could be the most suitable way to regulate private operators. Local water regulation committees as established in Maputo (see Box 2.1) should be considered as a cost-effective method to achieve the same benefits with private operators as with WUAs.

Sub-network management models

Due to the limited knowledge in the literature and the fact that the sub-network pilot project in Blantyre was not yet under operation at the time of the study, it is difficult to draw any conclusions regarding regulation of operators managing sub-networks. In addition to the aspects mentioned for the kiosk-only delegated management systems, the factor of a transparent and competitive bidding process becomes more important. What makes regulation more complex under these management models is that in addition to economic regulation, technical standards and water quality also must be ensured. In most cases described in the literature review, regulation is established through contracts

between the utility and the providers, as described in Figure 2.6 as option two. However, the detailed implementation of monitoring and enforcement as well as the effectiveness, practicability and challenges of different measures require further analysis.

5.4 Chapter summary

The study highlights the general importance of support institutions in delegated management models. In the Malawian cases, but also in other described examples both the utility and the alternative providers require external assistance for some time.

One key finding from the Malawian DMMs is that the management model does matter and that different management models can achieve very different results. Also, the study shows that in the Malawian kiosk-only system a business-orientated approach of providers is as important for success as in more complex sub-network systems.

Regarding the Water Users' Associations, besides their overall good results there is potential for improvements. However, their extensive and cost-intense self-regulation mechanism is effective to keep the kiosk water prices at a low level. Increased reselling prices are amongst the key concerns with private operators, but due to their lower operational costs they are able to manage smaller numbers of kiosks in areas where WUAs cannot be financially viable.

Over the next years, the soon to be established sub-network model in Blantyre can further increase the benefits of the local delegated management model and provides a great opportunity to learn further lessons.

Until then, this analysis might help stakeholders in Malawi but also in similar projects in other locations to consider the main aspects of delegated management models and to develop ideas for future improvements. The final chapter draws conclusions of what has been found by the author and is meant to assist involved stakeholders and interested researchers in their forthcoming steps.

6 Conclusions and recommendations

This chapter returns to the overall aim of the research by drawing conclusions from each of the investigated objectives. Based on the analyses of strengths and weaknesses of different management models, improvements to the management, support and regulation of water supply for the urban poor in Lilongwe and Blantyre are considered and recommendations provided. The chapter concludes by identifying gaps that could not be addressed within this research and guides the way forward for future studies.

Studying the experiences presented in the literature review, delegated management models seem to be a promising approach to improve water supply for the urban poor. Whereas several drawbacks are mentioned with earlier experiences, which usually involved delegation of kiosks-only to low regulated water committees or local leaders, many of the more recent models show better results. The summarised general factors for success also show the limitations of the existing literature. Distinction between different types of delegated management must be made, and knowledge on successful kiosk-only systems is particularly low.

A case study approach turned out to be the most suitable method to fill the identified gaps. Malawi was chosen due to the various existing management models on-site and their on-going change. Collecting data from a wide range of people at different levels in two cities ensured a comprehensive research and allowed for an increased accuracy and validity of the study.

One major objective of this study is to examine the current approaches for water supply for the urban poor in Lilongwe and Blantyre. Following that, the performances of different service providers are analysed against several indicators. Possible reasons for the variations in performance are further investigated by identification of different stakeholders' perspectives.

Between the two analysed cases, similarities in the delegated management models and experiences of the utilities with them are much more pronounced than differences. In both cities, Water Users' Associations managed to overcome the problems that were induced by previous kiosk operators, most notably water committees or local leaders. In contrast to the WUAs, there is less agreement between different stakeholders on the

future potential of private operators as kiosk managers, with overcharging of users being the main concern raised by opponents. However, besides the reselling prices which are often inflated, private operators achieve similar benefits for both the users and the utility as WUAs, which for some stakeholders make them a potential future management option.

To address the last research objective, which is to identify potential options for improvements of the Malawian delegated management models, the analysis takes a close look at the findings from both the case studies and the literature review. At the beginning, the analysis highlights the importance of distinction between types of delegated management when looking at general factors for success and possible improvements. Although the literature review shows that potential benefits are higher with delegated sub-network management, findings from the case studies underline the possible benefits of delegated water supply also in kiosk-only systems, as long as effective management models are established and other decisive factors are implemented under consideration of the local circumstances.

The analysis of the cases also addresses the few efforts in both cities to diversify the technical options of services provision. Although water kiosks have certain benefits especially when production of water by the utilities is insufficient, other options also could improve water supply in the low-income areas.

One particular challenge that remains with all kiosk management models is effective regulation. Whereas it is not practicable for the utility to supervise all kiosks, the self-regulating mechanism of WUAs is relatively successful. Breakdowns at kiosks are reported within one day, and daily crosscheck of sales revenues and meter readings keeps reselling prices at a low level. Whether establishing an internal or external regulating body, this finding shows that feasible economic regulation can only be achieved through a regulating agency that is situated close to the kiosks.

Besides the achieved benefits of delegated water supply, the sustainability of the models described in this study must be investigated in future. Many of the examples mentioned in the literature have only existed for a very few years. In Lilongwe, several WUAs have been able to provide adequate services under cost recovery for five years, and in both cities most WUAs have continuously been reducing their debts. These are promising signs for their future sustainability. However, even if alternative suppliers in various

cities are self-sustaining, the literature highlights that the most effective way of water provision is through household connections by one utility, which should generally be the long-term aim. One mentioned long-term approach could be that the utility moves gradually into the periphery, while small private operators move ever further out until they are eventually entirely absorbed. Such aspects should be considered when establishing delegated management models, also because the operators require financial security for any investments. With probably decades of continuous population growth and expanding low-income areas ahead, such issues might not seem too important in Lilongwe and Blantyre at the moment, but sooner or later this will need to be addressed.

The findings from this study allow the author to give some guidelines and recommendations for involved stakeholders in Lilongwe and Blantyre to adapt the current delegated water management models and consequently improve water supply for the urban poor. It has to be noted that the given recommendations are meant to suit the kiosk-only systems in Lilongwe and Blantyre, so that any stakeholders planning to use them must consider the local specifications of the researched areas.

- Kiosks are generally expensive to operate. Other service delivery options such as shared yard connections, promotion of household reselling, rainwater harvesting or handpumps should be assessed.
- Reduce the large body of WUAs. Their current set-up of three tiers involves high costs and leads to a slow decision-making process. A two-tier system would be more effective and sufficient regarding the organisations' responsibilities.
- Establish mechanisms to prevent political interference at WUAs. Options would be the abolition of the board or imposing elections for board members.
- Increase the maintenance responsibilities of WUAs also before the meter to shorten the time needed for repairs.
- Private operators managing multiple kiosks are easier to oversee for the utility than a high number of individuals operating single kiosks. Especially in Lilongwe, the utility should deviate from the system of one kiosk per private operator.
- A management model with a private institution managing a larger number of kiosks as WUAs has never been considered. A private agency could combine the benefits of WUAs with the improvements of reduced operating costs, increased capacities and skills of staff and absence of political interference.

- With either private individuals or a private agency managing kiosks, local monitoring committees should be established at the locations of the kiosks.
- To improve service extension by kiosk operators without external funding, both their financial incentives and capacities must be increased. Output based aid for new kiosks could be considered as a possible measure.
- The official water reselling prices should be displayed at all kiosks.
- To increase revenues, other products could be sold at the kiosks.
- Water storage tanks should be constructed at the kiosks to reduce the problem of low pressure. This would also lead to increased revenues for the kiosk operators.
- Regarding the positive experiences from other countries, more complex sub-network management systems should be promoted in Lilongwe and Blantyre in more than one area and with several operators, which would also enable comparison of their performance and thus learn more lessons.

Throughout the whole study, several aspects were identified that leave scope for further research in the design of delegated management approaches. In general, this report focused on kiosk-only management in the two cities of Lilongwe and Blantyre. Research of similar systems in other locations would provide a better understanding of the critical factors for developing effective kiosk-only delegated management systems.

This study enabled the author to come up with some conclusions of practicable and effective regulation for kiosk-only management schemes. However, in such systems regulation of the service providers is largely limited to economic regulation. Further research is required on how to establish effective regulation mechanisms in more complex sub-network systems, in which water quality or technical standards used by the service providers also must be monitored.

At present, Water Users Associations in Lilongwe and Blantyre do not have the capacities to manage sub-network systems, but many stakeholders are optimistic that this could be an option in future. It would thus be important to investigate how the transition from kiosk-only to sub-network management could be facilitated.

Finally, due to the relatively short existence of most of the described cases future research is required to address their sustainability. In addition, long-term approaches to deal with the alternative service providers should be assessed to achieve the ultimate goal of cost-effective household connections for all consumers.

List of references

- Adonga, O.**, 2010. *Watsan Services for the Urban Poor: NWSC-Uganda experience*. African Development Bank
- Bernard, H.R.**, 2005. *Research methods in anthropology: quality and quantitative approaches*. Fourth edition. Walnut Cree: AltaMira Press
- Bevan, J. and R. Franceys**, 2009. *Urban partnership approaches: A WSUP update*. 34th WEDC International Conference, 2009, Addis Ababa.
- Blantyre Water Board (BWB)**, 2008. *Annual report and statement of accounts 2008*. Blantyre: BWB
- Blantyre Water Board (BWB)**, n.d. *BWB draft sector performance report*.
- Blaxter, L., C. Hughes and M. Tight**, 2006. *How to research*. Third edition. Maidenhead: Open University Press
- Breslin, N.**, 2010. *An NGO's light touch*. In: *Ned Breslin's weblog* [online] <http://nedbreslin.tap.waterforpeople.org> [viewed 22 July 2011] Available from: <http://nedbreslin.tap.waterforpeople.org/an-ngos-light-touch>
- Bretz, B. et al.**, 2008. *Mapping/Needs Assessment Report: Blantyre, Peri-Urban region of Malawi 2008*. Malawi: Water for People
- Brocklehurst, C.**, 2004. *Local Management Models for Water Supply and Sanitation for the Urban Poor*. London: Building Partnerships for Development (BPD)
- Caplan, K. et al.**, 2001. *Flexibility by Design: Lessons from Multi-Sector Partnerships in Water and Sanitation Projects*. London: BPD Water and Sanitation Cluster
- Chaponniere, E. and B. Collignon**, 2011. *PPP with local informal providers aimed at improving water supply in the peri-urban areas of Maputo, Mozambique*. 35th WEDC International Conference, July 2011, Loughborough.
- Chimpweya, J.**, 2010. Water kiosk owners owe BWB K38m. *Nation Online*, 17 June. [online] [viewed 23 July 2011] Available from: http://www.mwnation.com/index.php?option=com_content&view=article&id=1106:water-kiosk-owners-owe-bwb-k38m
- Chirwa, E. and N. Junge**, 2007. *Private Sector Participation in the Distribution and Management of Water Services: A Study of Low Income Areas in Blantyre and Lilongwe*. Republic of Malawi: Ministry of economic planning and development and Ministry of irrigation and water development
- Colin, J. and H. Lockwood.**, 2002. *Research and Surveys Series: Making Innovation Work through Partnerships in Water and Sanitation Projects*. London: BPD Water and Sanitation

- Crow, B. and E. Odaba**, 2010. Access to water in a Nairobi slum: women's work and institutional learning. *Water International*, **35**(6), 733-747
- Denscombe, M.**, 2007. *The Good Research Guide for small-scale social research projects*. Third edition. Maidenhead: Open University Press
- Denscombe, M.**, 2010. *The Good Research Guide for small-scale social research projects*. Fourth edition. Maidenhead: Open University Press
- Franceys, R. and E. Gerlach**, 2005. *Regulating Public and Private Partnerships for the Poor*. Center for Water Science, Cranfield University
- Franceys, R. and E. Gerlach**, 2008. *Regulating Water and Sanitation for the Poor*. London: Earthscan.
- Franceys, R. and E. Gerlach**, 2010. Regulating Water Services for All in Developing Economies. *World Development*, **38**(9), 1229-1240
- Gibbs, G. and C. Taylor**, 2010. *How and what to code*. In: online QDA website [online] <http://onlineqda.hud.ac.uk> [viewed 31 July 2011] Available from: http://onlineqda.hud.ac.uk/Intro_QDA/how_what_to_code.php
- Gilst, T.**, 2010. *Malawi Peri-Urban Water and Sanitation Project - Working with NGO's to increase W&S coverage*. European Investment Bank.
- GoogleMaps**, 2011. Available from: <http://maps.google.com/> [viewed 8 August 2011]
- Government of Malawi (GoM)**, 2011. *Malawi Irrigation, Water and Sanitation Annual Sector Performance Report*. Draft 1. Ministry of Irrigation and Water Development.
- Hayward, T., A. Parker and J. Tiberhien**, 2011. *Water and sanitation service models for the urban poor: defining stakeholder relations, achieving sustainable finance*. WSUP, Cranfield University, BPD
- IIED**, 2009. *Malawi's statistics mask struggle to meet UN goal for water and sanitation in urban areas*. In: iied website [online] <http://www.iied.org> [viewed 22 July 2011] Available from: <http://www.iied.org/human-settlements/media/malawis-statistics-mask-struggle-meet-un-goal-for-water-and-sanitation-urban-areas>
- Jimu, I.**, 2008. The role of stakeholders in the provision and management of water kiosks in Nkolokoti, Blantyre (Malawi). *Physics and Chemistry on the Earth*, **33**, 833-840
- Kadzamira, E. et al.**, 2004. *Malawi: Study of non-state providers of basic services*. Birmingham: International Development Department, University of Birmingham
- Kalulu, K. and Z. Hoko**, 2010. Assessment of the performance of a public water utility: A case study of Blantyre Water Board in Malawi. *Physics and Chemistry on the Earth*, **35**, 806-810
- Keener, S., M. Luengo and S. Banerjee**, 2010. *Provision of Water to the Poor in Africa: Experience with Water Standposts and the Informal Water Sector*. World Bank

- Kitzinger, J.**, 1995. *Qualitative research. Introducing focus groups*. In: BMJ website [online]. <http://www.bmj.com> [viewed 31 July 2011] Available from: <http://www.bmj.com/content/311/7000/299.full>
- Lilongwe Water Board (LWB)**, 2011. *Performance Management Plans and Budgets*.
- Manda, M. Z.**, 2009. *Water and sanitation in urban Malawi: Can the Millennium Development Goals be met? A study of informal settlements in three cities*. London: International Institute for Environment and Development (IIED)
- Mapcruzing**, 2008. Map of Africa. Available from: <http://www.mapcruzin.com/free-africa-maps.htm> [viewed 2 August 2011]
- Matsinhe, N. et al.**, 2008. Regulation of formal and informal water service providers in peri-urban areas of Maputo, Mozambique. *Physics and chemistry of the Earth*, **33**, 841-849
- Mlambe Consulting Firm (MCF)**, 2009. *Water Users Associations (WUA) Evaluation Report*. WaterAid in Malawi.
- McGranahan, G. et al.**, 2006. *How Small Water Enterprises can contribute to the Millennium Development Goals: Evidence from Dar es Salaam, Nairobi, Khartoum and Accra*. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Messas, F., C. Estienne and B. Collignon**, 2011. *Supplying water to informal neighbourhoods through delegated management: the case of Ouagadougou*. 35th WEDC International Conference, July 2011, Loughborough.
- Michell, L.**, 2001. Combining focus group and interviews: telling how it is; telling how it feels. In: R. Barbour and J. Kitzinger, eds. *Developing Focus Group Research: Politics, Theory and Practice*. London: SAGE Publications
- Moran, D. and R. Batley**, 2004. *Literature review of non-state provision of basic services*. University of Birmingham: DFID
- Murray, W. and J. Overton**, 2003. Designing development research. In: R. Scheyens and D. Storey, eds. *Development Field work: a Practical Guide*. London: Sage Publications
- Ndezi, T.**, 2007. *An investigation of a partnership approach for providing water services to informal settlements in Dar-es-Salaam and Lilongwe*. PhD thesis, Loughborough University.
- Norman, G. and S. Parker**, 2011. *Business models for delegated management of local water services: experience from Naivasha (Kenya)*. WSUP Water & Sanitation for the Urban Poor
- Odhiambo, F.**, n.d. *Literature Reviews*. Unpublished IRP guidelines. Loughborough University: Water, Engineering and Development Centre (WEDC)
- O'Connor, S.** 2007. *Final Report: Water Supply Pilots to Improve Access in Low-Income Areas*. Republic of Malawi: Ministry of Irrigation and Water Development.

- Parker, A.**, n.d. *How can water and sanitation services to the urban poor be scaled up?* Water and Sanitation for the Urban Poor (WSUP)
- Peal, A. and B. Evans**, 2010. *Breaking Barriers in Water and Sanitation Service Delivery to Informal Settlements: Case Study of the Mukuru Model*. Nairobi: Practical Action
- Public-Private Infrastructure Advisory Facility (PPIAF)**, 2010. *PPIAF Facilitates Micro-Financing for Peri-Urban Water Providers in Kenya*. PPIAF Impact Stories.
- Remenyi, D. et al.**, 1998. *Doing Research in Business Management: an Introduction to Process and Method*. London: SAGE Publications
- Rusca, M.**, n.d. *WaterAid Malawi in peri-urban Lilongwe*. UNESCO-IHE
- Sansom, K. and A. Bos.**, 2008. Utility and Non-State Water Service Provision for the Urban Poor. *International Journal of Water*, 4(3/4), 290-303.
- Sansom, K. and R. Scott.**, n.d. *Improving urban water services: government engagement with Non-State Providers*. WELL Briefing Note 37. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Sansom, K. et al.**, 2004a. *Serving all urban consumers: a marketing approach to water services in low- and middle-income countries. Book 2: guidance notes for managers*. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Sansom, K. et al.**, 2004b. *Serving all urban consumers: a marketing approach to water services in low- and middle-income countries. Book 3: guidance notes for managers. PREPP – Utility Consultation with the urban poor*. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Sansom, K.**, 2006a. *Supporting Non State Providers of Water Services*. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Sansom, K.**, 2006b. *Government engagement with non-state providers of water and sanitation services*. Loughborough University: John Wiley & Sons, Ltd.
- Schwartz, K. and A. Sanga**, 2010. Partnerships between utilities and small-scale providers: Delegated management in Kisumu, Kenya. *Physics and Chemistry of the Earth*, 35, 765-771
- Scott, R.**, 2010 *Where there is no formal provider. Alternative service providers of urban water and sanitation*. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Smith, M.** 2006. *How water kiosks can improve access to water for the urban poor*. Briefing Note. Loughborough University: Water, Engineering and Development Centre (WEDC)
- Torres, H.H.**, 2008. *Social and environmental aspects of peri-urban growth in latin american megacities*. New York: Population Division. Department of Economic and Social Affairs. United Nations Secretariat.

UN-HABITAT, 2006. *Enabling shelter strategies: review of experience from two decades of implementation*. Nairobi: United Nations Human Settlements Programme.

UN-HABITAT, n.d. *Blantyre Urban Sector Profile*. Draft. Regional Office for Africa and the Arab States.

UNDP, 2010. *Malawi: Country profile of human development indicators*. In: International Human Development Indicators website [online]. <http://hdrstats.undp.org> [viewed 1 August 2011.] Available from: <http://hdrstats.undp.org/en/countries/profiles/MWI.html>

UNDP, 2011. *Urban Water Provision in Sub-Saharan Africa: The role of the domestic private sector in accelerating MDG process*. World Water Day 2011 Seminar.

UN Malawi, 2011. *United Nations Human Settlements Programme's*. In: United Nations Malawi website [online]. <http://www.unmalawi.org> [viewed 1 August 2011] Available from: <http://www.unmalawi.org/agencies/unhabitat.html>

US AID, 2010. *Malawi country profile*. Lilongwe: US Aid

Water Utilities Partnership for Capacity Building (WUP) Africa, 2003. *Better Water and Sanitation for the Urban Poor: Good Practice from sub-Saharan Africa*. WUP: Cote d'Ivoire

WaterAid, 2008. *Managing communal water kiosks in Malawi: experiences in water supply management in poor urban settlements in Lilongwe*. WaterAid: Lilongwe

WaterAid, 2010. *Kiosk Management Options – Discussion Paper*. WaterAid Malawi

Water for People, 2009. *Lessons learnt documentation consultancy: Mkolokoti-kachere Water Users Association (WUA)*. Water for People Malawi.

Water For People, 2010. *Water and Sanitation Baseline Mapping Assessment Blantyre District*. Water for People Malawi.

WHO/UNICEF, 2000. *JMP Global Water and Sanitation Assessment*. Geneva: WHO

World Bank, 2007. *Malawi World Bank funds improved water supply for Malawi's urban areas*. Washington: Press Release Note

WSP, 2009a. *Improving Water Utility Services through Delegated Management: Lessons from the utility and small-scale providers in Kisumu, Kenya*. Nairobi: World Bank

WSP, 2009b. *Guidance Notes on Services for the Urban Poor: A Practical Guide for Improving Water Supply and Sanitation Services*. Washington: World Bank

Yin, R., 2003. *Case Study Research: Design and Methods*. Third edition. Thousand Oaks: Sage Inc.

Yin, R., 2009. *Case Study Research: Design and Methods*. Fourth edition. Thousand Oaks: Sage Inc.

List of Appendices

Appendix A: Methodological framework

Appendix B: List of interviews and focus group

Appendix C: Guidelines for interviews

Appendix A: Methodological framework

Objective	Research question	Methodology	Informants
1 To investigate lessons from international experiences to supply the urban poor through delegated water management.	What delegated management models for water services do exist in other cities?	Literature Review	-General literature about DMM
	How is support and regulation for alternative providers organised in these?	Literature Review	-Literature that describes examples -Literature that describes problems and important considerations
	What are the international experiences and lessons learned with DMMs?	Literature Review	
2 To examine the current approaches for water supply for the urban poor in Lilongwe and Blantyre.	What are the main stakeholders' roles in delegated water management?	Interviews	-LWB, BWB -WaterAid -Water for People
	What management options are currently under operation?	Interviews Documentation	-Local NGOs -Documents and reports provided by local stakeholders
	What is the current level of support and regulation between the utility and different types of alternative water providers?	Interviews	
3 To compare the performance of alternative providers under different management schemes in Lilongwe and Blantyre.	How does the level of service differ between different management models?	Interviews Documentation	-LWB, BWB -WaterAid
	What are the major challenges for the respective service providers?	Interviews Focus Group Documentation Observation	-Water for People -Local NGOs -Kiosk managers -Kiosk attendants
	What are the strengths and weaknesses of different managed models from different stakeholders' perspectives?	Interviews Focus Group	-Users
4 To investigate how services under the delegated management models in Lilongwe and Blantyre can be improved.	What are the key elements for effective management, support and regulation for different types of providers and different levels of delegated management?	Results from objectives 1-3: -Findings from the Literature Review -Findings from the field work -Evaluation and discussion reports from key stakeholders -Suggestions from key informant interviews	

Appendix B: List of interviews and focus group

Key informants		
Stakeholders	Location	Date
Lilongwe Water Board, Kiosk Management Unit	Lilongwe	07/06
WaterAid	Lilongwe	07/06
CICOD (Local NGO)	Lilongwe	12/06
Training Support for Partners (Local NGO)	Lilongwe	13/06
Water for People	Blantyre	15/06
Blantyre Water Board	Blantyre	17/06
Blantyre City Council	Blantyre	15/06
Kabula Development Association (Local NGO)	Blantyre	16/07
Hygiene Village Project (Local NGO)	Blantyre	16/06

Kiosk managers			
Management type	Interviewee participants	Location	Date
WUA Mtandire	Administrator, Board member, Executive committee member	Lilongwe	08/06
WUA Kauma	Administrator, 2 Board members, 3 Executive committee members, 1 kiosk inspector	Lilongwe	13/06
Private operators	See focus group discussion	Lilongwe	12/06
WUA Nkolokoti	Executive committee member	Blantyre	20/06
WUA Ndirande	Board member	Blantyre	17/06
WUA Ndirande	Administrator	Blantyre	20/06
Private operator	Kiosks owner	Blantyre	16/06
Water committee Ndirande	Board member	Blantyre	17/06
Private operator	Kiosk owner	Blantyre	20/06

Kiosk interviews				
Kiosk management type	Kiosk attendant⁹	Customers	Location	Date
WUA Mtandire	1	3	Lilongwe	08/06
	1	2	Lilongwe	08/06
WUA Kauma	1	3	Lilongwe	13/06
	1	2	Lilongwe	13/06
	1	3	Lilongwe	13/06
Private operators, Area 21	1	3	Lilongwe	09/06
	1	3	Lilongwe	09/06
Hygiene village project	1	1	Blantyre	16/06
Kabula Development Association	1	4	Blantyre	16/06
WUA Nkolokoti	1	3	Blantyre	20/06
	1	3	Blantyre	20/06
WUA Ndirande	1	2	Blantyre	20/06
	1	4	Blantyre	17/06
	1	2	Blantyre	17/06
	1	-	Blantyre	17/06
Private operator	1	3	Blantyre	16/06
	1	3	Blantyre	16/06
	1	2	Blantyre	16/06
Water committee Ndirande	1	3	Blantyre	17/06
	1	2	Blantyre	17/06
	1	3	Blantyre	17/06

Focus group discussion			
Group characteristics	Interviewee participants	Location	Date
Private kiosk operators	5 women	Lilongwe	12.06

⁹ Each listed kiosk attendant represents one kiosk at which the attendant and kiosk customers were interviewed

Appendix C: Guidelines for interviews

Semi-structured interviews with water utilities

Name of the interviewee:

Position:

Date:

Purpose of the discussion:

This is an academic research: the purpose is to learn about the performances of various delegated management models and the respective requirements for support and regulation to improve services for the urban poor. Confidentiality is assured and the findings will be shared.

Current approaches for water supply to the urban poor¹⁰

1. What are the responsibilities of the utility in providing water to the urban poor?
2. Which other stakeholders are involved in water supply for the urban poor?
3. Which delegated management types are currently under operation in this city?

Performance of differently management delegated services

4. Which problems does the utility face with the operators in terms of:
maintenance, pricing, timely bill payment, service reliability, kiosk opening hours, political interference, others?
5. How do the mentioned problems differ between the different management types?
6. Which measures are currently undertaken to overcome existing problems?

Collaboration between the utility and the providers

7. Are the operators licensed or contracted by the utility, and how is this process undertaken?
8. Is the number of kiosks for an area regulated?
9. How are responsibilities shared between the utility, operators and other stakeholder for:
maintenance, billing arrangements, tariffs, reliability of supplies, investments in service extension, monitoring, regulation enforcement, others?
10. Are there clear ownership boundaries of the supply system?
11. What is the water price to the operators in comparison to other users?
12. Are the end user prices regulated by the utility?
13. How are the operators supported and regulated by the utility? (Support: e.g. financial, maintenance assistance, financial management training; Regulation: publicising performance and tariffs, water quality, price regulation)
14. How is monitoring of operators organised, and how are regulations enforced?
15. How do the differently managed kiosks differ in their requirements for support and regulation?
16. How is dialogue between the utility, operators and users ensured?

Perception towards improved services for the urban poor

17. Are any other management and service models considered to be suitable in this city?
18. What types of support and regulation could improve the services of the operators?
19. How could the utility improve the services provided by the operators?
20. What levels of support would the utility require to better carry out its' responsibilities in the delegated management model?

Acknowledgement:

Thank you for your time. Your comments are very much appreciated, and are valuable input into the study. Your advice will be sought again if necessary. The findings will be shared with you.

¹⁰ In accordance with the methodology of semi-structured interviews, the listed questions were used as guidelines and not strictly followed in the interviews so go to give the interviewees the possibility to state what they considered as important. This applies for all the interviews with different stakeholders.

Semi-structured interviews with support institutions (NGOs)

Current approaches for water supply to the urban poor

1. What are the responsibilities of your NGO in providing water to the urban poor?
2. Which other stakeholders are involved in water supply for the urban poor?
3. Which delegated management types are currently under operation in this city?

Performance of differently management delegated services

4. What are your experiences with the performance of the operators in terms of maintenance, pricing, timely bill payment, service reliability, kiosk opening hours, political interference, others?
5. How do the mentioned problems differ between the different management types?
6. Which measures are currently undertaken to overcome existing problems?

Determination of an effective collaboration between the utility and the operators

7. Are the operators licensed or contracted by the utility, and how is this process undertaken? Who is involved in this process and how transparent is it?
8. How do you think should the number of kiosks be regulated to promote competition?
9. Do you think that responsibilities are shared clearly between the utility, operators and other stakeholders for:
maintenance, billing arrangement, tariffs, reliability of supplies, investments in service extension, monitoring, regulation enforcement, others?
10. From your experience, what type of support and regulation of the operators is required to improve services? (Support: e.g. financial, maintenance assistance, financial management training; Regulation: publicising performance and tariffs, water quality, price regulation)
11. How do the differently managed kiosks differ in their requirements for support and regulation?
12. Is there a good dialogue between the utility, operators and users?

Perception towards improved services for the urban poor

13. How could the current management models be adapted to improve services?
14. How could your NGO contribute to improved services provided by the operators?
15. What levels of support would the utility and operators require to improve their tasks?

Semi-structured interviews with kiosk managers (e.g. WUAs)

General information

1. What are your responsibilities?
2. What is the set-up of this organisation?
3. What was the process of forming this WUA? (WUAs only-question)

Performance of differently managed delegated services

4. What challenges are you facing in terms of maintenance, timely bill payment, service reliability, etc.
5. Are the kiosks in your area a viable business?
6. What advantages or disadvantages do you see compared to other management types?
7. Do selling prices vary between different kiosks?
8. Is the number of kiosks enough in this area, and how could kiosk number be increased?

Collaboration between the utility, kiosk managers and kiosk attendants

9. Are the responsibilities clearly arranged?
10. Are the user prices regulated by the utility and are there other regulations?
11. Who is monitoring the kiosks and how are regulations enforced?
12. How is kiosk operation supported and by whom?
13. What support could improve services?
14. Have you considered to sell other products at your kiosks?
15. What do you think about subnetwork service provision by your organisation?
16. How could management and service generally be improved?

Semi-structured interviews with the kiosk attendants

General information

1. How are you currently engaged with the utility (recognised, licensed, contract)?
2. What are your responsibilities regarding maintenance, tariffs, reliability of supplies, investments in service extensions, others?
3. What is the current price of water to the utility and to the users?
4. What is the land tenure status of your kiosk?
5. Is your kiosk a viable business?

Performance of differently managed delegated services

6. What challenges do you face in providing your services in terms of maintenance, pricing, timely bill payment, service reliability, kiosk opening hours, political interference, others?

Collaboration between the utility, kiosk managers and kiosk attendants

7. How was the process of licensing or contracting carried out?
8. Is the number of kiosks/area regulated?
 - a. Do you think there are enough kiosks in this area?
 - b. How could the number of kiosks be increased?
9. Are the current water prices of utility water appropriate?
10. Are the user prices regulated by the utility?
11. Which other regulations do you have to meet (e.g. publicising tariffs, water quality, others)?
12. Who is monitoring your services and how are regulations enforced?
13. How is your service supported and by whom (e.g. financial, maintenance assistance, training)?
14. Who do you contact if you face any problems?

Perception towards improved services for the urban poor

15. What additional support could help you?
16. How could kiosk operation generally be improved?

Semi-structured interviews with users

General information

1. Are you always getting your water from this kiosk?
 - a. If not, which other sources do you use?
 - b. Why are you using other sources?
2. Why are you collecting water from this kiosk?
3. Do you know who is managing this kiosk?

Service levels experienced by the users

4. What are your experiences with the performance of this kiosk in terms of service reliability, water quality, opening hours, others?
5. Have you experienced any differences in the performance of different kiosks?
6. Are the tariffs charged by this kiosk appropriate for you?
7. Are you informed about the tariffs at other kiosks in this area and do they differ?
8. Where can you address your complaints about service provision?

Perception towards improved services

9. What measures do you think could improve service provision by the kiosks?